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GREEN ECONOMY IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT AND POVERTY ERADICATION PRINCIPLES, OPPORTUNITIES AND CHALLENGES IN THE ARAB REGION

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Executive Summary

Countries of the Arab region are at a turning point of their development process where people are challenging the established order demanding better standards of living, access to resources, jobs, water and clean environment. The region is characterized by important disparities across and within countries in economic growth rates as well as in social progress. The whole development paradigm is put in question, with far reaching implications on the use, share, value and management of natural resources in this process. A review of the Millennium Development Goals (MDGs) indicators reveals that the GCC countries are likely to achieve the set targets although there is a concern on the gender equality goal. Middle income countries, have made mixed progress. The region's LDC's are unlikely to achieve the targets. There is an overall progress in enrolment in education despite a rapidly increasing population but there are concerns across the region on achievements of goals related to ending poverty and hunger, achieving gender equality and improving maternal health. The lack of peace and security is seriously affecting lags in achieving the MDGs in Iraq, the Occupied Palestinian Territory, Somalia and Sudan. Water shortages, desertification and, more generally, inefficient use of natural resources, show that the region is at the forefront of most of the environment issues facing the world. Economic growth, even when significant in some countries, has seldom been translated into full employment and has often been coexisting with unequal income distribution and deficiencies in most social services, including education and health. Social tensions, exacerbated by democratic deficiencies, are major characteristics of most of these countries. The turmoil they are witnessing since the beginning of 2011 highlights the urgent need to design and implement a new vision for a sustainable development in the region.

Financial, food and climate change crises have significant bearing on water resources, energy and the environment which triggered shifting the debate from the one of trade-off between the economy and the environment to that where sustainability considerations provide an avenue for economic growth. The United Nations Conference on Sustainable Development (UNCSD) which will take place in 2012 (the so-called Rio+20) as a twenty-year follow-up to the United Nations Conference on Environment and Development, which was held in Rio De Janeiro in 1992 has been conceived within this framework of achieving sustainability and eradicate poverty, taking stock of progress and gaps and re-affirming political commitment to principles of sustainable development. The Conference is prepared while the international community has rising concerns on the ability of translating into practice the principle of sustainable development. It will focus on two themes of particular relevance to the Arab region today: green economy in the context of poverty eradication and sustainable development and the institutional framework for sustainable development. In this connection, ESCWA is mandated by the United Nations General Assembly to lead regional preparations for Rio+20, by convening a number of consultation meetings with various stakeholders to reach a common vision on transition to green economy and to identify the required actions and priorities based on the specificities of the Arab region. This preparatory work is done in collaboration with other concerned UN and League of Arab States regional specialized organizations as well as the Arab countries.

Green economy is relevant in the context of poverty eradication and sustainable development as the United Nations defines it as *one in which the vital links between economy, society, and environment are taken into account and in which the transformation of production processes, production and consumption patterns, while contributing to a reduction per unit in reduced waste, pollution, and the use of resources, materials, and energy, waste, and pollution emission will revitalize and diversify economies, create decent employment opportunities, promote sustainable trade, reduce poverty, and improve equity and income distribution.* A green economy approach can provide the contours of an institutional framework for sustainable development as it is further argued that a participatory approach to development is required and that achieving a green economy is only possible *through a collective vision, creativity, action and support from a broad cross-section of society, including governments, the private sector, multilateral development and financial institutions and consumers.*

There are four arguments supporting a green economy approach to sustainable development and poverty eradication in the Arab region:

1. There is international evidence that green economy provides promising venues to development. UNEP shows that *a reallocation from "brown" investment to "green" investment enhances long-run economic performance and can increase total global wealth while enhancing stocks of renewable resources, reducing environmental risks, and rebuilding capacity to generate future prosperity.*

2. There is a critical mass of successful initiatives, pilot projects and policy measures adopted in the Arab region, which are centered around the concepts of green economy and which warrant a closer investigation on means to critically and systematically assess these experiences, draw relevant lessons for development policy formulation and explore means of scaling-up success stories.

3. A transition to green economy provides a good opportunity to adopt development paradigms which prioritize institution building and a participatory approach to development

4. The 2012 Rio+20 provides an excellent opportunity for Arab countries to explore avenues for policy coherence and greater regional cooperation, on means to operationalise a post-Rio+20 agenda on renewed commitment for sustainable development.

There is concern about the impact of the financial and food crisis on the region's economic growth in the medium run. If it persists, the drop in volumes of development aid for the least developed countries and in migrants remittances and foreign direct investments in all countries can lower general levels of investments which would in turn negatively affect economic growth. Inflationary pressures can aggravate this tendency because most countries have eased their monetary policies in order to keep financing social programs. This is becoming more worrisome since the beginning of 2011 with attempts to ease social tensions by increases in food subsidies and government jobs. Targeted social programs are more complicated to design but are a must for the whole region if it wants to combine economic growth and stability with social protection.

The recent revolutions and youth uprisings raise hope for increased democracy throughout the region. In the long term, when the transitions succeed and the new institutions are fully in place and operational, increased democracy and freedom will undoubtedly help establish an improved business environment encouraging investment in productive and value added economic activities which will in turn create increased jobs and help decrease unemployment. However, the challenges for the region in the short and medium terms are tremendous. Uncertainties on the exact nature of the institutional settings that will be governing each country and on the precise macroeconomic policies that will be followed have put investment at a halt and economic activity is slowing. Countries are calling on the international community for financial support estimated for the next twelve months at 1billion dollars for Tunisia and 10 to 12 billion dollars for Egypt which has been approved by the World Leaders in the G8 Summit at end of May 2011.

This study suggests a set of priorities and actions to reach a common position among the Arab countries in dealing with green economy. These priorities are:

1. Taking into account the specificities of the Arab region while at the same time recognizing the major sub-regional differences within the region.
2. Involving all components of civil society and the private sector at all stages of the definition and the implementation of the vision.
3. Building on the successes as well as the failures of past sustainable initiatives and particularly those of the National Sustainable Development Councils.
4. Proposing a vision for implementing the green economy activities as part of building the institutional framework for sustainable development in Arab countries.
5. Proposing from the inception stage of the green projects a monitoring and evaluation framework intended to continuously measure the economic and social impact of green economy actions undertaken within the region.
6. Being ready and seizing the opportunity of the 2012 Rio+20 Conference for gaining international support.

Reforms are proposed to make the current institutional setting of sustainable development more relevant to the green economy vision. Of relevance to the Arab region, important recommendations for reforming the current setting include major efforts by governments towards the definition and implementation of the action plans of national sustainable development strategies as well as towards the coordination of these strategies with all governmental strategies, increased involvement of local authorities and civil society in all stages of the definition, implementation and follow-up of development plans and more effective coordination between all UN bodies. In addition, more systematic monitoring and evaluation mechanisms of all actions undertaken should be developed.

To make these recommendations more relevant for an efficient transition towards a green economy, there is a need for an explicit implication of the private sector in the institutional framework. The place of the private sector in the setting is crucial in order to ensure that investments as well corporate cultures towards environment and sustainability are in line with the green economy concept.

The following are the key recommendations of the study:

- The green economy agenda has a wide scope as it deals with all socio-economic and environmental aspects. Therefore it is advisable to initiate green economy activities based on prioritized actions in key sectors that will have immediate and short term impacts on the Arab societies especially, youth, women and poor and vulnerable groups.

- A number of success stories of the Arab initiatives that are recognized in the green economy context were presented. There is, however, a need to conduct an inventory to collect other best practices and lessons learned in order to document these existing Arab green initiatives and to build on in other countries in the Arab region.

- Promoting green job opportunities in the Arab region within the new atmosphere of transition to democracy in many countries in the region. This will require serving training needs and skills development in support of innovation, research and development, and the transfer of green technologies from developed countries.

- It is essential to empower civil society in the region and to encourage partnerships to boost the momentum of the genuine transfer to greener economies in the region. Special program and platforms might also be sought for supporting green investment in and by small and medium enterprises (SMEs), in view of generating green jobs and income opportunities through greening the economy.

- The demand for green economy should be fostered through increased awareness and understanding among consumer groups and civil society. Access to information is one of the primary tools by which consumers can be made aware of the implications of their consumption decisions. To achieve this, consumers, community-based organizations and the media are thus important partners to raise awareness on green economy concepts and principles.

- Intensify capacity building programs for public and private sectors on green economy should be a priority while stressing the role of UN organizations and non-governmental organizations in this area.

- The success of green economy interventions will be dependent on building effective public-private sector partnerships that provide bridges between the environmental, economic and financial communities.

- The green economy should not be seen only as revolving around industrial policies or low-carbon activities rather it should embrace a wide range of policies covering all productive and environmental sectors from the Arab region including the regulations and reforms required for the transition to a green economy.

- In order to the Arab countries to have a stronger position and identity in the global negotiations meetings, there is a need to adapt the Arab countries initiatives and positions towards the global agenda and to promote full involvement with the developing countries in other regions in order to benefit from South-South cooperation and also among each other by advancing regional and joint activities to support the sustainable development in the region.

- Promote international cooperation to support developing countries, especially in the areas of technology transfer, green financing, micro-financing, trade and investments including the best use of

existing climate change adaptation and mitigation mechanisms. The role of UN agencies should be highlighted particularly with regard to supporting the concept of the green economy in the member states.

- Developing regional economic models and modalities for assessing the cost and benefits of transition to a green economy, and its potential in promoting economic growth, job creation and poverty eradication in the region. Also, there is a need to develop region-specific and reliable indicators to enable measuring the progress achieved in green economy activities.

- Encourage Arab governments to adapt green economy concepts and to create an investment climate that attracts related projects and technologies and create national and regional institutional frameworks to facilitate coordination among all agencies concerned with the transition to a green economy.

I. INTRODUCTION

A green economy is an economy that results in improved human well-being and reduced inequalities over the long term, while not exposing future generations to significant environmental risks and ecological scarcities. [1] In recent years, the concept of sustainable development has been moving from an "environmentally centered" approach where the focus is on ecological considerations to a paradigm where economical and social development are conditioned to less or non-polluting, resource efficient activities that protect and enhance biodiversity and ecosystem services. It is argued that such an approach is not only necessary in order to protect the environment but it the only way to engage in job creating and socially-inclusive activities.

ESCWA is mandated by the United Nations General Assembly to lead regional preparations for Rio+20, the United Nations Conference on Sustainable Development (UNCSD) which will take place in 2012 as a twenty-year follow-up to the United Nations Conference on Environment and Development, which was held in Rio De Janeiro in 1992. The 2012 Conference is prepared while the international community has rising concerns on the ability of translating into practice the principle of sustainable development.[2] On the socioeconomic front, the food crisis which gained momentum in 2008 and 2009 as at least 1 billion people worldwide are at risk of hunger and then the international financial crisis both increased unemployment and poverty in many parts of the world. This prompted a reexamination of the fundamentals that foster economic growth and the principles that guide development policy. On the environmental front, The United Nations Framework on Climate Change (UNFCC) through its Fourth Assessment Report (2007) of the Intergovernmental Panel on Climate Change (IPCC) estimates that world-wide emissions are projected to increase by 70%, with corresponding temperature increases of 4-6°C by the end of the century for various scenarios. This significantly exceeds the target agreed in Copenhagen of staying within a 2°C increase by the end of the 21st century. Furthermore, the United Nations estimates that by 2030 water scarcities will become chronic, posing significant challenges in terms of the policies and financing needed to ensure access to clean water[3][4].

The green economy has been promoted as a pathway towards economic recovery and sustainable development in recent years. The green economy paradigm is a framework aiming at making operational the concept of sustainable development by stimulating investments in the environment as a means of promoting sustainable economic growth (green growth), and poverty reduction. Green economy promotes the integration of environmental considerations from the early design stages of any economic development model, policy, or business enterprise.

The issues at debate in this process are of concern to the Arab region, particularly as they relate to unemployment of youth, balanced geographical growth, water scarcity and desertification. Many countries in the region are already embarked in green economy initiatives aimed at addressing these problems.

In view of this, ESCWA is preparing this report on green economy principles, opportunities and challenges facing the Arab Region in view of supporting regional preparations for Rio+20 and as a key output of several consultation meetings on various fields and with different sectors in order to better reflect the regional perspectives on green economy.

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[1] UNEP, 2010. "Green Economy Report: A Preview", Nairobi, May 2010.

[2] The principle was summarized in 1987 by the Brundtland Commission as the objective of meeting the needs of the present without compromising the ability of future generations to meet their own needs.

[3] UN-Water and FAO, 2007. Coping with water scarcity. Challenge of the twenty-first century.

[4] UN-Water. World Water Development Report 3 (2009)

II. GREEN ECONOMY: PRINCIPLES AND CONCEPTUAL FRAMEWORK

A. BACKGROUND AND DEFINITIONS

The concept of sustainable development was articulated by the World Commission on Environment and Development (The Brundtland Commission) in 1987 which aimed at addressing, in a balanced manner, economic, social and environmental concerns by meeting the needs of the present without compromising the ability of future generations to meet their own needs[5]. Global debate regarding the components of sustainable development has also generally recognized the importance of governance and financing as integral components necessary for the achievement of sustainable development.

Green economy concepts thus initially emerged at the global level as a proposed path for overcoming the financial, food and climate crises. As a result, the United Nations Green Economy Initiative was launched in 2008 and stated that *"Greening the economy refers to the process of reconfiguring businesses and infrastructure to deliver better returns on natural, human and economic capital investments, while at the same time reducing greenhouse gas emissions, extracting and using less natural resources, creating less waste and reducing social disparities."* This was complemented by the Global Green New Deal advocated by the United Nations Secretary-General Ban Ki-moon to encourage countries to adopt green stimulus packages as a means to overcome the economic crisis and combat climate change. By January 2009, several countries, including Japan and South Korea, had committed themselves to investing billions of dollars to stimulate job creation and income generation through low-carbon green growth strategies.[6] China followed with a suite of green investments in strategic economic sectors oriented towards investments in climate change mitigation.

The green economy approach is the process by which this principle is made operational. It is assumed that by integrating environmental considerations at every stage of production, consumption, and policy design, social and economic imbalances can be corrected and the accelerated trend of environmental destruction can be arrested. Thus, greening economies helps achieving the Millennium Development Goals (MDGs) by alleviating poverty and generating new jobs. As such, the MDG's are good measures for assessing the implementation of green economy concepts in national development and sectoral plans at the national level as will be shown later in this report.

The emergence of the green economy concept provides a fresh look at the relationship between economic and the environmental pillars of sustainable development as well as the social dimension by aiming as reducing poverty and improving welfare. It also provides a way to reinvigorate support for sustainable development through a new conceptual framework that does not replace sustainable development, but rather reinforces the economic and environmental pillars of sustainable development through increased integration.

While there is yet no universally agreed definition of what constitutes a green economy, UNEP states that a *"green economy is an economy that results in improved human well-being and reduced inequalities of the long term, while not exposing future generations to significant environmental risks and ecological scarcities."*[7] Also, just recently UNEP defines a green economy as one that results in *improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities*[8].

The United Nations Issues Management Group (IMG) on a Green Economy, which brings together a host of United Nations organizations with the framework of the Environmental Management Group led by UNEP, agreed in March 2010 that *"Green economy is a concept that brings together a suite of policies to promote investment in environmentally-significant sectors while contributing to the pursuit of sustainable*

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[5] *Our Common Future: Report of the World Commission on Environment and Development.* 1987. http://www.un-documents.net/ocf-ov.htm

[6] UNEP, "Japan and the Republic of Korea Launch Green New Deals", Press Release, 9 January 2009, http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=556&ArticleID=6035&l=en

[7] UNEP, *Green Economy Report: a Preview"*, Nairobi, May 2010.

[8] UNEP, 2011. Towards a Green economy: Pathways to Sustainable Development and Poverty Eradication. A Synthesis for Policy Makers, www.unep.org/greeneconomy

development and poverty eradication. These are derived from a range of economic approaches, concepts, ideas and principles, many of which have been articulated over the past twenty years. [9]

These statements demonstrate the evolution in the concept of the green economy from one that was initially oriented towards promoting the green economy as a means to overcome the global financial crisis and the climate crisis through low-carbon growth to one that promote economic stimulus through investments across all environmental sectors.

In light of these definitions the green economy fundamentals are those that promote investment and economic stimulus through environmental sectors, provide a pathway towards sustainable development and preserves consistency with Rio Principles that were endorsed in 1992.

The opportunity and potential for green economic growth can be significantly grown, as perceived by Governments of developed and developing countries. While discussions initially coupled investments in a green economy with low-carbon green growth strategies, global perceptions regarding the characteristics and components of what constitutes a green economy has matured and evolved over time. Green economy paradigms have thus become more inclusive and encompassing to include investments and interventions that address a range of environmental management challenges, and not only those related to low-carbon and climate change interventions. Additionally, green economy initiatives are no longer limited to the achievement of green economic growth in the short-term, but are also now focused strategically on transforming economic development paradigms to advance efforts to improve social conditions through poverty eradication and thus to achieve sustainable development over the long-term.

B. COMPONENTS AND PATHWAYS

While there is emerging consensus on what characterizes a green economy, there is also growing agreement on what are the key components that constitute a green economy. These *"include the full range of instruments and tools available to policy-makers, from taxes and charges, environmentally-harmful subsidy removal, to standards and regulations, education and skills development, institution building, knowledge development, capacity building for data collection and assessment, and improved planning and governance."*[10]

Within this context, it is useful to think about two ways of approaching a transition to a green economy (see Figure 1). That is, economies can be greened through two nonexclusive paths: "*growing the green*" by launching new socioeconomic development projects in which environmental concerns are taken into consideration at the conception stage and then at all the subsequent implementation, monitoring and evaluation stages of the project and/or "*greening the brown*" reorienting and/or correcting current production and consumption patterns by improving their environmental performance. These two tracks are complementary and mutually reinforcing and can be supported through a series of government policy interventions and programs that can spark the engagement of the private sector and civil society and ensure the commitment of regional stakeholders to transition to a green economy. Sample interventions for both tracks are shown in Table 1.

Green economy initiatives launched are also mutually supportive of sustainable consumption and production interventions. As such, efforts should be made to ensure consistency at the global, regional and national levels between strategies that advance a transition to a green economy and sustainable consumption and production patterns within a sustainable development framework by addressing, for instance, the achievements of the MDG's.

[9] UNEP, Environment Management Group, "First Meeting of the Issue Management Group on a Green Economy organized in partnership with the World Bank and the IMF: Summary", Washington, D.C., USA, 23-24 March 2010.

[10] UNEP, Environment Management Group, "First Meeting of the Issue Management Group on a Green Economy organized in partnership with the World Bank and the IMF: Summary", Washington, D.C., USA, 23-24 March 2010.

TABLE 1: PATHWAYS TOWARDS A GREEN ECONOMY IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT

Growing the Green	Greening the Brown
Creating new socio-economic opportunities based on new green activities • Improved trade flows with a focus on Environmental Goods & Services • The production and distribution of renewable energies • The development of regional green curricula, innovation and R&D activities and technology transfer • Fostering entrepreneurship, education and retraining **Expected Benefits:** • Promotion of near carbon free activities • New avenues for economic growth • New jobs • New sources of income • Youth employment in new sectors	**Creating new socio-economic opportunities by greening existing economic activities** • Promoting sustainable transport • Greening construction & design • Greening electricity production • Improving efficiency and delivery of water management systems and desalinization processes • Promoting sustainable agriculture and sustainable livelihoods **Expected Benefits:** • Reduced carbon emissions • Improved public transportation • Less water stress • Improved food security • Rural development and increase of income • Reduced land degradation and desertification

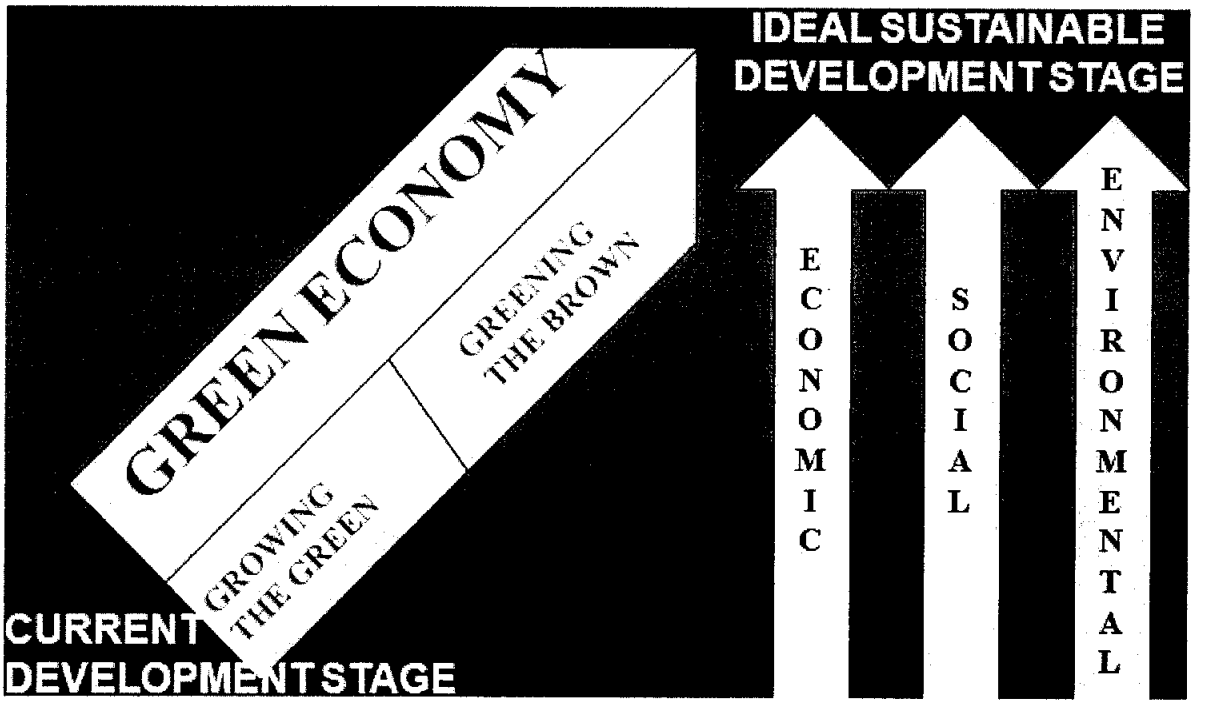

FIGURE 1 THE GREEN ECONOMY PROCESS

Therefore, green economy can be considered as a tool for achieving social and economic integration (See Figure 2). There is also a general consensus that green economy should be consistent with the Rio principles formalized twenty years ago at the Rio de Janeiro World Conference on Environment and Development, namely the (a) pollution prevention principle; (b) the polluter pays principle; and (c) the principle of common, but differentiated responsibility.

In sum, greening the economy in the context of poverty eradication and sustainable development is a process through which environmental concerns are streamlined in all ongoing (greening the brown) and future (growing the green) activities. By doing so, the carbon contents and overall emissions of economic activities decrease and multiplier effects of these activities, boost investments, stimulate economic growth and improve the creation of jobs. As incomes improve, this will be subsequently contributing to a reduction of poverty.

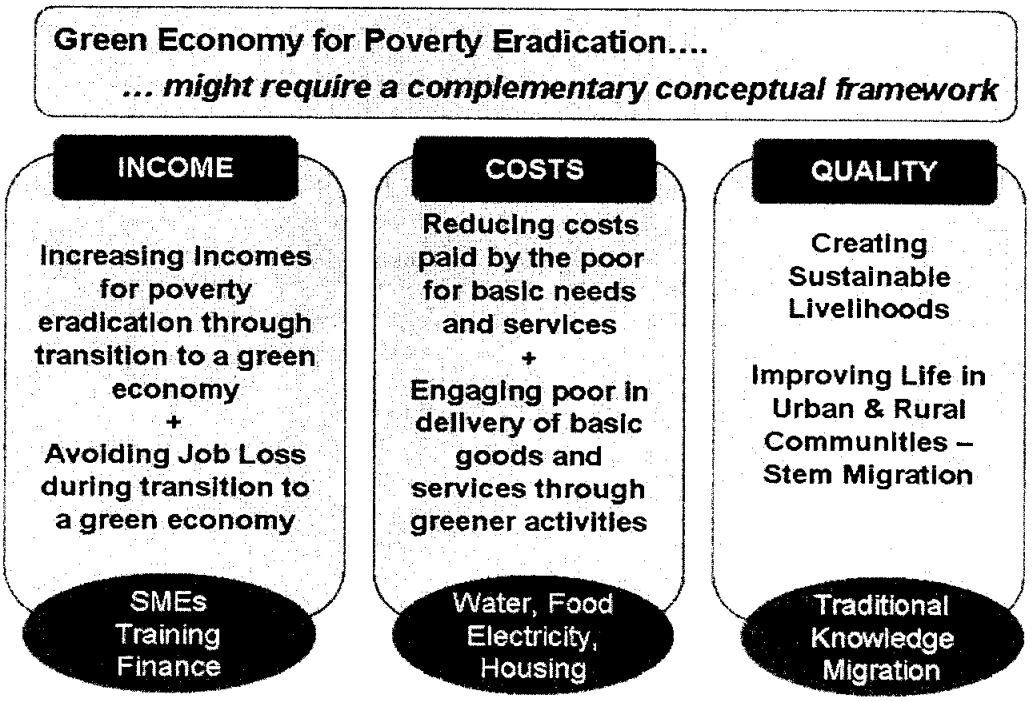

FIGURE 2 GREEN ECONOMY AND ACHIEVING SOCIAL AND ECONOMIC INTEGRATION

C. REGIONAL PREPARATION PROCESS FOR RIO+20

The process of regional preparations for the Rio +20 is lead by ESCWA and jointly coordinated within the Technical Secretariat of the League of Arab States and other regional organizations. For instance, ESCWA organized through coordination and cooperation with Arab and regional organizations a number of regional meetings, consultative workshops and capacity-building sessions. For instance, the Regional Workshop on Trade and Environment was held in December 2010 on the development of environmental goods and services sector in the ESCWA region to shift to a green economy. The workshop called for formulating clear definition and better understanding of the goals of the green economy should be achieved at the regional level. Also, concerns were raised for the emergence of a dual approach, that of sustainable development and green economy, and the possibility of the latter approach taking precedence over the former. Therefore any region should specifically ensure that the green economy will strengthen sustainable development and not replace it. In addition it was debated whether green economy concepts are to be applied at the macro or the micro levels as each level involves different policy implications. The disparities between Arab countries in terms of key economic and social conditions should be taken into consideration when a common Arab position is built regarding transition to green economy.

The Third Round Table on Sustainable Consumption and Production (SCP) in the Arab region was organized by the United Nations Environment Programme/Regional Office for West Asia (UNEP/ROWA) in collaboration with ESCWA and CEDARE in January 2011. In addition, a regional meeting was held with the

civil society, the regional non-governmental organizations, in coordination with the Arab Forum for Environment and Development (AFED) and the Ministry of Environment in Lebanon. The meetings resulted in improved awareness on the Arab preparation for the Rio+20 and green economy concepts, challenges, opportunities in the region with recommendations to establish a nexus between SCP and green economy with the importance of clear identification of priority sectors that can lead the process of transfer to green economy.

The Regional Workshop on Economic Policies was organized by ESCWA in partnership with the League of Arab States, the United Nations Environment Programme (UNEP) and the Institut des Finances Basil Fuleihan, Lebanon for supporting the Transition to a Green Economy. The Workshop brought together representatives of Arab countries to discuss the required reform of economic policies in order to facilitate channeling of investments into green areas and stimulate a fair, advantageous and timely transition to a green economy in the region. The workshop aimed at developing concepts of green economy and building consensus regarding its potential in the Arab region and the policy mix needed to develop such an economy. It also targeted building the capacity of participants in the development of fiscal policies as a means of transformation to a green economy, and providing a regional platform for representatives of Ministries of Finance and other relevant participants to share experiences, knowledge and lessons learned among themselves and with representatives of member countries involved in preparations for Rio+20. The workshop produced a joint statement that identifies regional priorities from an Arab point of view for moving towards a green economy in the Arab region. The need to prepare economic and technical feasibility studies for environmental projects to be submitted to financial, economic, or planning authorities was stressed. These studies should highlight the financial benefits and costs and advantages expected from the implementation of the proposed project, and whether these benefits/costs are expected within the short or long-term. This process would be part of policies that take into account the principles of environmental accounting.

Also, ESCWA, in cooperation with the United Nations Economic Commission for Europe (UNECE) – Gas Centre, organized an expert group meeting on "Promoting Emissions Reduction in the Transport Sector". The meeting called for the adoption of newer technologies and cleaner fuels, especially natural gas, and to implement legislation, specifications and standards necessary to reduce emissions from the transport sector. Also, it was recommended to increase incentives for private investment and to benefit from international financing mechanisms available to implement the infrastructure projects needed. Furthermore, there is a need for building national capacities and awareness programs on information technology and setting standards for the maintenance and to transfer knowledge and establish appropriate technologies consistent with the specificities of each country, and to support scientific research and development, with the dissemination of successful experiences in the field.

A regional workshop was convened jointly by International Labor Organization (ILO), UNDP and ESCWA on green jobs to introduce and raise awareness on the ILO Green Jobs Programme and to define means to support youth employment in green sectors. A case study of Lebanon was introduced for assessment of green jobs in energy, construction, agriculture/forestry and waste management sectors as a first green jobs study in the region. Several policy recommendations were identified during the workshop including, among others, to conduct follow-up studies addressing the decent work gaps identified to provide detailed analysis on employment in greening the various sectors, to encourage social dialogue, awareness raising and capacity building of all actors for promoting the green agenda and to enforce policies that encourage green economy and promote green jobs. In addition, further financial incentives need to be introduced to encourage green practices. The meeting also highlighted the importance of closing the skills gap for the promotion of green jobs through vocational and technical training.

Also, ESCWA and the Arabic Industrial Development and Mining Organization (AIDMO) in cooperation with the United Nations Industrial Development Organization (UNIDO), the United Nations Environment Programme (UNEP)/ Regional Office for Western Asia, the German Agency for International Cooperation (GIZ) and the

TABLE 2 GREEN ECONOMY ACTIVITIES OF KEY ORGANIZATIONS AT THE NATIONAL, REGIONAL AND GLOBAL LEVELS

Organization	Key issues and subjects	Outputs and publications
UNEP	- Introducing green economy concepts and definitions. - Green economy as pathways to sustainable development and poverty eradication. - Enabling conditions for transition to green economy Financing the green economy transition. - Green economy and millennium development goals New green deal - Green jobs initiatives - Towards sustainable consumption and production patterns.	- Towards a green economy: Pathways to sustainable development and poverty eradication (2011) - Green economy: a brief for policymakers on the green economy and Millennium development goals. Prepared for the UN Summit on MDG's (2010). - Green Jobs: Towards Decent Work in a Sustainable, Low-Carbon World, UNEP/ILO/IOE/ITUC (2008).
ILO	- Promoting decent work in a green economy. Concepts of green jobs - The challenge of youth employment and gender gap. - Labor market indicators - Key policy issues for employment and decent work in the Arab region. - Public and private sectors' share in employment and labor migration.	- Background note on promoting decent work in a green economy (2011) - Growth, employment and decent work in the Arab region: key policy issues (2009). - Green Jobs Assessment in Lebanon: A Synthesis Report (2010)
UNDP	- Green job assessment in four sectors in Lebanon (energy, building construction, agriculture and waste management).	- Green Jobs Assessment in Lebanon: A Synthesis Report (2010)
UNIDO	- Joint UNIDO-UNEP Programme on Resource Efficient and Cleaner Production (RECP) - Green Industry for a sustainable and economically viable future	- A Greener Footprint for Industry: Opportunities and challenges of sustainable industrial development (2010)
UN-HABITAT	- Conceptualising the linkage between cities and the green economy. - Urban patterns for sustainable development: towards a green economy.	- Urban Patterns for Sustainable Development: Towards a Green economy (2011) - What Does the Green Economy Mean for Sustainable Urban Development?
Environmental Management Group	- IMG report on green economy: Green stimulus packages, making green economy work for the poor, supporting innovation and technology, investments for the transition to a green economy.	- Report of the Issue Management Group on a Green Economy, "Supporting the transition to a green economy" United Nations Environment Management Group, UNDP, DESA, UNEP, UNESCO, UN-HABITAT, UN Regional Economic Commissions (2011).
European Commission	- Support Green Economy initiative in Egypt. - Transition to Green economy in the EU.	- A project in Egypt in partnership with UNEP on "Green economy and Social and Environmental Entrepreneurship Development in Egypt" - Rio+20: Towards the green economy and better governance COM(2011) 363 final

League of Arab States organized a regional conference on the role of green industries in promoting socioeconomic development in the Arab countries. The conference aims at encouraging Arab Countries to adopt the concept of green industries and develop common understanding and position regarding priorities to

green the industries in the region and to promote a larger scale of application of regional and nation renewable energy projects.

Several organizations at the national, regional and global level have been involved in green economy initiatives and projects. Table 2 includes the main activities of various organizations and related issues and deliverables.

III. REGIONAL CONTEXT: DEVELOPMENT CHALLENGES IN THE ARAB REGION

While momentum for transition to a green economy at the global level and in selected countries is advancing rapidly, transitioning to a green economy at the regional level must take into consideration challenges and constraints within a regional context if it is to provide a viable framework for ensuring commitment and support for sustainable development at Rio+20 and beyond in the Arab region.

The report proposes to track development in the region using the Millennium Development Goals. MDGs were adopted by the United Nations in 2000 and have the advantage to provide for all countries, concrete and numerical benchmarks for tackling the multidimensional aspect of development. Various UN sources, particularly from UNDP and ESCWA, are used for data on macroeconomic indicators and policies.

Despite improvements in economic growth and progress made in many Arab countries in achieving the MDGs, the Arab region is facing persisting challenges:

1. non-sustained use of natural and energy resources,
2. macroeconomic weaknesses mostly characterized by high unemployment rates, particularly among youth,
3. imbalanced social progress, especially between men and women and between urban and rural areas,
4. uncontrolled urbanization processes characterized by poor housing conditions, inefficient public transportation and congested cities,
5. poor quality educational and research systems not responding to the needs of the economy,
6. agricultural, natural resources and environmental problems centered around the issues of food security, water scarcity and desertification, and
7. an unstable political environment aggravated by regional peace and security issues.

The potential benefits of improved regional and sub-regional integration and a young, entrepreneurial population are two characteristics of the Arab region. If valued appropriately, these two opportunities can help the Arab region sustain its development process by easing the constraints posed by the challenges listed above. The accelerated regional and sub-regional integration in the Arab region would increase economic growth by at least two percentage points each year and create millions of jobs[11]. In addition, one country alone doesn't have the increasingly demanding financial and human resources needed for building appropriate educational and R&D infrastructure and programs. Pooling resources at the regional and/or sub-regional levels and building on the complementarities between countries is the only way around this bottleneck. The entrepreneurial spirit of the mostly young Arab population and its adherence to regional integration are source of optimism for the success of improved cooperation between countries of the region. This Section highlights the socio-economic status and related challenges the Arab countries are facing in addressing and achieving sustainable development.

[11] UN and LAS, 2010. The Third Arab Report on the Millennium Development Goals 2010 and the Impact of the Global Economic Crises.

A. MACROECONOMIC POLICIES AND PRIORITIES

Arab countries are diverse. With a total population exceeding 300 million people and a total GDP exceeding US$2500 billion, the region is composed of largely populated countries with relatively important GDP (e.g. Egypt with 27% of the population and 18% of GDP and Saudi Arabia with 10% of the population and 25% of GDP) to smaller, much less developed countries (e.g. Mauritania with 1.1% of the population and 0.3% of GDP and Djibouti with 0.2% of the population and 0.1% of GDP). UNDP's grouping of the region in four categories is followed[12] but we add a fifth category in order to account for Iraq and the Palestinian Territories which are not taken into account in UNDP's classification:[13]

1. Diversified Economies with 46% of the population and 34%of GDP: Egypt, Jordan, Lebanon, Morocco, Syria and Tunisia

2. Mixed Oil Economies 12% of the population and 12%of GDP: Algeria and Libya

3. Oil Economies 12% of the population and 45% of GDP: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and UAE

4. Primary Export Economies 20% of the population and 5%of GDP: Comoros, Djibouti, Mauritania, Sudan, and Yemen

5. War and/or occupation-impacted Economies with 9% of the population and 4% of GDP: Iraq and the Occupied Palestinian Territories

Despite these differences, the macroeconomic settings of Arab countries have in common:

- Low and volatile economic growth.
- Inability to create enough jobs, particularly for youth and women. According to UNDP, the average unemployment rate of the region was 13% in 2005 (exceeding 10% for the diversified economies and nearing 19% for the primary export economies).
- Budgets dominated by social programs, particularly those devoted to education (6% of GDP compared to 4% in East Asia 4% and Latin America)[14] and generally non-targeted food subsidies.
- Balances of payments dominated by remittances of migrants and exports of oil and/or natural resources; value added industries and services representing a low share of total exports.
- Low levels of intra-regional trade (less than 10% of total trade compared to 24% for the ASEAN Southeast Asian Nations countries, 14% for MERCOSUR Latin American countries and 12% for UEMOA West African Countries)[15].
- Significant contribution of agriculture to GDP in many countries (more than 30% in Sudan, 15 to 20% in Egypt, Morocco and Syria and 10 to 15% in Tunisia and Mauritania). In general, Arab countries have been adopting macroeconomic policies that have managed to limit budget deficits and control inflation.

In general, Arab countries have been adopting macroeconomic policies that have managed to limit budget deficits and control inflation. However, these policies are under the continuous pressure of costly, non-targeted social programs (especially those related to food subsidies). At the same time, the low intra-regional integration in the Arab region has prevented these countries from taking full advantage of the benefits of regional integration in terms of economic growth and job creation.

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[12] Development Challenges For The Arab Region, UNDP, 2009.

[13] Data for Iraq and the Palestinian Territories are from the World Bank (http://donnees.banquemondiale.org/catalogue/les-indicateurs-du-developpement-dans-le-monde?cid=GPDfr_WDI) and The CIA Word Fact Book (https://www.cia.gov/library/publications/the-world-factbook/geos/iz.html).

[14] The Road Not Traveled: Education Reform in the Middle East and North Africa, World Bank, 2008.

[15] World Investment Report: Transnational Corporations, Extractive Industries and Development, UNCTAD, 2007.

So far, the financial crisis had little impact on the region's levels of economic growth. The impact on growth was limited because, except for the GCC countries, Arab banks are not exposed to the same assets that have created the crisis. Moreover, and this is particularly significant for countries with diversified economies, there are no indications of significant declines in exports. Finally, the drop in oil revenues was compensated by the reserves accumulated during the boom years.

There is, however, concern about the impact of the crisis on economic growth in the medium run. If it persists, the drop in volumes of development aid for the least developed countries and in migrants remittances and FDI in all countries can lower general levels of investments which would in turn negatively affect economic growth. Inflationary pressures can aggravate this tendency because most countries have eased their monetary policies in order to keep financing social programs. As indicated below, this is becoming more worrisome since the beginning of 2011 with attempts to ease social tensions by increases in food subsidies and government jobs. Targeted social programs are more complicated to design but are a must for the whole region if it wants to combine economic growth and stability with social protection.

The Arab Least Developed Countries were the most impacted by the fall in development aid and migrants remittances. With increasing constraints on their budgetary instruments, social programs have been either abandoned or downgraded and progress in achieving sustainable development is threatened in these countries.

B. EMPLOYMENT AND YOUTH DEVELOPMENT

Full employment is one the most important challenges facing the Arab region. The unemployment average is around 13% and the region needs to create some 50 million jobs by 2020, mostly from the youth, in order to reach full employment (see Table 3 and Figures 3 & 4).

The youth group in the region (between the ages 15 and 24 years old) is the largest demographic group, with rapidly growing rates. This growth could provide good opportunities for development and could also constitute major challenges at the social, economic and political fronts unless there are policies that help to make the best use of the youth and create opportunities for education and work. Unemployment is a major problem in the region as it accounted for about 30% in 2005. This percentage varies from one country to another, as it represented about 39% in Jordan, 25.8% in Egypt, 17% in Qatar in 2005[16].

Youth labor force participation rates have been declining as observed on long-term trends 1998-2008. A recent report by ILO (2010) indicated that the youth labor force participation decreased globally from 54.7 to 50.8% during this 10 year period. More than 20% of the youth labor force in the Middle East and North Africa in 2008 were not able to find jobs.

Unemployment is mostly affecting women and youth in the Arab region. Some 30% of Arab youth are unemployed against a 15% world average[17]. With respect to labor market indicators, namely, youth unemployment rates and labor force participation rates, the gender gaps are significantly higher in the Arab region compared to the global as well as other regions figures. The employment situation facing young women is challenging and can become worse as the economic crises add more burden to national and global labor markets (ILO, 2010).

These estimates show that the Arab young unemployment rates vary from as high as 46% in Algeria to a low of 6.3% in the UAE. The overall unemployment of the youth in the Arab region is 30% which is nearly double that of the World at large (14%)[18].

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[16] Population and development report. Issue no. 4 "Youth in the ESCWA region: Situation analysis and Implications for Development Policies", ESCWA, 2009.

[17] Arab Labor Organization Full reference?

[18] UNDP, 2009. Arab Human Development Report 2009.

TABLE 3 UNEMPLOYMENT AND PROJECTED NUMBERS OF NEW JOBS REQUIRED IN SELECTED ARAB COUNTRIES

	2005 Labor force (millions)	2005 unemployment rate (%)	2005 employment (millions)	2010 new jobs (millions)	2015 new jobs (millions)	2020 new jobs (millions)
DE	48.3	11.82	42.59	6.55	14.16	21.78
MOE	15.5	15.61	13.08	2.26	4.92	7.56
OE	13.7	4.53	13.08	3.37	7.73	12.08
PEE	22.8	18.68	18.54	2.85	6.17	9.49
Total	100.3	12.97	87.29	15.03	32.98	50.91

Source: UNDP (2009)

DE Diversified Economies Egypt, Jordan, Lebanon, Morocco, Syria, and Tunisia

MOE Mixed Oil Economies Algeria and Libya

OE Oil Economies Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and UAE

PEE Primary Export Economies Comoros, Djibouti, Mauritania, Sudan, and Yemen

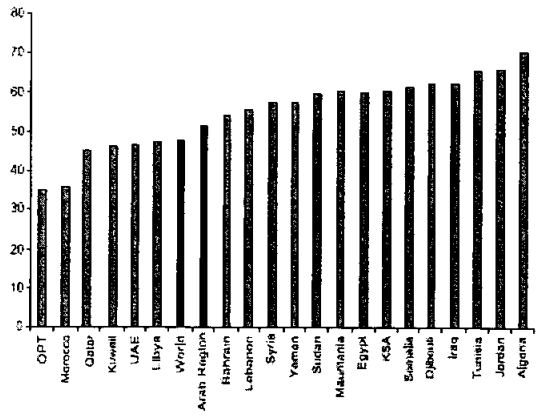

FIGURE 3 SHARE OF ARAB YOUTH IN TOTAL UNEMPLOYMENT

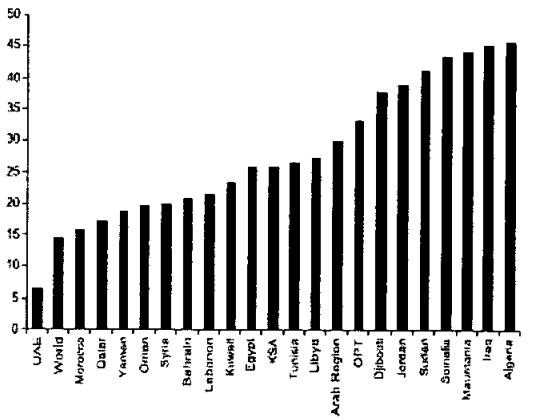

FIGURE 4 UNEMPLOYMENT RATE AMONG ARAB YOUTH

Source: Arab Labor Organization (2005-2006) [19]

There have been many initiatives and lessons learned in the area of youth development. Most of these initiatives, however, lack planning and are related to short-term projects that are geographically disintegrated. These projects are not sustainable and can not accommodate the increasing needs by youth and international pressures due to globalization (ESCWA, 2010)[20].

[19] Arab Labor Organization Statistics, http://alolabor.org/final/index.php?option=com_content&view=category&layout=blog&id=132&Itemid=85&lang=ar.

[20] UN-ESCWA, 2010. Youth Development in the ESCWA Region.

C. SOCIAL PROGRESS AND POVERTY ERADICATION

The Arab region's strengths and weaknesses in social progress as measured by achievements in the Millennium Development Goals are shown in Table 4. Four main observations can be drawn[21]:

1. There is an overall progress in enrolment in education despite rapidly increasing population in the region.

2. The state of social progress is heterogeneous within the region: although there is concern on the gender equality goal, the GCC countries are likely to achieve MDGs targets. Middle income countries, have made mixed progress. The region's LDC's are unlikely to achieve the targets.

3. There are concerns across the region on achievements of goals related to ending poverty and hunger, achieving gender equality and improving maternal health.

4. The lack of peace and security is seriously affecting lags in achieving the MDGs in Iraq, the Occupied Palestinian Territory, Somalia, and Sudan.

The slow social progress in the Arab region is aggravated by several factors. First, costly social programs are seldom targeted to the poor, particularly as regards to food subsidies. The widely prevalent generalized food subsidy programs are costly and negatively affect agricultural thus contributing to poverty in rural areas.[22]

Second, the effects of climate change, aggravated by the recent food and financial crises are likely to slow social progress. Climate change will pose additional burdens on productive activities and render more difficult daily tasks such as water collection in poor areas. Floods threaten infrastructure such as schools and health centers and disasters of all sorts increase displacements and migration.

Third, while Arab countries invested heavily in education since the 1960's the region is characterized by a low utilization of its accumulated human capital. The link between human capital accumulation, employment, economic growth, and poverty reduction in the region is weak.[23] In the majority of Arab countries, expansion took place without a corresponding increase in new job opportunities.

Fourth, there is a lack of integrated social policies while there is a high level of interdependence between social indicators. Iraq, Lebanon, Oman and the Occupied Palestinian Territory have seen a decline in performance with regard to educational attainment. This is worrisome because this indicator interacts actively with other goals related to health, extreme poverty and hunger and gender equality. At the same time, improving population health is vital for the successful attainment of all other MDGs. Similarly, gender parity is central to the achievement of many of the MDGs. It cannot be dissociated to efforts aiming at reducing poverty, improving maternal and child nutrition and health or prevention HIV/AIDS.

There has been an indication that the Arab region is in the right position with respect to halving the proportion of people below $1.25 a day between 1990 and 2015. The Arab region have been successful in reducing the proportion of the poorest population as MDG's showed but using a higher poverty line would show that the region's poverty rate increases significantly from 4 to 17%[24]. At the sub-regional level, there have been wide changes in poverty reduction. The Mashreq region witnessed a small reduction rate at 0.7 percent annually while the Arab LDCs were more successful as poverty dropped at an average annual rate of 1.5 per cent. At the sub-national level, poverty in the Arab region is highly concentrated in the rural areas which account for about 41 per cent of the total population. The majority of this rural population (94 per cent) is distributed among the lower-middle income groups. The highest rural-urban difference is estimated

[21] The Third Arab Report on the Millennium Development Goals 2010 and the Impact of the Global Economic Crises, 2010.
[22] International Food Policy Research Institute, 1988.
[23] World Bank (2008),
[24] The Third Arab Report on the Millennium Development Goals 2010 and the Impact of the Global Economic Crises, United Nations and League of Arab States, 2010.

for Tunisia, followed by Morocco, Egypt and Yemen, where the ratio of rural to urban poverty is 4.9, 3.0, 2.9, and 1.9, respectively[25].

The achievement of poverty reduction in the Arab region is fundamentally constrained by key challenges such as unemployment and shortage of decent work as the Arab region faces the highest unemployment rates, particularly among the youth, among other regions in the World. Also, the region is unlikely to achieve progress in halving hunger due to the consequences of recent food and financial crises. In addition, LDC's are still facing development challenges in terms of rapidly increasing populations, environmental degradation and depletion of natural resources that lead to increasing poverty and thus highly affecting social and political conditions in these countries[26].

D. URBANIZATION

Rapid population growth, migration from rural to urban areas and subsidies are the key factors that have contributed to the high demand on natural resources in the Arab region. The increased reliance on natural resources due to economic activities and development in the Arab countries have lead to economic problems and fluctuations in world prices, with repercussions mainly on growth, employment and economic stability. This is in addition to deterioration of environmental conditions.

Urbanization has often been synonymous of development. All developed and emerging economies have large, rapidly growing cities and their rural population dropped rapidly. However, this phenomenon always goes along with important, negative environmental consequences. Like in many other parts of the world, urbanization in the Arab region is fuelled by high fertility rates and the concentration of economic activity in urban areas. Consequently, the urban population is growing at a higher rate than the national population. Nearly half the population lives in towns and cities. In several Arab countries, the spectacular growth of major cities is happening with a rapid development of small and medium-sized towns.

Urbanization in the region is further characterized by a concentration in one or a few cities, generally in coastal areas. Cairo Governorate, with a population of almost 7 million living in an area of less than 500 square kilometers[27], is the largest city in Africa and is ranked as one of the most densely populated cities in the world. In Morocco, the Atlantic-front cities of Casablanca-Rabat-Kenitra groups almost half of the urban population. In Algeria, more than 90% of the inhabitants live in one sixth of the national territory. Figure 5 shows the percentage of the urban population in the Arab countries for the year 2010.

High differences in services exist between GCC countries and other countries in the region. For example, while the majority of people in GCC have adequate shelter and access to good quality urban services as well as health and education, almost all other countries suffer from important gaps and inequality among their different population groups. However, urbanization is generally accompanied by: inadequacies between the supply and demand of housing, large traffic congestions and parking problems, problems in municipal refuse collection, and lack of green spaces. All this leads to environmental deterioration taking the form of high consumption levels of water and other non-renewable resources, elevated pollution rates as well as threats to cultural heritage sites putting at risk not only archaeological sites but also the cities' traditional architecture. Damages include negative effects on the urban atmosphere and the reduction of urban water supply. They provoke higher health risks and safety hazards such as higher incidence of infectious diseases, as well as lower worker productivity. They also increase the costs of basic services and raises inequality in access to these services. Moreover, cities are generally not prepared to increased variations in weather conditions caused by global warming which increases the risks of flooding and health issues associated to heat waves[28].

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[25] Arab Human Development Report, UNDP, 2009 (data compiled from World Bank and UNDP poverty assessment reports).

[26] The Third Arab Report on the Millennium Development Goals 2010 and the Impact of the Global Economic Crises, United Nations and League of Arab States, 2010.

[27] Central Agency for Public Mobilization and Statistics, Population Estimates by Sex & Governorate 1/1/2010, Egypt

[28] Status of Urban Development in the Arab Cities, 2010-2011. United Nations Programme on Human Settlements (UN-HABITAT)

TABLE 4 SOCIAL PROGRESS MEASURED BY ACHIEVEMENTS IN THE MDG'S[29]

Indicator	Strengths	Weaknesses
Ending poverty and hunger	- Arab countries on track in halving the proportion of people living below $1.25/day - Indicators of undernourishment and child nutrition place the region at a relatively advantageous position when compared to other developing regions	- The food crisis is undermining the progress of LDCs since 2006. - Serious concerns about the achievement of full and decent employment, particularly for youth and women. - The region lags behind in the target of halving hunger and there is a higher percentage of the population living below national poverty lines. - Concerns regarding the impact of rising food prices, droughts and climate change. In 2008, an additional 2.6 million people required emergency food relief in Somalia. Rising food prices are expected to have pushed a significant proportion of the population under the food poverty line in Yemen. About 1.2 million residents in South Sudan alone will be vulnerable to food insecurity with a corresponding total food requirement of 76,000 tons. The issue of food security is magnified by the daily struggles for survival under military occupation and siege in Gaza and the West Bank.
Universal primary Education	- Improvement in Net Enrolment Ratios (NER), gender parity in primary schooling and the literacy rate of young adults aged 15-24. - Total enrolment in the region was estimated at 41 million in 2007, showing an increase of 5.1 million since 1999.	- Iraq, Lebanon, Oman and the Occupied Palestinian Territory have seen a decline in performance with regard to educational attainment. - Enrolment, school completion, out-of-school children and the issue of marginalization in education continue to present significant challenges to the achievement of Universal Primary Education, particularly amongst LDCs and countries in or emerging from conflict. The Occupied Palestinian Territory, Yemen, Sudan and Iraq carry the largest shares of the out-of-school population for the region, with over 25 per cent in Yemen and Iraq alone in 2007.
Gender equality And Women Empowerment	- From 1999 to 2007, gender parity in Net Enrollment Ratios (NER) for primary education increased marginally from 0.87 to 0.90. - Recent surge in efforts by governments, non-governmental	- 13 of the 22 countries in the Arab Region didn't achieve gender parity in primary education. - In 2006, more than 60 per cent of the primary school aged children not enrolled in school in the region, were girls, and 53 per cent of them are

[29] UN and LAS, 2010. The Third Arab Report on the Millennium Development Goals 2010 and the Impact of the Global Economic Crises.

	organizations and civil society organizations to tackle all forms of discrimination against women, and to invest in women's issues on a large scale. - However, the Arab region witnessed a slow rate of improvement in women's political representation, as the percentage of women's share in national parliamentary seats rose from 8 per cent in 2006 to 10 per cent in 2010. - Adoption of special measures, such as the quota system to accelerate women's political representation in Jordan, Tunisia, Sudan, Iraq, the Occupied Palestinian Territory, Egypt, Morocco and Mauritania.	expected never to enroll, compared with 39 per cent of out-of school boys. - Women's economic and political participation remains particularly low. Representation of women in national parliaments was at 10 per cent as of February 2010, the lowest rate in the world and still far from the 30 per cent that was recommended in the Beijing Platform for Action - Women's labor force participation in the Arab region, at 33 per cent in 2008, was the lowest in the world. Gains achieved by women in education have not been translated into greater economic participation.
Child health	- Under-five mortality has been declining steadily in the Arab region – from 83 per 1,000 live births in 1990 to 52 per 1,000 live births in 2008, a 37 per cent reduction in 18 years. - While the Arab Mashreq is on track to achieve the under-five mortality MDG target, the Arab Maghreb and the GCCs are also likely to achieve it. - Important successes in increased immunization rates.	- Unlikely that the Arab region as a whole will achieve this target by 2015. - In the Arab LDCs, more than one in ten children dies before reaching his/her fifth birthday. LDCs are off track to achieve the under-five mortality MDG target. - Universal immunization coverage will not be achieved by 2015 without addressing problems of accessibility to vaccines, low health facility coverage, suboptimal delivery strategies and unavailability of services in conflict areas and for mobile and displaced populations.
Maternal health	- Both the Maghreb and the Mashreq countries made significant achievements in reducing maternal mortality, although it may not be sufficient to achieve the three-quarters reduction required to meet the goal by 2015. - All countries except Sudan and Somalia have made significant improvements in skilled birth attendance. Countries with significant progress towards achieving reduction in maternal mortality also have a higher proportion of births attended by skilled personnel. - Algeria, Bahrain, Lebanon, Libya, Oman, the Occupied Palestinian Territory, Qatar, Saudi Arabia, Syria, Tunisia and UAE have achieved more than 90 per cent coverage with skilled	- Too many variations in the maternal mortality level among countries of the region – ranging from levels below 10 per 100,000 live births in some GCC countries to around 1,600 per 100,000 in Somalia. - Slow progress largely attributed to persistent gender inequalities and unhelpful social practices. - Birth rates remain high in most countries of the region compared with more developed nations, leading to the conclusion that, on average, women of the Arab Region are more exposed to maternal health risks due to high pregnancy frequencies. - Marked regression in the Occupied Palestinian Territory after the second intifada due to the closures of, and restricted access to, maternity

	birth attendants. - All countries except Sudan have made progress in increasing contraceptive prevalence rates. - The GCC and the Maghreb countries have successfully lowered adolescent fertility. - Overall progress in antenatal coverage between the 1990s and 2000s. - Egypt, Morocco and Syria show lower levels of unmet need for family planning at 9, 10 and 11per cent, respectively. Over the past decade these countries have faced a leveling of contraceptive prevalence rates.	hospitals, leaving women with no safe option for childbirth. - Parts of Sudan and Somalia women are afraid to seek healthcare services. They often have to deliver at home in the absence of healthcare providers who are often unable to travel to reach women in need. Because ambulances in Somalia are often targeted women tend to abstain from using them. In the conflict stricken part of Yemen access by pregnant women to health personnel is also hindered. In Iraq, the previous international sanctions regime had reduced the resources invested in the health sector and undermined the general health of the population, particularly the most vulnerable; the wars destroyed much of the health infrastructure and healthcare services, partly resulting from the depletion of the pool of qualified personnel. - The Mashreq and the LDCs are still experiencing early childbearing and exposure to risks. - Insufficient data on family planning in many countries.
Combating HIV/AIDS, Malaria and other Diseases	- Relatively low prevalence. - The period between 1990 and 2007 witnessed a 24 per cent decline in incidence and a 37 per cent reduction in prevalence of tuberculosis.	- The epidemic is on the rise, risks and vulnerability are at stake. - The majority of reported cases amongst high-risk populations such as commercial sex workers involve unprotected sexual contact among young adults. - increasing evidence of epidemics amongst injecting drug users and their sexual partners. - Malaria it still highly endemic in LDCs especially in north Sudan (7,167 per 100,000), Comoros (8,693 per 100,000), and Mauritania (6,140 per 100,000). - Tuberculosis remains a significant public health problem, and probably the leading cause of communicable disease deaths in adults in the Arab world. Challenges lie mainly in the LDCs where incidence rates have increased over recent years.

There is a need for development of green urban policies by development of integrated and coherent urban strategies that can transform the current infrastructures towards greener zones. Linkages of urban strategies to other sector green advances such as water, energy, transportation, wastes management, etc, will be the major challenge the urban planners will be facing to green the housing sector. Currently, An Arab Green Building Code is being developed that will include specifications for water use and rainfall harvesting, energy efficiency, cooling systems, reuse and recycling of resources, air quality, etc[30].

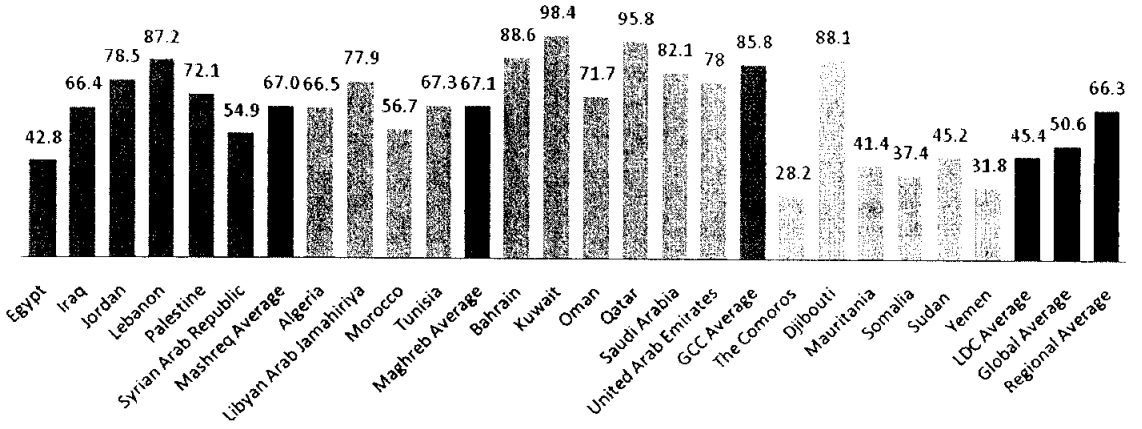

FIGURE 5 PERCENTAGES OF URBAN POPULATION IN THE ARAB COUNTRIES IN 2010[31]

E. ENERGY AND OIL SECTOR

The Arab region has tremendous oil and natural gas reserves, having about 58% of the world's proven reserves in crude oil, and 30% of the natural gas proven reserves[32]. The Arab economies are highly dependent on oil and gas as the primary source of energy with about 53.6% of electric energy generated based on oil,in 2008 and the share of gas represents about 43.9%, while other sources such as hydropower, coal, and renewable resources represent about 2%. At the global level, electricity generation from oil and gas accounts for 26.7% of the global electricity generated, with coal 40.8%, nuclear 13.5%, hydro 16.2% and other renewable energy sources contributing to 2.8%[33].

The total emissions from fuel combustion in the Arab region in 2008 was 1,310.2 MtCO2 equivalent, constituting about 4 % of the global emissions[34], which is comparable to the population and area proportions of the Arab region. The carbon dioxide emissions come not only from the electric power sector, but also from the transport, industrial and other sectors.

Regional cooperation policies in the energy field were limited until the mid-1990s when the interconnection of electric grids was initiated between several Arab countries. Three interconnections were made, mainly the eight countries interconnection in the Levant area with a link to Turkey and possible extension further into Europe, the Gulf network interconnection, and the North East African interconnection.

In some Arab Countries, a large percentage of the population lives in rural communities (Yemen: 71%, Sudan: 59%, Egypt: 57%, Syria: 46%)[35]. Moreover, 70% of the population in Sudan and 50% in Yemen[36] are not

[30] Arab Green Building Code, League of Arab States, Draft Table of Contents, 2011.
[31] Status of Urban Development in the Arab Cities, 2010-2011. United Nations Programme on Human Settlements (UN-HABITAT).
[32] Organization of Arab Petroleum Exporting Countries (OAPEC), *Annual Statistical Report 2008*
[33] CO2 Emissions from Fuel Combustion, 2010 Highlights, IEA
[34] CO2 Emissions from Fuel Combustion, 2010 Highlights, IEA
[35] World Urbanization Prospects: The 2007 Revision, http://www.un.org/esa/population/publications/wup2007/2007wup.htm

supplied with electricity, mainly in the rural areas due to isolations of the remote communities and high costs of long transmission lines needed to reach such communities. Energy needs for the isolated communities rely mainly on firewood and charcoal. Uncontrolled use of such biomass exacerbates deforestation and land degradation with a direct impact on food security and therefore accelerating the cycle of extreme poverty. Moreover, deforestation has its negative impacts on the climate change. On the other hand, energy supply and services in Palestine are frequently hindered by the Israeli embargo and prevailing unstable security situation, rendering energy security and access to energy services from available local renewable resources one of the main issues to be looked after.

The Global Wind Energy Council (GWEC) estimates that 15 man-years job opportunities would be generated for every one megawatt new wind capacity covering activities from manufacturing to commissioning, and 0.33 jobs in regular operations and maintenance activities[37]. This would result in about 535,000 to 2.2 million new jobs worldwide by 2020, depending on the different scenarios for wind energy market evolution[38]. In the field of solar energy, it is expected that 10 full-time manufacturing, contracting, installation and commissioning jobs will be available, as well as 0.3 annual jobs in operation and maintenance activities for every new megawatt[39].

Among the challenges facing this sector to go green is the vulnerability to international oil prices and carbon price uncertainty. It is evident that the required amount of finance for the renewable energy is small compared to the financial bails-out following the crisis of 2008[40]. A variety of renewable energy including biomass and bio-fuels should be evaluated to address the impacts on employment, poverty eradication, energy security and economic gains at the stage following the installation of the renewable energy facilities and the production phases. This can be done through a cost/benefit analysis to balance out various aspects associated with the introduced projects. Based on this analysis, appropriate financing schemes and investments would be sought off to lower the high upfront capital costs of the renewable energy technologies. The increasing reliance on the region's vast and various renewable resources, especially solar, wind, hydro and biomass is expected to diminish the adverse environmental impacts that oil and fossil fuels have on the achievement of sustainable development.

F. NATURAL RESOURCES AND ENVIRONMENTAL ISSUES

1. *Water scarcity and integrated water resources management*

The Arab region uses more than 80% of its water resources in agriculture[41]. Countries of the region are in either arid or hyper-arid zones, depend on seasonal rainfall, have very few rivers—some of which carry water from other countries, which increases risks on peace and security of the region—and rely on fragile (and sometimes nonrenewable) aquifers. The region at the present time is facing numerous pressures and challenges threatening the sustainability of scarce water resources. This scarcity of water resources in addition to the arid and semi-arid climate that characterizes the region would lead to increase of rates of consumption, evaporation and losses of water resources used by various sectors. For instance, it is estimated that about 30-50% of drinking water is lost from water distribution networks due to aging and poor conditions[42].

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[36] Arab Union of Electricity, Statistical Bulletin, 2008 & 2009

[37] Global Wind Energy Council GWEC, "Global Wind Energy Outlook 2008", October 2008

[38] Global Wind Energy Council GWEC, "Global Wind Energy Outlook 2008", October 2008

[39] Estela Solar. 2008. Solar Thermal Electricity Report. Online. Available at: www.estelasolar.eu/fileadmin/ESTELAdocs/documents/2008.05.28_ESTELA_DisseminationDocFull.pdf

[40] UNEP, 2008. Launch Meeting of the Green Economy Initiative: Towards a green economy, Meeting Report, United Nations Environment Programme, 1-2 December, 2008, Geneva.

[41] UNDP, 2009. Arab Human Development Report

[42] Sustainable Water Supply and Sanitation for all. Regional assessment report on the status and achievements of ESCWA Member Countries Towards Improved Water Supply and Sanitation. E/ESCWA/SDPD/2009/1

The amount of renewable water resources available in the Arab region is estimated by about 300 billion m3 in the year 2008, while the total water demand has reached 354 billion m^3 in the same year, which is expected to reach 378 billion m^3 in 2030. This water deficit and imbalance between supply and demand is projected to grow steadily in the future. The per capita share of fresh water resources dropped significantly when compared with international standards, with an estimated global average of per capita availability of water which is about 8210 m^3/capita/ year in 2007. For example, in Mauritania the water share per person in 2007 is 3546 m^3/year, while in Kuwait it is estimated as low as 6.9 m^3/year as shown in Figure 6. The 2009 UNDP Human Development Report estimates that there are about 45 million people in the Arab region with no access to clean water sources. Currently, water demand exceeds the actual renewable water resources available in the Arab region by more than 40%. The GCC countries depend exceedingly on seawater desalination (98% in Qatar and 40% in Saudi Arabia) with negative incidences on sea resources.

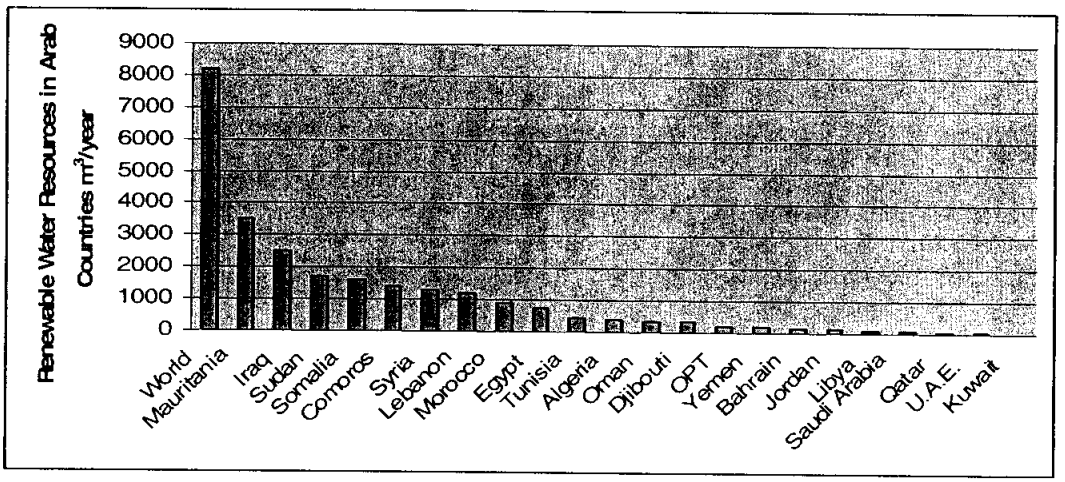

FIGURE 6 RENEWABLE WATER RESOURCES IN ARAB COUNTRIES (2008)
Source: FAO, AQUASTAT (2008)

Water scarcity, trade-offs between sectors (e.g., industry vs. agriculture) and water pollution have incited policy makers to adopt holistic water management policies and regulations aiming at better management of the demand for water (e.g. incentives to encourage farmers to adopt crops with low water consumption) and more efficient supply (e.g. water conservation and more efficient irrigation techniques). Nonetheless, there is no single pattern in the results of integrated water resources management in the region. Success stories are widespread in many countries but others are lagging. Even in countries where success is reported, non-efficient water use and supply patterns persist, particularly in areas where small, traditional farming practices are concentrated.

Water scarcity is expected to worsen in the region in the *business as usual* scenario. Per capita water availability is expected to decrease by at least 50% by 2050 and maybe more if the predictions of lower rainfall averages resulting from climate change are confirmed.[43]

The absence of waste management and changing of lifestyle lead to increase of wastes especially those that contain large proportions of organic material. In addition, the rates of disposal of hazardous wastes from industry, in particular oil, minerals and chemical industries has raised in the Arab region. Therefore, it has become necessary to promote the concept of sustainable patterns of production and consumption of natural

[43] Making the Most of scarcity: Accountability for Better Water Management Results in the Middle East and North Africa, World Bank, 2007.

resources especially water in the Arab region, and to encourage the use of products that contribute to the protection and conservation of the scarce water resources in the region.

2. Agricultural productivity, food security and desertification

Many Arab region countries, especially those on the Mediterranean Sea, have longstanding traditions of agricultural activities providing food on the local as well as foreign markets. However, demographic growth and low agricultural productivity, aggravated by inefficient policies, desertification and climate change have continuously eroded the position of agriculture in the region's economies. The contribution of agricultural sector to GDP in the Arab region decreased from 8.3% to 5.4% over the period 2000-2008 and it varies widely from 1% in Qatar to 29.3% in Sudan[44,45]. Even if the demographic pressure has been somewhat easing since 1990's, Figure 7 shows that population has been growing faster than food production in most countries.

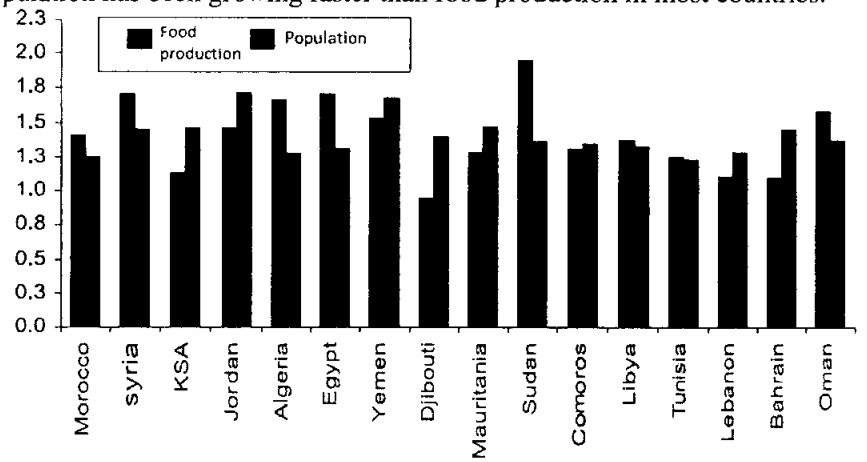

FIGURE 7 FOOD PRODUCTION AND POPULATION RATIOS (1990 TO 2004)
Source: UNDP, 2009

In addition, although agricultural productivity has increased since the 1990's in middle income countries such as Egypt, Morocco, Syria, Tunisia, and Algeria, World Bank data shows the productivity per worker remained stagnant in most Arab region LDCs Bank dataset (Comoros Djibouti, and Yemen) and declined significantly in Mauritania.

While agricultural land is still underutilized, the irrigation potential of most countries (with the exception of LDCs) is used near of over capacity. Rain-fed agriculture is still widely predominant more and more affected by droughts and/or lower than average rainfall (see Table 5).

The poor are severely affected by the lagging agricultural sector. Arab countries are more self sufficient in the food commodities that are more likely to be consumed by the rich (meats, fish, and vegetables) than in those that are more likely to be consumed by the poor (cereals, fats, and sugar). Consequently, the poor are more vulnerable to fluctuations and shocks in international food prices. Self sufficiency ratios are stagnating (see Table 6), which indicates no prospects for improvement of this situation. Food subsidies in the Arab region have mostly been seen as biased against farmers and in favor of (urban) consumer. The downward pressure on agricultural prices leads to low agricultural revenues which increase migration from rural to urban areas. For all these reasons, poverty in the Arab region is either concentrated in rural areas or is of a rural origin.

[44] UNDP, 2009. Development Challenges for the Arab region: Food Security and Agriculture, 2009.
[45] Unified Arab Economic Report, 2009.

Desertification is affecting agriculture and is aggravated by unsustainable agricultural practices. More than 86% of territories in the region are defined as desert. Of the remaining 14%, only 4.2% (some 75 million hectares) is being used for farming and grazing. UNEP estimates that 20% of this area is threatened by desertification and, each year, 2% is lost due to salinization and 1% is lost due to urban expansion[46].

TABLE 5 AGRICULTURE AND WATER UTILIZATION INDICATORS FOR SELECTED COUNTRIES IN THE ARAB REGION

	Total agricultural land (% of total land)	Total cultivated land (% of total agricultural land)	Total irrigated land (% of total cultivated land)	Average rain fed area (% of total cultivated land)	Area equipped for irrigation (% of irrigation potential)	Rainfall Index
	2000-2001	2000-2002	2000-2003	2000-2005	2000-2007	2003
Algeria	17%	21%	7%	87%	111%	257
Bahrain	14%	60%	67%	33%	96%	NA
Egypt	3%	100%	100%	0%	100%	107
Jordan	11%	26%	19%	70%	92%	179
Kuwait	9%	12%	72%	0%	27%	36
Lebanon	38%	85%	33%	67%	51%	656
Libya	9%	14%	22%	0%	117%	131
Mauritania	39%	1%	10%	20%	19%	199
Morocco	68%	31%	15%	80%	89%	340
Oman	3%	7%	90%	10%	NA	29
Qatar	6%	30%	62%	0%	NA	NA
KSA	81%	2%	43%	0%	NA	151
Sudan	57%	13%	11%	85%	67%	741
Syria	75%	40%	25%	40%	115%	366
Tunisia	63%	50%	8%	80%	139%	355
Yemen	34%	9%	33%	45%	NA	231

Source: FAO database.

- Percentages exceeding 100% indicate that the irrigation infrastructure can potentially cover more than the area in consideration
- Rainfall index: an indicator, developed by FAO, which represents the quality of the crop growing season (mm/year).

[46] UNEP, 2010. Arab Region Environmental Outlook: Environment for Development and Human Well-being,"

TABLE 6 SELF SUFFICIENCY RATIOS FOR FOOD COMMODITIES (%)

	Mashreq	Maghreb	GCC	LDCs	Total
Cereals (1982-1993)	52	48	34	60	51
Cereals (1993-2004)	59	40	29	62	52
Dairy Products (1982-1993)	60	49	18	73	56
Dairy Products (1993-2004)	71	57	29	80	65
Fats and Oils (1982-1993)	28	32	1	61	33
Fats and Oils (1993-2004)	45	21	62	54	43
Meats (1982-1993)	81	94	44	86	82
Meats (1993-2004)	80	97	55	91	84
Sugar (1982-1993)	42	26	0	59	37
Sugar (1993-2004)	47	19	0	64	39
Vegetables (1982-1993)	101	102	69	81	94
Vegetables (1993-2004)	98	103	74	97	96
Pulses (1982-1993)	76	70	0	62	64
Pulses (1993-2004)	80	54	1	76	63
Fish (1982-1993)	74	112	61	93	87
Fish (1993-2004)	70	110	64	112	89

Source: UNDP, 2009. Arab Human Development Report.

The food security crisis occurred mainly due to higher food prices in global markets, the sharp increase in energy prices, change of land uses from productive agricultural lands towards the production of biofuels leading to lower agricultural productivity of basic crops. In the Arab region, countries were affected by the crisis of global food security because of their high dependence on food imports of their food supply. The total food import amounts for 5 to 10 per cent of total imports in many Arab countries, including wheat, which represents a basic strategic crop in the region. About 80% of the agricultural products are produced by six Arab countries, namely, Sudan, Syria, Egypt, Morocco, Mauritania and Yemen. The Gulf countries import about 100 per cent of its needs from the basic food, but its economy depends largely on the cash surpluses provided by the oil sector. On the other hand, the non-oil exporting countries are facing huge financial challenges, as well as security problems due to high prices, which led to the aggravation of poverty and food shortages at the national level. The countries most vulnerable to fluctuations in food prices are those that recorded relatively high levels of poverty, such as Iraq, Palestine and Yemen, and those that rely on imported food and fuel in large quantities, such as Jordan and Lebanon.[47]

Food security is seen as political and economic issue and it largely affects policy settings in various sectors. The Arab region imports in the recent years of the cereals (mainly wheat, maize and baley) have increased as the deficit value of main food commodities increased by about 8% annually (total of 12 billion USD) for the period from 2000-2008 [48]. Agricultural productivity is adversely disadvantaged due to arid and semi-arid climate that dominate the region, the scarce fresh water resources, present and expected impacts of climate change and vulnerability to droughts and desertification which made countries in the region stands on the demand side on the international market rather than optimally on the supply side.

There are large implications for food security crisis on the budgets of a number of Arab countries, particularly countries that are not oil-producing economies, given the fact that many of them subsidize fuel and food. Policy makers face a major challenge in dealing with short-term policy measures, as these measures which aimed to alleviate the crisis, are sometimes non-viable or have negative repercussions on the national economy in the long term.

3. *Biodiversity and environmental protection*

[47] Item 3 of Annotated Agenda. Global and regional priorities: Financial crises, Food security and Climate Change. ESCWA, 2009.

[48] Arab Fund for Economic and Social Development and Kuwait Fund for Arab Economic Development. An overview of Agricultural Development and Food Security in Arab Countries. Joint Technical Meeting, April 2010.

UNEP's *Environment Outlook for the Arab Region*[49] (2010) considers non-sustained demographical growth and high density of the population among of the most dangerous drivers of environmental degradation in the region. Population growth in the Arab region is the highest in the world. The total population is forecasted to reach 586 millions by 2050 (6% of the world population) which lead to increased pressure on environment including more consumption of water and non-renewable resources as well as higher pollution. Overgrazing, unsustainable use of water resources, pollution, sewage and industrial waste as well as the commercial use of biodiversity resources are common factors of biological loss.

The legislative framework has been significantly improving. However, the actual management of environment suffers from various deficiencies leading to a cost of environmental degradation ranging from 2.1% of GDP in Tunisia to 4.8% in Egypt (where half of this cost is attributed to air pollution alone) and nearing 9% of GDP in other countries.

Environmental indicators are worsening. IPCC models forecast an increase of 2 to 5.5°C in the surface temperature in the region by the end of the century and a decrease in precipitation that could reach -20%. The Arab Forum for Environment and Development indicates that sea level rise due to rising temperatures, has the potential to cause the loss of significant portions of agricultural land in the Arab region. One meter rise could potentially cause the loss of 12% to 15% of agricultural land in the Nile Delta region, and could reduce Qatar's land area by 2.6%. The fragile marine and coastal environment is threatened by uncontrolled tourism, over-fishing, loss of biodiversity and climate change.

The region produces some 250,000 tons of solid waste every day, with most of it ending untreated in makeshift dumps. Less than 20% is properly treated or disposed in landfills, and no more than 5% is recycled. The per capita production of municipal solid waste in some Arab cities, such as Kuwait, Riyadh, and Abu Dhabi, is over 1.5 kg per day, making it one of the highest levels in the world. Furthermore, parts of the Arab region that are undergoing rapid economic development and urbanization are also producing a lot of demolition and construction waste.[50]

Health problems due to air pollution are increasing. The transport sector is responsible for approximately 90% of total emissions of carbon oxides in Arab countries. Some countries have carbon dioxide emissions levels above the world average. In 2003, emissions in the United Arab Emirates, Qatar, Bahrain, and Kuwait were respectively 13, 9, 8, and 7 times higher than the world average.

The use of Nitrogen (N) Phosphorus (P) and Potassium (K) fertilizers quadrupled between 1970 and 2002, with the UAE and Egypt (more than 900 kg fertilizers per hectare), Oman (644 kg), and Lebanon (414 kg) using some of the highest quantities of fertilizers per hectare in the world. In some countries, a significant proportion of the waste produced is not collected. In Egypt, for example, a third of municipal solid waste is not systematically collected. These problems are compounded by improper handling, collection, and treatment of hazardous wastes originating from agricultural, industrial, medical, and urban activities.

G. CLIMATE CHANGE IMPACTS AND FINANCING OPPORTUNITIES FOR GREENER ECONOMY

The Arab region is historically the least contributor to greenhouse gas (GHG) emissions that lead to increased temperature at the global level. In comparison to the total global emissions, the Arab region's contribution is about 4% as estimated in 2008[51]. The effects of climate change on the region will be much severe compared to its low contribution of GHG as predicted by global models and thus the Arab region will become

[49] Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication, UNEP, 2010.
[50] Arab Environment: Future Challenges, Arab Forum for Environment and Development, 2008.
[51] CO2 Emissions from Fuel Combustion, 2010 Highlights, IEA

scientifically one of the areas most vulnerable to the potential effects of climate change in the entire world. Water resources sector is envisaged to be highly affected which will add more burdens on the already water scarce conditions in the region. There is a need to develop an integrated methodology in the Arab region to assess the impacts of climate change on water resources and related sectors and to develop a scientific base of data and knowledge to enable the application of such methodologies.

The financial aspects of climate change are key issues that are negotiated during international forums. Climate funding is currently available under the United Nations Convention on Climate Change (UNFCC) and the Kyoto Protocol. As climate change adaptation and mitigation measures can be implemented within the context of transfer to green economy, there will be a good opportunities for the Arab countries to explore ways to make the best use of these available funds in greening their economies.

1. *Assessment of Socio-economic impacts of climate change on water resources and other related resources*

The Arab region has witnessed in the recent years severe climate change impacts. These impacts included rising temperatures and heat waves, flash floods, and shifts in rainfall patterns in terms of the distribution in time and space, variability of annual and seasonal extreme weather events, increased droughts and floods, reduced snow cover on the high lands (such as mountains in the Syrian Arab Republic and Lebanon, and to a lesser extent in Iraq). In addition, rising sea levels due to global warming poses great threat to fertile low-lands deltas and quality of coastal aquifers due to intrusion of salt water. Climate change impacts also expected to affect the social, economic and environmental aspects and it is likely that most of these effects are among the most vulnerable groups, such as women and the elderly, children and the poor. It is also expected that the impacts of climate change would have negative impacts on other social and economic sectors and the environment, such as agriculture, health, public safety, biodiversity, water desalination, tourism, energy production from water resources, and river navigation and others.

The impacts of climate change would undermine the process of implementation of national development plans and lead to exposure of human security and livelihoods, and displacement of people from some threatened areas to safer locations. This situation can be further complicated because of the region's high dependence on renewable surface freshwater resources flowing from outside the region which is estimated by 70% of the total available water resources.

Due to the fact that there has been no integrated assessment conducted to date to assess the impacts of climate change on the Arab region as a whole, ESCWA is currently implementing a regional initiative, in coordination with League of Arab States and its specialized agencies as well as UN partners, on "Assessing the impact of climate change on water resources and socio-economic vulnerability in the Arab region". The initiative is based on four pillars consisting of the following: (a) collection and review of baseline information, including the development of an associated knowledge management system for regional climate and hydrological data; (b) impact analysis and vulnerability assessment, which includes model identification and downscaling to the regional level, based on regional specificities; (c) awareness raising and information dissemination to produce policy-relevant materials, such as a brief on vulnerability hotspots; and (d) capacity-building and institutional strengthening on a variety of topics, including climate change modelling and vulnerability assessment.

Within the framework of implementation of this regional initiative, a conceptual framework and a plan of action have been developed. In order to assess the impact of climate change on water resources and conduct a vulnerability assessment on its implications for socio-economic development across various sectors. This framework is represented by three, interrelated components, namely: climate modelling, hydrological modelling

and the assessment of socio-economic and environmental vulnerability as shown in Figure 8[52]. All three components are dependent upon access to and availability of reliable data.

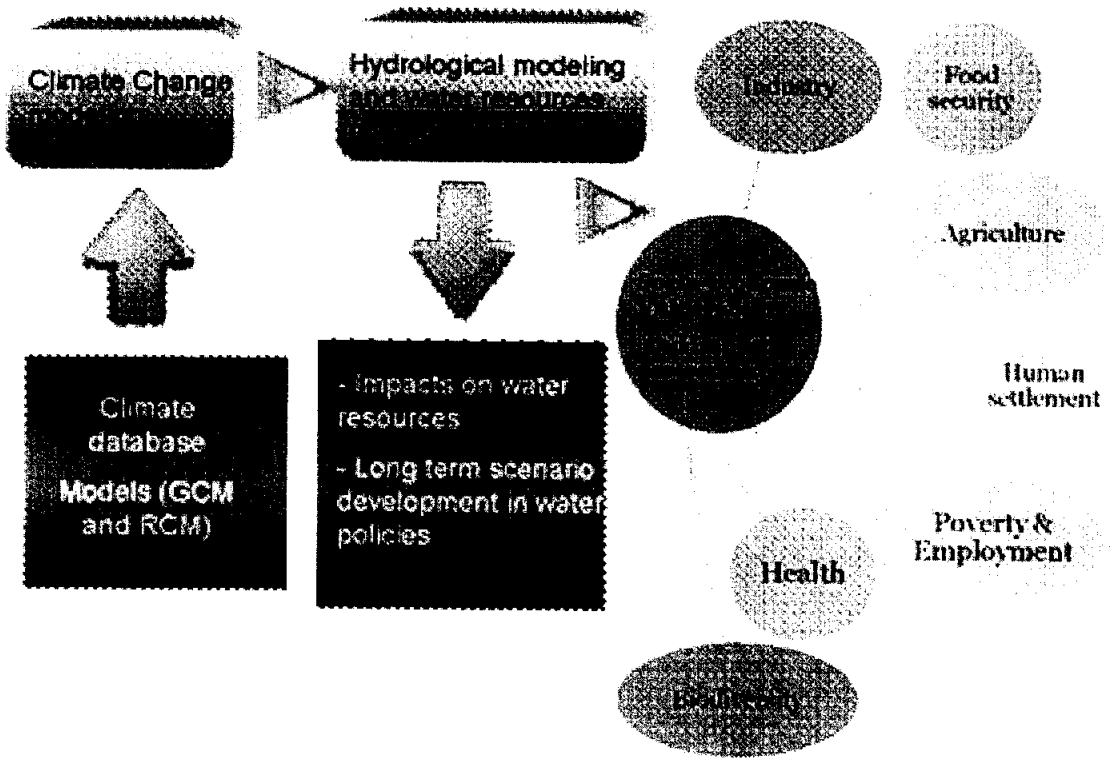

FIGURE 8 SCHEMATIC FOR THE CONCEPTUAL FRAMEWORK FOR CLIMATE CHANGE IMPACT AND VULNERABILITY ASSESSMENT OF WATER RESOURCES AND RELATED SECTORS

2. Financing green economy and linkages to climate change funds

There have been many efforts by Governments to generate green fiscal stimulus in response to global crises. It is estimated that 445 billion USD was allocated for various sectors such as railways, energy efficiency, renewable energies, water and wastewater, transport, etc., within the context of reducing ecological scarcities and environmental risks[53]. For instance, China allocated 218 billion USD as a green fund half of it was allocated for railway infrastructure. The republic of Korea has been efficient in spending their green packages as it spent approximately 2.3 billion USD in 2009[54]. South Africa launched a financial programme of 7.5 billion USD in 2008 covering the period 2009-2011 about 0.8 billion USD of which was allocated to environment-related activities. In 2009 Mexico launched a "National Agreement in Favour of Family, Economy and Employment" with 0.67 per cent of the GDP (about 0.8 billion USD) was reserved mainly for energy efficient buildings[55]. Uganda, where 85 percent of the population is working in agricultural production, has achieved remarkable progress toward sustainable, organic farming as it more than quadrupled its exports of organic agricultural

[52] ESCWA, 2010. Status of the vulnerability assessment of the Arab Water sector to climate change. Committee on Water Resources Ninth session, Beirut, 23-25 March 2011. E/ESCWA/SDPD/2011/IG.1/3

[53] UNEP Global Green New Deal: A policy Brief, ,March 2009
[54] USBC, 9 March 2010, Delivering the Green Stimulus
[55] UNEP Global Green New Deal: A policy Brief, ,March 2009

products between 2003 and 2008, tapping into a global market of US$60 billion[56]. In England, there are plans to establish a Green Investment Bank, the World's first national green development bank. The Government has guaranteed £ 3 billion for the initial capitalization of the Bank and also legislation will be brought forward to ensure both the operational independence and enduring nature of the bank[57].

It is essential to consider all financing options in the global green economy including the climate investments as there are an increasing number of global climate funds available to invest in climate change mitigation and also adaptation activities. It is estimated that 521 billion USD was allocated to climate change measures by the end of 2009. The delivery in 2009 was weaker than expected as it accounted for only 82 billion USD[58]. Globally, the funding available through the United Nations Convention on Climate Change (UNFCC) and the Kyoto Protocol is the most important source of international funding for climate projects. These sources include the Clean Development Mechanism (CDM), the joint Implementation program (CCAP-JI), the climate change programmes of the Global Environment facility and the adaptation fund. Also, the World Bank provides some other sources such as the Climate Investment Funds and bilateral initiatives supported by developed countries[59]. For instance, the GEF's climate programmes provide about $250 million per year for projects in energy efficiency, renewable energy and sustainable transportation. The GEF funds also manage two small specialized funds for UNFCCC, the Least Developed Countries Fund (LDCF) and the Special Climate Change Fund (SCCF). The latter fund has a broader mandate to address adaptation, technology transfer and other related areas. These funds are mainly contributions from developed national governments. These contributions reached $172 million for LDCF and $90 million SCCF till 2008. The Climate Investment Funds had contributions up to $6.1 billion in 2008 from ten donor countries in response to Bali Action Plan, which are allocated as grants and loans. Other funds include the Clean Technology Fund, which includes funding opportunities for electric power, transport and energy efficiency and the Strategic Climate Fund assigned for new developments in adaptation projects[60]. From the above figure it can be noted that the current availability of funding for climate change projects is nevertheless small compared to what has been promised by developed countries as there is less that $10 billion per year made available from the UNFCCC channels mainly from the CDM, in addition to about $5 billion from the World Bank Investment funds as explained earlier.

The above financial mechanisms for both climate change adaptation and mitigation provide good opportunities to initiate new projects or modernize existing ones within the context of green economy and eradication of poverty through creating new jobs and improving income of people. Green Funds (both new and/or existing sources) are also debated among the developing and developed countries during the negotiation forums that are held in preparation for the United Nation Conference of Sustainable Development (UNSD – Rio+20) in 2012.

It should be mentioned that during the Conference of Parties in Copenhagen (COP-15) developed countries were committed to provide new and additional resources through international institutions, approaching USD 30 billion for the period 2010–2012 with balanced allocation between adaptation and mitigation. Investments for adaptation will be prioritized for the most vulnerable developing countries, such as the least developed countries. In the context of meaningful mitigation actions and transparency on implementation, developed countries aimed to a goal of mobilizing jointly USD 100 billion dollars a year by 2020 to address the needs of developing countries. This funding will come from a wide variety of sources and

[56] Walta Information Center – World's Least Developed Countries Fertile Ground for Green Economy. http://www.waltainfo.com/index.php?option=com_content&task=view&id=26722&Itemid=47

[57] Nick Clegg's Speech on the green Economy, May 2011, http://www.libdems.org.uk/latest_news_detail.aspx?title=Nick_Clegg%E2%80%99s_speech_on_the_green_economy&pPK=0e1da756-bb98-489e-9e72-d97c95a0715b

[58] HSBC, 9 March 2010. Delivering the green stimulus

[59] United Nations Conference on Trade and Development, Financing the Climate Mitigation and Adaptation Measures in developing Countries. G-24 Discussion Paper Series, No. 57, December 2009.

[60] United Nations Conference on Trade and Development, Financing the Climate Mitigation and Adaptation Measures in developing Countries. G-24 Discussion Paper Series, No. 57, December 2009.

such funding should flow through the Copenhagen Green Climate Fund[61]. In Cancun during COP-16 the process to design the Green Climate Fund was established and a new Cancun Adaptation Framework was set up to allow better planning and implementation of adaptation projects in developing countries through increased financial and technical support[62]. The next climate change conference in Durban, South Africa in December 2011 and its preparatory meetings are expected to focus on finalizing and adopting the institution-building arrangements launched in Cancun including financing mechanisms.

As pointed out by a recent joint FAO-IFAD paper, agriculure and forestry are perhaps the most climate-sensitive of all sectors and hence potentially the most vulnerable. Predicted climate change hot spots appear to coincide with areas where food insecurity will be a major problem. Therefore, there is large potential in these land-based sectors for generating emission reductions for which financing/incentive/payment mechanisms will be needed. Financial flows to these sectors in developing countries, estimated to be as high as US$20-100 billion in 2030, would be of great relevance, not only to climate change mitigation but also to meeting the expected costs of adaptation and to the generation of such co-benefits as food security, livelihoods/income for the rural poor, provision of environmental services and substantial contributions to the economies of countries in Arab region.[63]

For the housing sector, cities account for more than 80 percent of the world's total greenhouse gas emissions. In addition, more than 80 percent of the overall annual global costs of adaptation to climate change are estimated to be borne by urban areas. The World Bank estimates that with expected increases in urbanization and higher income levels, most urban infrastructure that will exist in 40–50 years has not yet been built, nor have all the locations been determined which means that rapidly growing cities can be built better and avoid locking in costly, high-emitting and non-climate-resilient infrastructure. [64]

However, many of the mitigation opportunities in cities can have a higher initial cost than providing the same services through conventional solutions. Several tools, including property taxes and fees can be considered to fund these incremental costs by national resources but are usually reluctant to raise taxes. On the international level, various schemes are emerging. They include carbon finance such as climate funds including the recently green bonds introduced by the World Bank. However, except for a few countries, the region lacks the capacities needed to follow the complex procedures needed to take advantage of existing financing mechanisms. Overcoming these constraints will require capacity building, technical support, innovative policy and institutional solutions at both the national and international levels, as well as simplification of procedures.

H. PEACE AND SECURITY AND POLITICAL INSTABILITY

Peace and security in the Arab region necessitates more than the settlement of border disputes and basic human security guarantees. Water and food securities are increasingly becoming more important priorities for the Arab countries. The lack of regional peace and security directly hinders the sustainable and effective management of shared water resources and ecosystems. Efforts to remedy damages to marine, coastal and urban environments caused by regional conflicts must be subject to post-conflict resolutions. The social and environmental disturbances of informal settlements, refugee camps and displaced communities will not be adequately addressed until peace and security are achieved in the region[65].

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[61] Report of the Conference of the Parties on its fifteenth session, held in Copenhagen from 7 to 19 December 2009. Decision CP.15. http://unfccc.int/resource/docs/2009/cop15/eng/11a01.pdf.

[62] Report of the Conference of the Parties on its Sixteenth session, held in Cancun from 29 November to 10 December 2010. Decision CP.16. http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf

[63] IFAD and FAO, 2009.

[64] World Bank, 2010.

[65] ESCWA, 2002. The effects of peace and security on sustainable development in the ESCWA region. Briefing paper 16, ESCWA, 2002.

The negative impact of the continuation of the Arab-Israeli conflict has been tremendous. The conflict has generated a large population of Palestinian refugees, which accounts for over 2.5 million outside of Palestine. Many refugees continue to live in camps and exert pressure on scarce resources in neighboring host countries. Moreover, issues over shared water resources have yet to be resolved, and negatively affect water demands, agriculture, municipal consumption and sustainable use in riparian countries. Also, the Golan Heights have been occupied by Israel continuously since 1967 and much of the indigenous Syrian population fled during the 1967 and 1973 wars, leaving Israel to establish 33 settlements in the area. The Golan Heights region holds important water resources feeding into regional water supplies, thus having a strategic role in the Arab-Israeli conflict. There are also other conflicts and tensions within or between countries of the region which also slow development. The damage sustained by Iraq during the second Gulf War resulted in the virtual standstill in its production, due to the destruction of the industrial and services sectors of the country. There have been several environmental consequences including the contamination of soils and the marine environment due to the destruction of oil wells, oil storage facilities, refineries and electric power stations.

Military expenditures to purchase arms due to continuous conflicts in the Arab region and for post-war reconstruction and resettlement costs have significant negative repercussions on public revenues and sustainable development. First, military budgets deduct resources from spending allocated to achieve sustainable development goals, particularly during periods of fiscal austerity and uncertainty. Secondly, instability and concerns over peace and security, reduce confidence in economic recovery and hinder trade and investment particularly foreign investment. Besides, peace and security have long term positive impact on tourism and foreign exchange earnings. While Arab region's share of the world tourism industry is still small (amounting to 4-5 percent of the world total)[66], the sector was steadily growing prior to the recent escalation of the Arab-Israeli conflict and recent uprisings in many Arab countries such as Egypt, Tunisia, Yemen, Libya, etc. Financial loss in the tourism sector is currently having serious implications on public spending, employment, income generated from traditional small jobs that involve significant labor force which indeed hinders the ability of Arab countries to allocate sufficient resources to implement sustainable development plans.

I. RECENT YOUTH REVOLUTIONS AND UPRISINGS

The region witnessed protests and uprisings seeking social and political freedom and real democracy through participation in government decision making as recently happened in Egypt and Tunisia in the Arab region. These revolutions, mainly driven by youth, raise hope for increased democracy throughout the region. The challenges for the region in the short and medium terms are tremendous. Uncertainties on the exact nature of the institutional settings that will be governing each country and on the precise macroeconomic policies that will be followed have put investment at a halt and slowed the economic activities. In Egypt, for example, the high inflation rates over the past years (e.g. reaching highest of 18% in 2009), increase of population living below the poverty line (more than 30%), with around 12% of the active population mostly youth were the main reasons for the uprisings. This turbulent situation has lead to significant repercussions on Egypt's economy. Annual growth rate was expected to reach 6% in the beginning of 2011 and was revised to 4% following these eruptions[67]. Many sectors were affected as these uprisings took place during the peak tourism season (which accounts for about 6% of GDP in Egypt) as one million tourists left the country by then, having adverse impacts on a main source of foreign currency for Egypt. Economic loss at the peak of resolution was estimated by US$ 300 Million each day with a potential budget deficit of 12.3%[68]. There are also many decisions taken by the Government to increase the subsidies for fuel and food to prevent any further discontents.

[66] UNDP, 2009. Arab Human development Report

[67] Management Guru, 2011. Potential Economic Benefits from uprising in Egypt. http://themanagmentguru.blogspot.com/2011/03/potential-economic-benefits-from.html

[68] Economics Weekly, 2011. Egypt: The costs of an Uprising. http://economicsweekly.wordpress.com/2011/02/06/egypt-the-costs-of-an-uprising/

In Tunisia, tourism has decreased by 50%, industrial output by 12% and the proceeds of Tunisian migrants by 12.5% since the beginning of 2011.[69] Because of the situation in Libya, Tunisia has lost flourishing trade activities with its neighbor and has to manage an increasing flow of refugees. Both countries Egypt and Tunisia are calling on the international community for financial support estimated for the next twelve months at 1 billion dollars for Tunisia and 10 to 12 billion dollars for Egypt.[70] Tunisia is finalizing a 5-year 25 billion USD economic restructuring plan that was presented to the G8 Summit in May 2011.[71] The G8 summit has promised a package of financial assistance by international development banks for both Tunisia and Egypt of about 20 billion USD. The supporters of the transition claim that "investment in democracy" is profitable despite the short and medium term uncertainties.[72]

It is expected that Egypt's economy will take at least one to one and half year to stabilize when the country will transform into a stable and liberal democracy which will boost the investors' confidence and will lead to increase of investments over the period time. This transparent atmosphere will also assist to do more reforms in educational systems to streamline policies that will help individuals especially youth to get decent jobs with the private sector and to benefit form globalization and privatization. In the long term, when the transitions succeed and the new institutions are fully in place and operational, increased democracy and freedom will undoubtedly help establish an improved business environment encouraging investment in productive and value added economic activities which will in turn create increased number of decent jobs and help decrease unemployment.

These recent uprisings provide great opportunity for positive reforms and change. The new regimes should promote economic integration and growth in areas that support employment creation and income generation across segments of society especially the youth and skilled labors. This calls for effective dialogue and analysis regarding linkages between education and innovation, access to financing, access to basic services (water, electricity) in a manner that addresses greener economies to lead to integrated management of limited natural resources and to acknowledge the need for achieving sustainable development that aim to prevent new and additional conflicts in the future and achieve social equity and justice.

The economic success of the transition in the two countries depends now on three major factors:

- Respond to the tremendous social expectations of the population without further increasing budget deficits. So far, the only responses to social tensions have been increases in food subsidies and government jobs. Targeted social programs are more complicated to design but are a must for the whole region if it wants to combine economic growth and stability with social protection.

- Succeed in transferring companies illegally owned during the former regimes (33% of total GDP in Tunisia)[73] to new owners without harming and/or halting industrial activities.

- Convince the international community for a larger financial as well as technical involvement in helping countries in issues such as the management of increased migratory pressures, the diversification of economies and the reform of educational systems.

IV. MAJOR CONCERNS AND PERCEPTIONS ON TRANSFER TO GREEN ECONOMY

While the opportunities offered by the promotion of green economy interventions are globally found attractive, developing countries remain concerned that a full-scale transition to a green economy will become yet

[69] Revue Nord-Sud Expert, http://www.risques-internationaux.com/bienvenue/activites.htm
[70] The International Monetary Fund, http://www.imf.org/external/np/sec/pr/2011/pr11174.htm
[71] Magharebia News, http://www.magharebia.com/cocoon/awi/xhtml1/en_GB/features/awi/newsbriefs/general/2011/05/22/newsbrief-04
[72] Invest in Democracy, http://investindemocracy.net
[73] Revue Nord-Sud Expert, http://www.risques-internationaux.com/bienvenue/activites.htm

another instrument that imposes conditions and constraints on their development and the improvement of human welfare in developing countries. The following are the key challenges that developing countries including Arab countries could face to adopt green economies in the region:

A. ENVIRONMENTAL STANDARDS, NON-TARIFF BARRIERS TO TRADE AND COMPETITIVENESS

There is a general concern by developing countries that the transition to a green economy could result in the imposition of non-tariff barriers to trade (NTBs), unnecessary tariff barriers, or possibly taxes or bans on products and production processes that do not follow environmental performance standards that are able to be met by industrial and developed countries. While the imposition of stringent environmental countries is allowable under international trade rules, the non-discrimination principle states that the same rules that are required of imports must also be applied on domestic producers. While access to green investment funds can help industries to improve their environmental performance and access to international markets, the availability of such funds is limited, as is the human and technical capacity needed to achieve environmental improvements in the short-term. This has had implications for market access and the competiveness of Arab products in some sectors, such as the textile and agro-food sector.[74]

As more and more countries are becoming familiar with the basic concepts and modalities of a green economy, international trade is expected to be influenced by new green mechanisms that regulate the global marketplace of national goods and services. National products that are very likely to be subject to environmental standards will have better opportunities to be marketed in foreign markets.

This represents both a big opportunity and challenge for Arab states. That is, the specialization of national small and medium enterprises in "green niche markets" related to green production sectors will help them play a central role in the international trade exchanges in the future. The compliance with environmental standards, that usually require an internal industrial reshaping or changes in production and process methods, might affect the competitiveness of the companies with consequent loss of productivity and employment reduction. Still, this can be compensated by a strategic company reassessment to reduce other internal costs and by a better positioning of the interest company in the market.

B. IMPACTS OF GREEN SUBSIDIES

The issue of green subsidies can be also seen either as an opportunity or as a challenge depending on the strategy adopted for their application. While the goal of improving environmental performance of products and production processes is one that should be sought, developing countries have to be aware that industrialized countries are not imposing environmental standards that are attainable in the North thanks to the industrial support packages or subsidies that cannot be afforded by developing countries in the South that have less financial, technical and human resources to support green investment or innovation.

An interesting approach has been proposed by Khan et. al (2006)[75] identifying "good", "bad' and "ugly" categories of subsidies. "Good" being considered those measures adopted for example to encourage sustainable activities as research and development (R&D) in environmental technologies; "bad" are considered the subsidies to artificially lower the cost of fossil fuels or pesticides, measures that go completely towards an opposite direction of the one established by the green economy; "ugly" subsidies result in ambiguous policies that can achieve positive or negative effects as for example fertilizer subsidies, which can increase land productivity but also increase water pollution. National policies aiming at reaching a green economy development should clearly give priority to "good" subsidies by setting up a coherent and economic viable strategy.

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[74] ESCWA, "The impact of environmental regulations on production and exports in the food processing, garment and pharmaceutical industries in selected ESCWA member countries" (E/ESCWA/ED/2001/14, 25 October 2001.

[75] Khan, A., Sumaila, U.R., Watson, R., Munro, G. and D. Pauly, 2006. The nature and magnitude of global non-fuel subsidies.

C. RETRAINING AND CREATION OF DECENT JOBS

The specialization of national economies in green productive sectors and the investment to create green jobs will be bringing across the issue of training and skill development. Because of a shortage of skilled labor in higher technology services, the time and investment needed to retrain or train youth in these new sectors could represent a crucial obstacle toward a green economic expansion.

ILO defined a new category of workers, so called "green collars" that represent key figures in the economy of the future. A good cooperation among research institutions, vocational training institutes and universities has to find place in the political agenda of both developing and developed countries. For instance, among developed countries, proposed U.S. legislation would provide funding of up to US$ 125 million to establish job training programs, curricula and job standards. National and international stakeholders can join forces in developing countries in setting up green training and expertise centers for ensuring that investments in the green economy would not have to face shortages of adequately trained workers.

The major problem in the Arab region is the inability to generate jobs for youth. The youth unemployment in the Arab region reached about 50 per cent with higher proportions for females[76]. There is a high rate of unemployment among educated youth who have completed secondary and/or tertiary education. As the green economy concepts call for investing in green, clean and sustainable sectors to support development of sustainable enterprises and create decent work opportunities, there still remain many challenges and policy gaps that should be overcome. ILO proposed priority areas for decent work in the Arab region and can sustain and initiate jobs without sacrificing productivity. These priority areas include enhancing diagnosis for the informal economy in the region; provide support to active labor market programs and to SME's by linking incentives to productivity and working conditions; developing training and eduction systems and establishment of a regional observatory of labor markets in the Arab region to assess the impact of economic policies in terms of employment[77]. Key decisions still need to be made on investing in skills to deal with employment adjustments in sectors such as energy, transport, agriculture and others when designing macroeconomic policies in the Arab region.

D. MEASURING PROGRESS TOWARDS TRANSFER TO GREEN ECONOMY

In developing a regional strategy for green economy in the Arab region, common methodologies and measuring instruments need to be set to assess progress and choices made given the conflicting policy goals among various sectors involved. An approach should be developed to differentiate between green and non-green measures. A study was carried out by ESA (2010)[78] to estimate the proportion of the green products and services of the total economy in the United States in 2007. Their estimate ranged from 1 to 2% of the total private business economy based on specific classifications of what is considered "green". The product or service was considered "green" if it conserves energy or other natural resources or reduces pollution. The number of green jobs associated with this range was estimated by 1.8 to 2.4 million jobs respectively. The study calls for the establishment of national benchmarks to enable measuring the progress towards greener economy.

There is a need to develop guidelines for the identification and recognition of "green" economy activities that are standardized and harmonized for all Arab countries in order to monitor progress and achievements. Indexes that could measure environmental, social or human capital need to be developed. For instance, indicators such as environmental assessment, conservation of resources, pollution reduction, created number of jobs, revenues, average income per employee, economic welfare, income distribution, etc. would enable measuring

[76] ILO, 2009. Growth, employment and decent work in the Arab region: Key policy issues.
[77] ILO, 2011. Promoting Decent Work in a Green Economy. ILO Background Note to: Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication by UNEP, 2011.
[78] Economic and Statistics Administration, 2010. Measuring the Green economy. U.S. Department of Commerce, [78] Economic and Statistics Administration, April 2010.

the performance of activities within the green economy context and to give more accurate estimate of their size. In this connection, China has developed an index "Green GDP," which measures economic growth and factors in environmental consequences. The United States has also approved the initiation of some research on "green accounting," which could be a major step to adopt a better means of measurement of our "greener" progress.[79]

V. OPPORTUNITIES FOR MAINSTREAMING OF GREEN ECONOMY IN NATIONAL SUSTAINABLE DEVELOPMENT POLICIES AND PLANS

A. OBJECTIVES

Properly designed green economy activities may provide opportunities for poverty reduction and sustainable development through increased economic growth, job creation and improved governance of government policies. The biggest challenge for Arab countries is to determine which entry points into a green economy will provide the maximum benefits for all segments of society. Of particular importance is to determine, based on national circumstances, the policy reforms that need to be adopted for developing economic activities in which a country can have a competitive position in global green markets.

This chapter attempts to identify a number of green economy opportunities for the Arab region, based on the following criteria:

- faster growth than a brown economy while maintaining and restoring natural capital
- enhancement of social equity and jobs creation
- promotion of enhanced resource and energy efficiency
- substitution of renewable energy and low-carbon technologies for fossil fuel
- delivery of more sustainable urban living and low-carbon mobility

B. ENERGY EFFICIENCY AND PROMOTION OF RENEWABLE ENERGIES

Energy is an essential factor of production. Economic development cannot be conceived without available and technically suitable sources of energy. Ongoing efforts to promote an efficient use of energy and to replace fossil energy sources by renewable energies prove to be labor intensive. Compared to fossil-fuel power plants, renewable energy generates more jobs per unit of installed capacity, per unit of power generated and per dollar invested.[80] It is estimated that the sector employs more than 2.3 million people throughout the world, some 300,000 workers in wind power and nearly 170,000 in solar photovoltaic industries. In only 4 countries (Brazil, the United States, Germany and China) almost 1.2 million workers are estimated to be employed in generating biomass-derived energy (mostly biofuels). UNEP estimates that these figures will rise by 2030 to 2.1 million in wind energy and 6.3 million in solar photovoltaic industries and on the order of 12 million jobs in biofuels-related agriculture and industry. Moreover, jobs in installing, operating, and maintaining renewable energy systems tend to be more local in nature and are thus seen as important income generating activities in the developing world.

Many countries in the region are attempting to have their share of the spillover effects of renewable energy promotion. In Yemen, the electrification of remote village by the grid system is too costly. With the support of ESCWA, one village (Kawaa village) is getting electricity relying on solar energy. Results in this pilot village show a positive social and economic impact on services rendered by schools and health centers,

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[79] Measuring Progress by Joshua Nelson on January 5, 2010
http://postgrowth.org/measuring-progress/.

[80] Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication", UNEP, 2011.

better conservation of fish (the village's main activity), improved access to information (through television and radio) and improved skills of workers operating in the maintenance of the solar systems.

BOX 1 RENEWABLE ENERGIES ENABLE THE CREATION OF MORE THAN 1000 NEW COMPANIES IN TUNISIA

Between 2005 to 2008, clean energy plans have already allowed the Government of Tunisia to save $1.1 billion in energy bills, relative to initial investments of $200 million in clean energy infrastructure. Primary energy consumption from renewable sources, together with savings from energy efficiency, are expected to reach 20 per cent of total energy consumption in 2012. In December 2009, the government presented the first national Solar Energy Plan and other complementary plans with the objective of increasing the share of renewable energy sources from just under 1 per cent to 4.3 per cent in 2014. The plan includes the use of solar photovoltaic systems, solar water heating systems and solar concentrated power units for electricity generation. Total financial resources to implement the plan have been estimated at $2.5 billion, including $175 million from the National Fund, $530 million from the public sector, $1,660 million from private sector funds, and $24 million from international cooperation, all to be spent by 2016 on 40 renewable energy projects. Approximately 40 per cent of the resources are devoted to the development of energy export infrastructure. The energy savings expected to result from the Solar Energy Plan could reach 22 per cent for 2016, with a reduction of 1.3 million tonnes per year of CO2.

The Tunisian Solar Programme (PROSOL) – a joint initiative of the Tunisian National Agency for Energy Conservation (ANME), the state utility Société Tunisienne de l'Electricité et de Gaz (STEG), the United Nations Environment Program and the Italian Ministry for the Environment, Land and Sea – provides an example of solar thermal market development. Financial and fiscal support combines a capital grant qualifying for a VAT exemption, customs duty reduction and a bank loan with a reduced interest rate. Repayment of the loan is organized through the regular utility bill of the state electric utility STEG, with local banks receiving support that allows them to finance SWH projects with reduced interest rates.

This arrangement has generated direct financial benefits for the end users, when comparing the size of the monthly installments for a SWH system to the earlier electricity bills. A complementary interest rate subsidy was available during the first 2 years (2005-2006) of the program, reducing the interest rate of the loan to 0 per cent to the final end user. This support was removed in 2007 and annual interest rates for loan repayment have been 6.5 per cent. The government provides a subsidy of 20 per cent of the system cost or $75 per square meter, while customers are expected to finance a minimum of 10 per cent of the purchase and installation costs.

Over 50,000 Tunisian families now get their hot water from the sun based on loans amounting to more than $5 million in 2005 and $7.8 million in 2006 – a substantial leverage to PROSOL's initial cost of $2.5 million. With installed surface of the program reaching 400 000 m^2, the government has now set a more ambitious target of 750,000 m^2 for the period 2010-2014, a level comparable to much larger countries such as Spain or Italy. As of 2008, PROSOL helped avoid 214,000 tons of cumulative CO2 emissions.

Jobs have been created as 42 technology suppliers were officially registered and at least 1000 companies installed the systems. The experience demonstrates the potential returns on investing in renewable energy, creating new jobs, and reducing dependency on fuel imports.

Morocco launched an ambitious program aimed at reaching 20% of renewable energies of total energy production by 2012. The country created in 2010 the Moroccan Agency for Solar Energy in charge of establishing by 2020 a $9 billion project involving the construction of a 2 GW Solar Plant by 2019, over five sites. The project is expected to allow Morocco to save every year the equivalent of 1 million tons of fuel and to prevent the emission of 3.7 million tons of CO2. Although the economic impact of the project has not been quantified, it expected to have a clear incidence on jobs and investments, particularly on the remote Ouarzazate (south of Morocco) region where the plant is to be built.[81] Successful experiences in renewable energy production – both small scale and large scale – are abundant in the region, as can be seen in Boxes 1 and 2 However, supporting policies need to be put in place for these experiences to produce the desired spill-over benefits over the long term. Renewable energy has the potential to become a major pillar in a green economy in the Arab region.

BOX 2 WIND ENERGY IN EGYPT

Egypt has been one of the leading countries in the Arab region to develop a national wind atlas and to exploit wind energy for large-scale electricity production. In 2009-2010, hydroelectric power represented a share of 9 percent of total energy produced in Egypt while wind power (from Zafarana farm) contributed 0.8 percent (or 1133 GWh). In terms of installed capacity, hydro and wind contributed 11 percent and 2 percent (or 490 MW) respectively of total capacity during the same period.

Wind power capacity in Egypt has steadily been increasing since 2005, and the rate of increase is expected to grow further as the country attempts to achieve the ambitious national strategy set by the Ministry of Electricity and Energy and approved by the Higher Council of Energy in 2007 to increase by 2020 the share of renewable energy in total electricity production to 20 per cent (including 8 percent from hydro and 12 per cent from wind and other renewable sources of energy), which represents around 7200 MW. It is worthwhile noting that the private sector (Independent Power Producers IPPs) is expected to play a leading role in this development, contributing around two-thirds of the total investments required to reach the targeted capacity.

To support this expansion, the Egyptian government has earmarked an area of 7647 km^2 for the construction of wind farms, with almost free access to investors. Five wind farms, each with a production capacity of 250 MW were announced in 2009-2010 based on build-own-operate (BOO) contracts for 20 to 25 years, the first of which is expected to become operational in 2014. Other schemes to be applied to the private sector include a feed-in tariff system aimed at smaller wind farms having a capacity of up to 50 MW, according to which, the government guarantees a fair purchasing price covering costs and returns on investment.

Through this strategy, Egypt will benefit from low-carbon emission certificates while boosting local manufacturing opportunities for some of the wing energy equipments (such as iron structures, air turbines, electrical equipments, etc).

Source: Arab Republic of Egypt, Ministry of Electricity and Energy, Egyptian Electricity Holding Company, Annual Report 2009-2010 (http://www.moee.gov.eg/English/Takareer/2009-2010.pdf)

C. INDUSTRY

Apart from investments in specifically green activities covered in other sections, the focus here is on greening the brown, i.e. investments helping to improve environmental performance in existing, more traditional, sectors. For example, steel recycling saves 40 to 75 percent of the energy needed to produce virgin steel. This is important for ESCWA countries such as Egypt, Lebanon, Oman, Qatar and Syria where steel production is a significant part of total output and represents some 7% of industrial exports (14% for Qatar).[82] A proactive policy in the Arab region in favor of low-carbon, high-quality steel can help retain jobs. Turkey, the United

[81] L'Economiste, October 4 2010.

[82] Expert Group Meeting on the Role of Energy Networks in Regional Integration, ESCWA, 2009.

States, South Korea, the Commonwealth of Independent States, Germany, Japan and Spain rely to a significant degree on scrap for their steel production. Their steel employment is tending towards green. Worldwide, more than 200,000 people work in secondary production.

Aluminum, a major input in construction and infrastructure projects, is expected to play an increasing significant role in GCC's industrial sector. It accounts for 12 and 7 percent of GDP in Bahrain and Dubai, respectively. With more than $14 billion in investments planned, it is expected that aluminum production in the Gulf will rise from 1.5 million tons in 2005 to more than 5 million tons in 2009. Other proposed projects could lift GCC production beyond 7 million tons by 2012, giving the region 18 percent of world output.[83] Like the steel sector, the aluminum industry can be more energy-efficient. Scrap-based production saves up to 95 percent of the energy required to make aluminum from scratch. Today, more efficient production methods account for about 22 percent of total aluminum production worldwide and provide some 13,000 jobs in Japan, more than 10,000 in Europe, and roughly 6,000 in the United States.

New and innovative financing mechanisms have to be conceived as a support for the green economy in industrial sector. New insurance initiatives for example aim at reducing climate related financial losses and help protect existing jobs and generate new employment as a result of decreased risk for future investment.

The establishment of industrial zones that can facilitate the establishment of green industries can also to be promoted through innovative financing arrangements partnered with green investment. This can not only assist in creating new green businesses, but also encourage existing businesses to relocate to an industrial zone with high environmental performance standards and go green, as found in a case study conducted by ESCWA of small and medium enterprises in Jordan (see Box 3).[84]

BOX 3 ENVIRONMENTAL MANAGEMENT POLICIES AND SME COMPETITIVENESS IN INDUSTRIAL ZONES IN JORDAN

An ESCWA study examined the impact of government industrial policies seeking to establish and promote the sound management of industrial zones on SME competitiveness, with focus on Jordan. The hypothesis put forward was that industrial zones can foster opportunities for networking and industrial clustering through geographic proximity and economies of scale, and as such, they can also facilitate investment in the environmental services and infrastructure needed to support industrial development. Impact assessment methods found that the enforcement of sound environmental management practices in industrial zones does not adversely impact the competitiveness of SMEs and does not dissuade smaller firms from establishing themselves in industrial zones. The study concluded that industrial development goals embodied into industrial zone policies can be achieved in complementarity with sustainable development goals, without any contradictions. As such, environmental considerations should be incorporated into industrial zoning policies and planning from the onset.

Source: ESCWA, *Impact of industrial policies on the competitiveness of small and medium-sized enterprises*, E/ESCWA/SDPD/2007/7, 11 December 2007

D. TRADE

Trade is a powerful driver of economic growth, which is indispensable to reduce poverty and foster development. At the same time, it can be an important lever in terms of incentives for the production of goods and services that protect the environment. Today, new markets offer tremendous opportunities for producers if they are able to comply with the increasing number of environmental and health requirements being adopted by governments and the private sector in support of sustainable development. It is commonly admitted that a

[83] http://www.ameinfo.com/94645.html

[84] ESCWA, *Impact of industrial policies on the competitiveness of small and medium-sized enterprises*, E/ESCWA/SDPD/2007/7, 11 December 2007.

balanced approach to the global trading system is needed in order to maximize opportunities for developed and developing countries, and serve both environmental and development goals. ESCWA has been working closely with Member States in order to improve the export competitiveness of local industries and define a position with regard to the relationship between international trade and multilateral environmental agreements.[85] If such efforts continue within the context of increased green economy productions, the region can benefit more from the growing world demand for goods and services that protect the environment.

Indeed, the global market for environmental goods and services (EGS) has been growing steadily. It was estimated at more than $3.8 trillion in 2008/2009[86] against $360 billion in 1990. In the Middle East alone, the EGS market was valued at 1.6% of the global market (about 10 billion USD), representing 1% of the region's GDP in 2004. During the same year, the market was divided between $4.4 billion spent for environmental Goods and for $5.3 billion spent on environmental services.[87]

The EGS market is expected to grow with the increase of green investment opportunities. In developing countries, EGS will particularly be needed for sustainable agriculture, water resource management, water supply and management. More globally, EGS are already needed increasingly for energy-efficient buildings, sustainable transport and renewable energy.

Developed countries are proposing to bring down tariff barriers on EGS to aid their diffusion but developing countries are reluctant to make such commitments because they are concerned that such a process would end up liberalizing for more goods than just those with an environmental end use. There is also concern regarding the competition local industries would face. However, the contrasting positions between developed and developing countries are changing with the emerging economies increasingly becoming the new producers and exporters of EGS. The debate on the opportunity and extent of liberalization of the EGS is not settled but it is clear that sustainable ways for exploiting EGS can and should be part of the drive towards a green economy.

E. Liberalization of public environmental services

As the transition towards a green economy takes place, economic agents will need to get the right price signals in order to become willing to adopt an ecosystem-based approach to development. The liberalization of public environmental services can increase the foreign direct investment inflows, technology transfer, and public/private partnerships (outsourcing), in addition to promoting research and development, innovation and customization. Under the right conditions, the privatization of environmental public services, such as water supply and sanitation and sustainable transport is expected to:

- Yield economic spillovers by increasing demand for local capital, local inputs, and locally-sourced services and generate employment opportunities, including through the creation of new SMEs;
- Reduce costs for consumers due to increased efficiency;
- Improve range and quality of services offered;
- Free-up government budget for other expenditures.

However, EGS liberalization may also:

- Not generate desired spillovers effects or employment opportunities if commitments and obligations are too loosely structured;

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[85] Regional Workshop on Trade and Environment: Developing the Environmental Goods and Services Sector in the Arab Region for Transformation into a Green Economy, ESCWA, 2010.

[86] Innovas Solutions Ltd in partnership with K Matrix (2010) Low carbon and environmental goods and services: An industry analysis. Update for 2008/09. Department of Business Innovation and Skills, UK. Available at: < www.bis.gov.uk/.../10-1101-low-carbon-and-environmental-industry-analysis-2008-09-underlying-data>

[87] ESCWA (2007) The Liberalization of Trade in Environmental Goods and Services. United Nations, New York.

• Result in higher costs to consumers for environmental services. The private sector participation requires regulatory oversight to ensure equity and universal accessibility to essential basic services; In comparison, state-owned utilities operate based on welfare considerations, not necessarily on profit or cost-recovery basis;

• Increase unemployment and need for retraining due to employment dislocations and streamlining of redundant utilities workers;

• Displace emerging national firms unable to compete with multinationals from participating in the sector.

In sum, gradual and measured liberalization and support measures are needed to avoid undesired social consequences and allow local service suppliers (and associated environmental goods providers), especially SMEs, to benefit from new market opportunities.

In the Arab region, public environmental services such as sewage, water treatment and distribution, refuse disposal infrastructure, are state-owned projects. In these cases, liberalization might require privatization as a first step and this would require proper timing and sequencing. In addition, the region needs to establish regulatory as well as competition and enforcement capabilities for the private sector. In general, situations vary from one country to another. The small size of some national environmental services markets favor public-private sector partnership approaches to privatization and/or regional or sub-regional schemes followed gradually by liberalization as national firms may not otherwise materialize.

F. TOURISM

With 5% of world GDP and 6-7% of total employment, tourism is a vital component of the global economy. In many countries of the Arab region, it contributes significantly to the balance of payments. In Jordan and Morocco, tourism revenues are the second largest source of foreign exchange. The financial crisis has slowed tourism but it still produces 5% of the carbon emissions in the world and is often seen as a major source of biodiversity loss, pollution, degradation of landscape and high water consumption. Moreover, only a small portion of total tourist expenditures is captured by "the poor".

These negative trends can be reversed and tourism can be a powerful catalyst for a transition to green economy. The UNEP model estimates that if 0.2% of global GDP (currently U.S. $ 135 billion) is invested each year in greening the tourism sector, it could continue to grow stably for decades to come, by contributing to economic growth and employment while ensuring significant progress for the environment, reducing water consumption by18%, energy consumption by 44% and CO2 emissions by 52%, compared to the scenario of maintaining the status quo.

The conservation of biodiversity is central to eco-tourism development. For example, Jordan developed its National Biodiversity Strategy and Action Plan in 2003, which gave a major boost to the country's eco-tourism sector. The strategy, recognizes land, water, pasture, terrestrial and marine ecosystems as well as wildlife and aquatic resources as critical resources, not only for agriculture, but also for tourism development, and consequently for socio-economic rural development as a whole.

The movement towards more sustainable tourism could increase employment and revenues for local communities, meet the new demands of consumers looking to travel more environmentally friendly, increase the competitiveness of tourism businesses and significantly reduce their operating costs. Box 4 includes an example for greening hotel industry.

Six Senses, a luxury hotel group, reports that the return on investment of various energy-savings measures applied in a hotel in Thailand ranges from six months to a decade. For instance:

- The energy monitoring system cost US$4,500, enabling the hotel to achieve 10 per cent energy savings as well as to identify areas for potential savings;
- Investment for the mini chiller system was US$130,000, which can make savings of about US$45,000 annually, and thus pays off in 2.8 years;
- The heat-recovery system cost US$9,000, saving US$7,500 annually, which is equivalent to 1.2 years payback time;
- The laundry hot-water system cost US$27,000, saving US$17,000 annually (1.6 year payback time);
- Efficient lighting cost US$8,500, resulting in US$16,000 savings per year, i.e. taking six months to pay back (this did not consider the longer life-span of the lights);
- Investment in a water reservoir was US$36,000, leading to annual savings of US$330,000 (less than a month payback time);
- Biomass absorption chillers cost US$120,000 resulting in US$43,000 saving annually, i.e. 2.8 years payback; and
- Medium voltage (6.6kV) underground electric copper cables cost US$300,000. Payback is approximately 10 years from lower energy loss, but other benefits include less radiation, less power fluctuation and reduced fire risk.

Sources: UNEP, 2011. Tourism: Investing in energy and resources efficiency. http://www.unep.org/greeneconomy/portals/88/documents/ger/GER_11_tourism.pdf

BOX 4 EXAMPLE OF GREEN INVESTMENT IN THE HOTEL INDUSTRY AND RETURN ON INVESTMENT

G. PROTECTING ECOSYSTEMS

The role of ecosystems in developing a sustainable green economy, notably by supporting agriculture and rural livelihoods, cannot be overemphasized. Carefully designed response policies for climate change present an opportunity to get the valuation process right by investing in both adaptation and mitigation; ecosystem-based adaptation can help lead to societal transformational change; embracing and capturing economic values of ecosystem services in mainstreaming decision making tools and indicators can help in designing effective policies for sustainable growth and societal well- being; investing in a new development model using small-scale fiscal stimulus that mobilizes the untapped potential of local people is imperative for unleashing a low carbon green economy; and the current economic model driving the world economy is not sustainable, so there is a need for a new approach to economic development where ecosystems are the underpinning foundations. Box 5 includes a case study on the importance of fisheries and aquaculture and relation to protecting biodiversity in the Mediterranean basin.

H. BUILDINGS AND HOUSING

The green building sector represents tremendous opportunities in the whole region. The demand for government as well social service buildings is extremely important and it has already been the driver for economic growth in many countries (see Box 6 below for Morocco's experience).

The sector is among those with the higher multiplier effects on employment as well the creation of SME's as the subcontracting activity in the sector is important. This will become even more so as norms and standards for energy-efficiency and security start prevailing in the sector. The increase in demand for green building components and energy-efficient equipment will stimulate green manufacturing jobs.

Fisheries contribute positively to food security, income, and employment generation in a number of Arab countries, notably Egypt, Morocco, Algeria, Tunisia, Oman and Yemen. In general, in the Arab region the total fish production is estimated by 3 million tones per year in 2003 increasing to 3.4 million tones in 2009[88]. Aquaculture production is relatively small but has been significant in Egypt with total production of over 700,000 tones in 2009. However, the fisheries sector in the region faces a number of serious threats, including over fishing and land-based water pollution from the discharge of untreated wastewater into rivers and coastal environments.

Under a green economy, the challenge would be to find the right balance between regulating and limiting fishing activity for the purpose of protecting fish stocks and biodiversity, while maintaining - or even increasing – the share of the industry in the economy and other social benefits.

During the last decade, a number of projects have been implemented in the Mediterranean basin under FAO leadership, all of them following an integrated and regional cooperation approach. For example, one of the achievements of the CopeMed project was making available scientific and statistical information on artisanal fisheries in the countries of the project,[89] this information which was very scarce and partial prior to the project. By doing so, it became possible to implement the right national and regional activities for improving socio-economic benefits from small-scale fishing in a sustainable way.

Source: FAO CopMed project website (http://www.faocopemed.org/)

BOX 5 PROTECTION OF FISHERIES IN THE MEDITERRANEAN BASIN

Many of the jobs are likely to be local opportunities which is especially beneficial for developing regions and areas of high unemployment.

Because buildings are responsible for 40% of primary energy consumption, greening existing buildings and constructing new green buildings will substantially reduce energy use and air pollution. Box 6 includes selected examples of green building and housing in the Arab region.

I. TRANSPORTATION

It is estimated that transportation of all types is responsible for around 39% percent of energy-related greenhouse gas emissions in the Arab region, with the fastest-rising carbon emissions of any economic sector. With significant reliance on cars and trucks—and increasingly airplanes—for both passenger and freight movement, transportation is one of the most important consumer of fossil fuels and a big contributor to climate change.

Buses, trams, and railways use far less energy per passenger- or freight-kilometer than road vehicles, while helping reduce traffic congestions and providing affordable transportation means for all segments of society. In addition, many opportunities for greening the transportation sector exist through the introduction of cleaner fuel options. From Cairo's green cabs to Rabat's tram, countries in the region are seizing this opportunity and are making strategic investments to build and upgrade rail networks, integrating high-speed inter-city lines with regional and local lines, which also illustrates the substantial expansion in green jobs that Arab countries can expect from such green infrastructure investments. Box 7 includes case studies on Sustainable Transport and cleaner fuel vehicles in UAE and Egypt.

[88] FAO, Fishstat Plus, Totla Fishery production 1950-2009.
[89] Algeria, France, Italy, Libya, Malta, Morocco, Spain and Tunisia

Morocco with the support of UN Habitat implemented one of the world's most successful and comprehensive slum reduction and improvement programs. In a concept already being replicated in Egypt and Tunisia, the Moroccan program widely considered the best of its kind in Africa, is spearheading Morocco's Cities without Slums drive[90].

The Government had set a target in 2004 of humanely clearing the slums in 85 cities by the year 2012. Working with the Ministry of Housing and Urban Development and its agency Al Omrane, in the past decade it has improved or eliminated 45.8 percent of the country's slums which are home to 1.6 million people. The cost of the programme has so far come to 25 billion dirhams (USD 2.86 billion) of which the Government has allocated 10 billion dirharms (USD 1.1 billion).

Green Building in United Arab Emirates and Saudi Arabia[91],[92]

Masdar was established in 2006 as a commercially driven investment enterprise in the renewable energy and sustainable technologies industry by Mubadala, Abu Dhabi's government arm for the diversification of the economy. Masdar operates five units, one of which is Masdar City, a 6 km^2 clean technology industrial cluster which is expected to host hundreds of businesses as well as a research university (Masdar Institute). Masdar strives to offer a model for sustainable urban development, notably in terms of energy and water management practices that will be adopted.

In terms of energy, Masdar City will manage consumption through the application of stringent insulation and low-energy use lighting and appliances measures, in addition to the use of smart energy management systems for optimizing electrical load. As such, the City is expected to require much less energy compared to a traditional town with the same size. On the supply side, only renewable energy will be utilized, whether from onsite or offsite sources, with a 10MW solar photovoltaic plant already operational and connected to Abu Dhabi's power grid since April 2009.

In terms of water, Masdar City strives to reduce its consumption in half compared to a city of equal size through the use of water efficient appliances and the installation of smart water metering devices, but also through the utilization of recycled water in irrigation.

Upon its completion, Masdar City will serve two roles, economic and scientific. From an economic perspective, the City will boost the development of a clean technology industrial cluster that will give Abu Dhabi a competitive edge in global energy markets. On the other hand, and by hosting a research university, Masdar City will have a scientific role in the development and dissemination of renewable energy and clean technologies.

Sources: http://mubadala.ae/about/, http://www.masdar.ae/, http://www.masdarcity.ae/

Traditional architectural concepts have allowed early populations in Saudi Arabia to sustain the heat of the desert. Inspired by this indigenous knowledge, new buildings in Saudi Arabia such as that of the King Abdullah University of Science and Technology, are reapplying these designs and supporting them with innovative ideas to achieve high energy efficiency. Measures applied include:

- Maximizing the use of natural daylight in order to reduce the need for electric lighting inside the buildings.
- Using natural ventilation towers to facilitate air movement and channel hot air out of the buildings, therefore reducing the need for electrical cooling.
- Constructing a very large roof that connects all the university buildings on campus. While the roof shields the buildings from the harsh sun rays, it also hosts solar thermal and photovoltaic arrays that harness this renewable source of energy for electricity generation.

Source: http://www.kaust.edu.sa/about/sustainable/planning.html

BOX 6 SELECTED EXAMPLES OF GREEN BUILDING AND HOUSING IN THE ARAB REGION

[90] http://www.unhabitat.org/list.asp?typeid=2&catid=277

[91] http://www.masdar.ae/ar/home/.

[92] http://www.kaust.edu.sa/about/sustainable/sustainable.html.

As part of its policy to improve public transport, reduce traffic congestions and reduce greenhouse gases emissions linked with the use of private cars, the Roads and Transport Authority of the Government of Dubai established in 2009 the Dubai Metro, which is powered by clean electricity. One line (known as the Red Line) is currently operational and spans 52km (Jebel Ali to Dubai airport) while a second line (Green Line) spanning 22km is expected to become operational in late 2011. Statistics disclosed in 2010 indicated that 140 thousand passengers take the metro every day.

Source: http://www.rta.ae/wpsv5/wps/portal/Rail?SwitchToLatestLocale=true

A number of countries in the Arab region have succeeded in the introduction of natural gas into their transportation systems, including Egypt, the Syrian Arab Republic and the United Arab Emirates. For example, Egypt established in 1994 its first company for converting vehicle engines to compressed natural gas (CNG), and in less than five years, the number of such companies rose to six. In addition, around 114 stations were built that sell CNG. As a result, the number of gas powered cars reached 119,000, 79 percent of which are taxis. To support the shift to natural gas, Egypt put into place an array of incentives, including tax exemptions for companies that operate natural gas vehicles, subsidizing conversion cost for car owners, as well as reducing gas market price compared to gasoline.

Source: ESCWA, Expert Group Meeting on Transport for Sustainable Development in the Arab Region and Climate Change Issues, Cairo, 29 September - 1 October 2009 – Egypt Country paper

BOX 7 SUSTAINABLE TRANSPORT AND CLEANER FUEL VEHICLES[93]

J. WATER PROVISION

Using water more efficiently is a top priority around the globe, and more critically in the water-scarce Arab region. In addition, opportunities exist in increasing non-conventional water sources whether for potable or non-potable uses such as landscape irrigation, makeup water for cooling towers, and toilet flushing.

In order to benefit from these opportunities, improved Research and Development (R&D) and innovation in the region is needed to adapt water use efficiency/water treatment technologies to local conditions (See Boxes 8 and 9). In addition, laws and regulations are needed to ensure that health and safety standards are observed through the use of these technologies. Examples of available technologies include:

- Gray water collection and reuse (wastewater from clothes washers, showers, bathtubs, and lavatory faucets) experiences exist in North America but prove to be costly with the return on investment showing in the medium to-long term.

- Rainwater harvesting experiences exist in the region and have been giving positive results, particularly in rural settings.

- Air-conditioner condensate reuse experiences are giving good results in North America and deserve attention in the GCC countries where air-conditioners are widespread.

- Treated wastewater is being used increasingly in large buildings and cities around the world and deserves attention in the Arab region.

[93] ESCWA, 2009: Transport for Sustainable Development in the Arab Region: Measures, Progress Achieved, Challenges and Policy Framework, E/ESCWA/SDPD/2009/WP.1.

- Desalination is already widely used in GCC countries and being considered by other countries in the region. The environmental effects of this technique need to be handled with a lot of attention as the consequences on marine life have proven to very negative.

In the Gulf, the provision of municipal water to a growing and more demanding population is a critical issue which comes at a very high cost associated with unsustainable water desalination practices. While GCC countries are still largely subsidizing water tariffs and sending the wrong price signal, water use efficiency and conservation measures have been taken in some countries, such as in Bahrain and the UAE, through the introduction of water metering and water saving devices.

In the UAE, water saving devices were distributed free of charge to 55,000 households and 5,250 public institutions in 2010, a simple action that is expected to have a tangible impact of reducing water consumption by as much as 30%. In Bahrain, and since early 2000, water use metering is computerized and as such leaks and/or misuse can be detected and addressed early through properly trained personnel.

Source: Gulfnews, Free water saving devices for UAE homes, 13 January 2010; Water demand management in Bahrain, Mohamed Qamber, Ministry of Electricity and Water, Bahrain (paper presented at the Regional conference on water demand management, conservation and control, Amman, 7-10 October 2001)

BOX.8 WATER METERING AND SAVING DEVICES IN GCC

India has tapped on the benefits of rainwater harvesting in an attempt to resolve recurrent water scarcity problems in six of its villages with a total population of 10,000 people. An innovative technique was adopted through what became to be known as the "Aakash Ganga" (literally meaning "river from the sky") initiative, launched in 2003 and winner of World Bank's Development Marketplace Award in 2006. The technique consists of channeling the rainwater accumulating on houses' rooftops using gutters and pipes to a network of underground reservoirs for storage and subsequent use during the dry season.

The innovation of the initiative lies not only in the technique used, but also in the financing mechanism adopted to ensure long term viability and potential for replication. In this connection, a public-private-community partnership was established whereby initial capital is shared between the government, the community and private sources. Costs are fully recoverable through water use revenues charged to villagers, which proves the viability of approaches to recognize the economic value of water.

Source: http://online.wsj.com/article/SB124697560759705907.html

BOX 9 WATER HARVESTING FOR DRINKING IN SMALL VILLAGES IN INDIA

K. SANITATION

Sanitation systems in the region need to be developed in many parts of the region, offering tremendous investment possibilities. Even when sanitation systems exist, too often many threats remain, largely due to the chemical pollutants present in wastewater. There is a need to improve the wastewater treatment to enable re-use in various functions such as agriculture, urban planning, domestic uses, etc. Promoting hygiene awareness can encourage expansion in wastewater treatment schemes. Low-cost methods in wastewater treatment should be promoted to treat greater amounts of wastewater. Treatment of wastewater for re-use in various functions especially gardening and other domestic uses would add a non-conventional water resource to augment the available and scarce water resources in the Arab region. There is a need to seek new opportunities besides the traditional, often governmental, sources of funding from domestic and external funding by promoting the Public-Private Partnerships (PPP), promoting small and medium enterprises that provides sanitation services and by encouraging other market based financing models. Box 10 shows a unique experiment of construction of artificial wetlands at Lake Manzala, North of Egypt.

Lake Manzala, located north-east of the Nile Delta, receives 25,000 – 50,000 m3 per day of wastewater from surrounding villages, causing a deterioration of the lake's water with severe consequences on human and ecosystem health. In response, the Egyptian Environmental Affairs Agency (EEAA) launched in 1999 a GEF funded project, implemented in cooperation with UNDP, an engineered wetlands project to treat wastewater in a cost effective way. The implementation of this 5 million US dollars project, which ended in 2007, involved the construction of a biological treatment facility, in addition to a commercial fish farm spread over 60 acres of land which reuses the treated water.

In addition to the environmental benefits from reduced pollution flow into the Mediterranean Sea and protected diversity and enhanced habitats of fish, bird, and other aquatic species, the project exhibited a potential for job creation (notably in aquaculture), as well as the development of national capacities and competitive edge in the field of wastewater treatment using engineered wetlands. Indeed, the necessary national expertise was developed that enables the replication of the project into other sites in Egypt.

Source: UNDP, 2007, Final Evaluation of the UNDP/GEF Lake Manzala Engineered Wetlands Project (EGY/93/G31)
http://projects.csg.uwaterloo.ca/inweh/getdocument.php?F=5476%7C7fc8502519561c1023f3a28ae295121f

BOX 10 BIOLOGICAL TREATMENT OF WASTEWATER IN LAKE MANZALA IN EGYPT

L. WASTE MANAGEMENT

As cities grow, waste management becomes a pressing issue. In a green economy, recycling plays an important role in waste management. UNEP estimates that with the widespread implementation of systematic paper recycling in North America, Europe and Asia, the global paper collection rate increased from 24.3% to 45.3% between 1970 and 2004. Recycling is the fastest growing source of green employment and offers the greatest opportunity to create new green employment in the waste management industry (see boxes 11 and 12).

Unfortunately, in many developing countries recycling is associated with indecent and hazardous working conditions. This is the case of garbage pickers and recyclers in many large cities across the Arab region, in ship dismantling, the bulk of which is carried out by thousands of migrant workers in South Asia and for the growing amount of electronics waste, most of which is disassembled in small workshops where safety and environmental rules are mostly non-existent. However, there are recycling methods of day to day products, including paper and garbage, which provide decent jobs while making important contribution to reducing energy consumption and associated pollution of air and water. In the United States alone, the number of recycling jobs amount to more than 1 million.

M. AGRICULTURE

Agriculture is an important sector which has great potential for greening economies, not only because of its share of GDP but also due to the fact that it accommodates the highest proportion of labor force compared to other sectors in the Arab region.

There are various good opportunities for green investment in the agricultural sector. These include the reduction of post-harvest losses by improving storage and transport facilities, value addition by processing harvested produce, increase in production of organic fertilizers and biological and integrated pest control methods and green banks and micro-credits for farmers and SMEs.

The government of the UAE has adopted a public-private partnership model for the management of municipal solid wastes, therefore creating important opportunities for private businesses to enter the sector. As a result, the number of large municipal solid waste management companies in the UAE reached 12 in 2011, with companies having mixed local and foreign origins. The spill-over potential for SMEs has been important, since many related activities were outsourced to smaller local companies, notably in the manufacturing and distribution of recycle bins, collection of recyclables, advertisement services for recycling, etc. This has had a positive impact on job creation in the sector[94].

A number of supporting government policies were the driving force behind the development of the sector, including:

1- Awareness and education programmes: For example, programmes were launched in Sharjah and Abu Dhabi to educate the community on the benefits of proper segregation inside the household;

2- Appropriate infrastructure: For example, waste transfer stations and recovery facilities were setup across Abu Dhabi and Al Gharbia with the objective of reaching 75% landfill diversion by 2020.

3- Waste collection: A federal law on waste collection, handling, disposal and recycling across the UAE has been passed since 1999, with clear guidelines to be followed by waste management companies. Since then, this law has been complemented by laws at the Emirate level.

4- Green building codes: To obtain construction permits, new buildings have to receive a sustainability rating, which among others, assesses a building's performance in terms of the management of recycled materials and different types of waste (construction, organic and hazardous waste).

BOX. 11 PUBLIC PRIVATE PARTNERSHIP FOR MUNICIPAL SOLID WASTE MANAGEMENT IN THE UAE

Industrial ecology is a concept that became popular in the 1990's, according to which industrial activities are fashioned to mimic natural ecosystems, such as one industry's by-products constitute another industry's raw material input. According to this concept, both economic and environmental gains can be achieved, and the cost of compliance with environmental regulations is greatly reduced.

In Denmark, industrial ecology has successfully been applied in the city of Kalundborg, where six companies established in an eco-industrial park cooperate with each other and with and the municipality of Kalundborg and neighboring industries to reduce waste. In this park, waste from one company is sustainably consumed as a resource by another business. For example, a coal fired power plant operating in the park produces gypsum as a by-product from the desulfurization process, which it sells to a plasterboard product manufacturer also located in the park. In addition, excess heat from the power plant fulfills the process steam needs of two companies (specializing in pharmaceutical and enzyme production). In another example, wastewater from the different companies is treated by the municipality and is used as process water (notably as cooling water) by the park's tenants, while the biomass produced from the wastewater treatment process is sold to a fertilizer company.

Source: http://en.symbiosis.dk/resources.aspx

BOX 12 INDUSTRIAL ECOLOGY IN DENMARK

The future of the agricultural sector as a whole is a subject of controversy in the Arab region. Despite its relative importance in national GDP and employment aggregates, the debate on food sovereignty, food security and virtual water costs of agriculture is not settled. Some argue that sovereignty depends on the capacity of countries to produce the food needed by its people, and as such, the agricultural sector should remain important and encouraged. Others claim that agricultural practices are not sustainable in the region at least because of their

[94] ESCWA 2011, Environmental Goods and Services in the ESCWA Region: Opportunities for Small and Medium-Sized Enterprises

unsustainable water consumption in light of water scarcity and shortages characterizing the region. They argue that agricultural products should be imported, which is politically unacceptable by Governments as well as the public at large in the Arab region.

If green jobs and investment are to be developed in the sector, this will require a long-term commitment from policy makers as well as from society as a whole to the preservation of agriculture as a strategic sector. Only then would farmers find it profitable to engage in sustainable farming practices. Green agriculture case studies in Uganda and Morocco are shown in Box 13.

The Ugandan experience with organic agriculture is well documented in the literature as a green economy success story whereby the sector was able to contribute to sustaining rural livelihoods. In order to turn the export of organic agricultural products into a major contributor to the economy, Uganda's approach focused on the adoption and effective implementation of organic agricultural standards, and a dual path was followed whereby both a national standard (in 2004) and a regional East African standard (in 2007) were encouraged. As a result, Uganda was able in just five years to quadruple the number of certified organic farmers while increasing the value of organic exports by more than six times (to over 22 million USD in 2007/8). More recently (2009), Uganda developed a national organic agriculture policy to transform its conventional agricultural production, which is expected to build on previous successes.[95]

Green Morocco Plan (Agriculture Development Plan)[96]

In 2008, Morocco adopted its Green Morocco Plan for agricultural development. The plan is a comprehensive one that seeks to support a sector that not only provides 19% of GNP but also employs over four million rural inhabitants, in addition to the potential opportunities in the agro-food industry. One major pillar of the Plan is based on the principle of aggregating agricultural production for resolving financial, structural and technical obstacles facing the development of the sector. In addition, the Plan sees the sustainable management of natural resources used in agriculture a condition for sustainable agricultural development. As such, a multi-disciplinary approach is followed that focuses on:

- Integrating climate change considerations throughout the plan;
- Encouraging water conservation practices through various mechanisms (economic incentives, new technologies, management practices, etc.);
- Supporting renewable energy use in agricultural production;
- Land management and conservation practices for increasing agricultural area.

BOX 13 EXAMPLES ON GREEN AGRICULTURE IN UGANDA AND MOROCCO

VI. PREREQUISITES FOR TRANSFER TO GREEN ECONOMY IN THE ARAB REGION

A. POLICIES, GOVERNANCE AND MAINSTREAMING GREEN ECONOMY PRINCIPLES IN NATIONAL DEVELOPMENT PLANS AND REGIONAL AGENDAS

The transition to a green economy requires a new set of legislation, taxation and subsidy schemes, a commitment from policy makers to mainstream green economy principles in national development plans and in regional agendas as well as a modern vision in the governance of development processes. Countries in the Arab region already have been setting legislative frameworks for sustainable development. Weaknesses are reported in the governance of development programs, in the capacity and/or willingness to apply legislation and in the inter-ministerial coordination of sustainable development plans.

[95] http://www.unep.org/pdf/greeneconomy_successstories.pdf
[96] http://www.ada.gov.ma/en/Plan_Maroc_Vert/plan-maroc-vert.php

A major instrument in the effective governance of green activities relates to the institutionalization of monitoring and evaluation schemes at all stages of project definition, implementation and follow-up as well as to the timely publication and diffusion of the results of these evaluations. Passing legislation that requires environmental and socioeconomic impact assessments for any development project is a related issue. Experiences from around the world show that there is no way around such practice/pilot projects to have the expected impact. Moreover, these schemes have proven to be very efficient in establishing regional and international partnerships and in mobilizing financial resources.

B. Private sector involvement

The transformation to a green economy will require changes in how business is conducted. So far, too often, taking into account sustainable development in business has been limited to social responsibility. It is now widely accepted that businesses must incorporate social and environmental concerns in their activities. However, the green economy paradigm is also about market opportunities and sources of funding offered by developing sustainable businesses. Thanks to the green economy, the private sector, whether operating in industry, agriculture or services, can diversify and expand the boundaries of its activities. There is a definite case for robust investment in green activities, these industries are expanding at a time when so many others offer less investment opportunities.

The modern entrepreneur must move from a defensive attitude where the role of business in sustainable development is limited to its social responsibility to a proactive attitude where the company benefits are fully from the opportunities of sustainable development. School programs and university degrees need also to adapt in light of this new vision. Governments and professional associations can play an important role in facilitating this transformation by helping young entrepreneurs take full advantage of niche markets and financial resources offered by today's green economy.

Moving towards a green economy will definitely require new regulation of the private sector. Regulatory mechanisms such as limits to pollution and emissions, pesticides in food, water contamination, and use of environmental taxes and fines, will be crucial policy instruments that should be major or central components to promoting the "green economy".

C. Strengthening the role of civil society and encouraging partnerships

Achieving a green economy is only possible through "a collective vision, creativity, action and support from a broad cross-section of society, including governments, the private sector, multilateral development and financial institutions and consumers". Moreover, a major objective of green economy initiatives is to benefit major components of civil society, particularly youth and women. Involving all components of civil society from the early stages of such initiatives is thus necessary to their success.

It is essential to promote the convergence of public interest with private commitment and leadership in determining strategic green economy activities. Many opportunities offered by green economy will require large investment and the concerted involvement of governments, researchers, the private sector, civil society as well as the international community.

Policy makers, with the support of ESCWA and others, have the responsibility of initiating partnerships (nationally with the private sector, civil society, academia and local authorities, regionally with partner countries and regional economic communities as well as internationally with UN and other global institutions) in order to facilitate the mobilization and maximize the required investment and know-how. It is only through successful partnerships that ambitious green projects can succeed as developed throughout this study.

D. Accelerating regional integration and implementing the Greater Arab Free Trade Area

The low level of Arab regional integration was stated earlier in this study. The transition towards a green economy requires an expanded industrial base benefiting from economies of scale and easy access to markets. This cannot be achieved without accelerated integration of Arab region economies. The economic rationale for integration is clear and attractive. Common markets that integrate small and fragmented economies generate economies of scale and improve competitiveness. So far, no country has found an effective alternative to regional integration to achieve these objectives.

A significant driver of the economic integration of ESCWA countries is the expansion of inter- and intraregional trade which boosts growth rates, allows a higher degree of inter-ESCWA specialization, and improves the allocation and distribution of resources in the region.[97] The move towards the Greater Arab Free Trade Area can start with sub-regional settings. The GCC countries are already making significant progress. The process is slower in the Maghreb despite evidence that intra-regional trade could be multiplied by 10 which would allow a 33% increase of the sub-regions exports and boost growth rates by 2 to 3 percentage points.[98]

The move towards regional integration in the Arab region must address three questions: with whom to integrate, how to discriminate against the rest the world and how far to go in the integration. Today many, countries in the region are signing association agreements with the European Union. In this case the question is no longer to determine the degree of discrimination of the Arab region against the rest of the world but rather whether individual countries or sub-regional blocks must gradually blend into the broader concept of a Euro-Mediterranean zone. A more desirable alternative would be that the Arab region builds on its historical, geographical and economic ties with Europe but negotiates partnerships with the EU as a coherent regional bloc (or a set of sub-regional blocs) unified and powerful enough to negotiate mutually fruitful Euro-Mediterranean partnerships.

Many green economy projects, including energy interconnections, renewable energy industries as well as establishing research and innovation networks, can be the initiators of Arab accelerated regional integration and cannot take place without such integration. In the energy sector, the region can build upon decades of efforts aiming at strengthen regional cooperation particularly for electricity. Expansion of the electricity networks can constitute a strategic investment that can achieve economic integration among Arab countries.[99] The case for improved integration in R&D is developed in the following section.

E. Articulating innovation and Research and Development (R&D) systems

The number of researchers in the region has been growing at 6-7% annually, a rate close to world averages. However, expenditure on scientific research as a percentage of GDP is around 0.2% against a world average of 1.4% (reaching 4% in Japan for example). Research and innovation needs improvement as the number of patents in the region is low. The sustainable development framework and empirical evidence from around the world indicate without any doubt that R&D is a major ingredient of growth in a knowledge economy.[100] In the Arab region, this can be achieved pending three underlying principles:

- the necessary linkages between research institutions and the private sector,
- the importance of regional cooperation, research is costly and complex, no single country can face by its own neither the quantitative nor the qualitative challenges of R&D promotion, and there is no single Arab country that has reached the critical mass of researcher needed to sustain its development process.

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[97] Assessment of trade policy trends and implications for the economic performance of the ESCWA region, ESCWA, 2009.
[98] Le commerce, pour une croissance créatrice d'emploi, Note introductive du Forum pour le Développement en Afrique du Nord, UNECA, 2007.
[99] Expert Group Meeting on the Role of Energy Networks in Regional Integration, ESCWA, 2009.
[100] Promoting Research and Development in North Africa, UNECA, 2008.

- the process must put emphasis on actors/vectors of performance, namely SMEs, youth and women and their innovative spirit and the competencies of the Arab Diaspora.

Improved regional R&D cooperation for a successful transition to a green economy can take the form of: research networks, shared infrastructure, increased regional meetings seeking common solutions to common problems and inventories of what exists in order to avoid duplication, and capacity building on the *how to's* of regional cooperation with operationalizing appropriate regional mechanisms, seeking funds in common, taking advantage of economies of scale.

Policy makers have a particular responsibility in creating the appropriate environment for this setting not only in terms of investment but also in terms of the legislative framework necessary to the protection of intellectual property and the norms and the achievement of international scientific standards.

F. IMPROVING EDUCATION AND PROMOTING VOCATIONAL TRAINING AND RETRAINING PROGRAMS

Education and all forms of training constitute both an opportunity and a pre-requisite in a green economy context. A transition to a green economy will create demand for workers, many of them in skilled trades or professions, and filling these positions will require adequate training programs. As countries of the region are seriously considering reforms of their educational systems, they need to address the "skills gap" existing between available workers and the needs of green industries.

At higher educational levels, there is a "management challenge," which will consist in the development of new perspectives, awareness, and managerial capacities. Programs are needed to train new managers with a new vision moving the corporate attitude towards sustainable development and the company benefits fully from the opportunities offered by green economies. School programs and university degrees need also to adapt in light of this new vision. A good example of a green skills agreement is the one developed by Australia as shown in Box 14.

Australia tackled the challenge of green jobs creation through a national skills development strategy – the Green Skills Agreement - adopted in 2009, which aims to make available the skilled workforce needed for the development of a green economy. The strategy covers a number of sectors including construction, energy, manufacturing, agriculture but also services. Focusing mainly on vocational education and training (VET), the strategy entails upgrading the skills of VET teachers and the review of training packages to include sustainability practices. In the process, partnerships are forged with training institutions and the business sector. The number of VET students in Australia reaches 1.7 million yearly.

BOX 14 THE GREEN SKILLS AGREEMENT IN AUSTRALIA[101]

As UNEP indicates, to remedy such shortages, it requires not only adaptations in training new workers, but also retraining efforts for those workers for transition from older, polluting industries to new ones. The United Nations agencies have a particular role to play in this area in partnership with businesses, professional associations and community organizations. In all countries, it is important to link green subsidies, tax breaks, and other incentives provided to companies with job quality and training standards.

[101] http://www.deewr.gov.au/Skills/Programs/WorkDevelop/ClimateChangeSustainability/Documents/GreenSkillsAgreement.pdf

G. TECHNOLOGICAL TRANSFER AND NEW FINANCING ARRANGEMENTS

The constant development, diffusion and access to green technologies represent a pivotal issue for green economy. Among the possible vehicles for boosting R&D in green sector are to promote innovative public-private partnership, cooperative R&D centers and new financial mechanisms to expedite the spread of green technologies. In order to be effective, technological transfer needs to be dynamic and premised on concrete cooperation among government, academia, research and private sector.

In terms of dynamism many SMEs are playing a pioneering role in innovation especially in the renewable energies sector, they realized that green innovation helps business to stay at the cutting edge and can also support in reducing wasteful practices. The virtuous consequence for these companies is that they can play a leadership role in the marketplace expanding sales and revenues. In terms of national growth this implies a growth of GDP and employment rates.

New and innovative financing mechanisms have to be conceived as a support for the green economy. The establishment of industrial zones that can facilitate the establishment of green industries can also be promoting through innovative financing arrangements partnered with green investment. This can not only assist in creating new green businesses, but also encourage existing businesses to relocate to an industrial zone with high environmental performance standards.

VII. INSTITUTIONAL SETTINGS FOR SUSTAINABLE DEVELOPMENT AND THEIR SUITABILITY FOR TRANSFER TO GREEN ECONOMY

A. Current settings and evaluation

The current institutional sustainable development setting goes back to 1987 when the United Nations started searching for an appropriated framework for governing and applying the sustainable development concept. The 1992 "Earth Summit" in Rio was an important step in this process. It led to the adoption of Agenda 21 Action Plan, the creation of the three framework conventions on desertification, biodiversity and climate change. The UN Commission for Sustainable Development (CSD) was tasked with the follow-up of the Rio Summit.

This framework was further supplemented by the Johannesburg Plan of Implementation (JPOI) adopted during the 2002 World Summit on Sustainable Development (WSSD) in Johannesburg. The plan renews the UN's commitment to Agenda 21 and defines new priorities for action related to the MDG's in the areas of poverty eradication, health, trade, education, science and technology, regional concerns and natural resources. The plan recognizes that "Strengthening of the international institutional framework for sustainable development is an evolutionary process. It is necessary to keep relevant arrangements under review; identify gaps; eliminate duplication of functions; and continue to strive for greater integration, efficiency and coordination of the economic, social and environmental dimensions of sustainable development aiming at the implementation of Agenda 21."

In line with a major recommendation of Agenda 21, countries defined National Sustainable Development Strategies (NSDS) in order to establish their own sectoral economic, social and environmental policies. The 2002 WSSD urged Member States to formulate and implement their NSDS by 2005. Regional and sub-regional efforts are also undertaken by countries in order to coordinate their environmental and sustainable development policies and prepare common visions and statements in international fora.

More locally, Agenda 21 identified major groups as being critical in its implementation. Representatives of indigenous people, women, youth, workers, farmers, local governments, the scientific community, business and industry, and NGOs participated to the Rio conference and have since then continuously broadened their involvement in the implementation of Agenda 21.

A big achievement of the JPOI is that it puts emphasis on the institutional framework for sustainable development and particularly:

- Institutional strengthening and capacity building
- Integrated management and ecosystem approach
- Legal and regulatory frameworks
- Partnerships
- Coordination and cooperation
- Accountability and transparency

At the national level JPOI states that good governance is essential and should be based on:

- Sound environmental, social and economic policies
- Democratic institutions responsive to the needs of the people
- The rule of law
- Anti-corruption measures
- Gender equality
- An enabling environment for investment

For the preparation of Rio+20, CSD launched consultations to "seek information, inputs and contributions including through a questionnaire addressed to member States, the UN system, international financial institutions (IFIs), Major Groups and other stakeholders, on their experiences including success factors, challenges and risks with respect to the objective and themes of the Conference." Responses to the questionnaire were synthesized and provide the following lessons:[102]

1. At the regional level, there are several instances of cooperation among United Nations institutions. The United Nations regional commissions have been coordinating closely to produce joint analysis as an input to the preparations for the United Nations Conference on Sustainable Development. United Nations organizations are working together in the African region to assist NEPAD. It was suggested that, while the experience of the regional implementation meetings had been positive, the regional commissions could be further integrated into the Commission on Sustainable Development process.

2. At the national level, one Member State noted that the diversity of contexts made any blueprint for the institutional framework neither desirable nor feasible. In most developing countries, coordination of policy development and implementation across relevant agencies remained a challenge. Most countries reported that active national sustainable development councils were in place, and that they included participation of major groups and other stakeholders, although young people are still underrepresented in many cases. Those that did not have a national sustainable development council in place reported on various inter-ministerial coordination mechanisms. It is agreed that involvement of national sustainable development councils in preparations by countries for the Conference would be useful and should be promoted.

3. The overall effectiveness of national sustainable development strategies depends on many factors (economic, social, environmental) and on effective governance within national circumstances. Those that have been effective embody participatory approaches in development and implementation, effectively integrate the different dimensions of sustainable development, and are adequately resourced. National development plans and poverty reduction strategies, linked to budget processes and contextualized within a country's long-term vision for sustainable development, as well as strategically linked to sectoral plans and complemented by subnational plans, could be quite effective.

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[102] Synthesis report on best practices and lessons learned on the objective and themes of the United Nations Conference on Sustainable Development, Preparatory Committee for the United Nations Conference on Sustainable Development, 2011.

4. Often, the scope of a national sustainable development strategy is too narrow, focusing solely on environmental issues. Cultural, political and socio-economic aspects are not always adequately reflected. For example, while all the Pacific small island developing States have a national sustainable development strategy or a planning process that adheres to principles of sustainable development, the five-year review of the implementation of the Mauritius Strategy suggests that the integrated planning process needs improvement. Most national sustainable development strategies in West Asia have failed to identify the optimum institutional and administrative arrangements needed to coordinate and implement their action plans, which are often not compatible with other sector strategies.

5. To support implementation of national sustainable development strategies, one Member State suggested the establishment of an independent peer review mechanism drawing upon expertise from Member States that would help countries to identify gaps and address challenges faced in implementing sustainable development goals and targets.

6. Subnational and local governments play a critical role in integrating national sustainable development policies into practical local programmes for urban and rural planning and management, along with fostering community and civil society participation in these programmes. Chapter 28 of Agenda 21 emphasized the important role of local authorities in promoting sustainable development at the local level. Since 1992, thousands of municipalities throughout the world have formulated and implemented local Agenda 21 strategies, although they may not always be identified as such, having evolved and refocused their activities under different programmes.

7. Participation of major groups in national decision-making processes on sustainable development has significantly increased since 1992. Participation in policy development ranked as the most common form of engagement overall, followed by public hearings, partnerships and inclusion in scientific panels. Most United Nations system organizations also ranked multi-stakeholder consultations for international meetings high on the list.

8. Almost all Member States reported close collaboration with non-governmental organizations. Developed countries more often reported collaboration with trade unions, local authorities, business and industry and the scientific and technological community. Developing countries more often cited collaboration with women, indigenous people and farmers. Young people are consulted in fewer instances, but were mentioned by both developed and developing countries, as well as by United Nations organizations. The latter tend to reach out to all nine major group sectors based on the spectrum of their activities, but most often reported collaboration with business and industry or the scientific and technological community.

9. Major groups generally collaborate with the country or countries of interest to their organization and also reported on collaboration with United Nations organizations and with each other. The increased collaboration among some major groups themselves at the international level is an important development and strengthens their role and voice in international sustainable development institutions.

B. SUITABILITY FOR TRANSITION TO GREEN ECONOMY

To achieve sustainable development through the vehicle of green economy the following recommendations are made for reforming the current setting at the national, regional and global levels.

- At the national level, major efforts towards the definition and implementation of the action plans of national sustainable development strategies as well as towards the coordination of these strategies with other sector strategies.

- At the local level, increased involvement of local authorities and civil society in all stages of the definition, implementation and follow-up of development plans.

- At the regional level, a peer review mechanism drawing upon expertise from Member States that would help countries to identify gaps and address challenges faced in implementing sustainable development goals and targets.

- At the global level, more effective coordination between all UN bodies. For the Arab region, this implies in particular better synergies between the three conventions on desertification, biodiversity and climate change since these three issues are not only of particular importance to the region but are also strongly interrelated as well as their linkages to other initiatives such as sustainable consumption and production, green economy, nexus between water and energy, food security, etc. and the use of the Millennium Development Goals (MDG's) in measuring progress achieved toward sustainable development and more importantly eradication of poverty.

- At all levels, more systematic monitoring and evaluation mechanisms of all actions undertaken.

To make these recommendations more relevant for an efficient transition towards a green economy, there is a need for an explicit implication of the private sector in the institutional framework. The place of the private sector in the setting is crucial in order to ensure that investments as well corporate cultures towards environment and sustainability are in line with a successful transition to green economy.

VIII. PROPOSED PRIORITIES AND REQUIRED ACTIONS FOR TRANSITION TO GREEN ECONOMY

In view of the opportunities, challenges and constraints that influence the costs and benefits of a green economy in the Arab region, the question remains how to define what constitutes a green economic strategy or a green economy intervention in the Arab countries. Figure 9 illustrates for example what could be included in the green economy framework.

In framing Arab positions and programs for a green economy that will benefit Arab countries, care should be taken to ensure:

a. Consideration and respect for regional specificities and priorities
b. Application of Rio principle on common, but differentiated responsibilities
c. Protection against green protectionism
d. Access to financing for green investments across environmental sectors, not only those focused on climate mitigation and low-carbon green growth.

It should be clearly understood that the call for a transition towards a green economy is not an alternative to sustainable development. Rather, it is a pathway proposed to accelerate the integration of the social, economic and environmental components of sustainable development. The overall objective remains a reduction of poverty and a better contribution to sustainable development through accelerated green-led economic growth, enhanced social and environmental entrepreneurship, strengthened local capacities. The Arab region needs to reach a consensus on the definition and objectives of green economy as well as on the key sustainable development concerns and priorities of the region, recognizing at the same time national and/or sub-regional specificities.

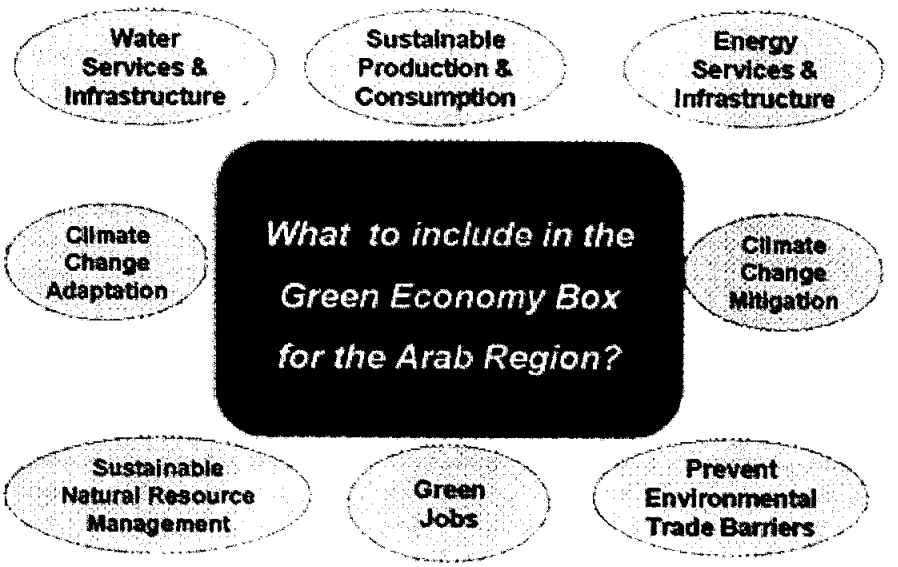

FIGURE 9 POSSIBLE CONSTITUENTS OF A GREEN ECONOMY FRAMEWORK

The transition to a green economy is an ambitious, multi-sectoral process. Success requires a roadmap for transition with a clear timeline and coordinated government efforts. In setting-up the Arab region vision on the path to a green economy, lessons must be drawn from the past experiences, and particularly those related to the national sustainable development strategies and the extent to which they had an impact on the region's development.

An explicit component of green growth is that we do not only need to diminish the carbon content of existing activities (greening the brown) but we need to innovative minds for setting up and carrying new activities for a refocus of policies and investment in green economic sectors (growing the green), such as water, urban development, low-carbon transport, renewable energies and energy efficiency and sustainable agriculture.

This endeavor requires the commitment of all components of society including policy makers, local authorities, the private sector, academia and civil society, with a particular involvement of youth and women groups. Thus, a participatory process must be an important priority in transition to green economy by providing platforms for national as well as sub-regional consultations on Green Economy, building partnerships, enhancing synergy with existing strategies, policies and programs. The Arab Governments should take into consideration conceptual frameworks informing the debate at the global level, but ensure that transition to a green economy takes into account regional and national priorities, issues and constraints.

Effort must also be undertaken to ensure implementing existing regional initiatives agreed upon by the Council of Arab Ministers Responsible for the Environment (CAMRE) in relation to green economy especially the Sustainable Development Initiative for the Arab Region, which was launched by CAMRE at the World Summit for Sustainable Development (WSSD) in 2002 and states the following:

> *"This initiative aims at addressing the challenges faced by the Arab Countries to achieve sustainable development. It asserts the commitment of the Arab countries to implement Agenda 21 and the development objectives included in the Millennium Declaration and the outcome of the World Summit on Sustainable Development, taking into consideration the principle of common but differentiated*

responsibility. The initiative seeks to enhance the participation of the Arab countries with the aim of strengthening their efforts in realizing sustainable development, particularly in the light of globalization and its impacts, as well as finding a mechanism for financing the programs for environmental protection and sustainable development."[103]

Thus, the Sustainable Development Initiative for the Arab Region is fully consistent with the scope of the thematic discussion that will take place at Rio+20 on a green economy in 2012 in the context of sustainable development and poverty eradication. The Arab region should thus seek to elaborate on these two components, and particularly building on mechanisms for increase financings for green investment at the macro-economic and micro-economic levels.

The green economy activities should also build upon existing programs or incorporate them into a new framework for action at the regional and national levels. For instance, by focusing on mechanisms for increasing finance and investment in green sectors, regional programs already underway to build capacity and action on SCP and trade and environment linkages could be complemented.

The Arab region moves to a green economy should additionally seek to be broad and flexible to allow a broad range of stakeholder group to benefit from greener economies in the region, as well as support its implementation. The following are areas and activities could be considered within this process:

- Adopting legislation and regulations to encourage green investments, including environmentally-friendly foreign investment and green technology transfer through private sector partnerships and international donor assistance.
- Increasing Arab access to financial instruments and mechanisms at the global, regional and national level with special attention paid to encouraging green investments by the private sector, with special programs targeting small and medium sized enterprises or firms seeking to implement green investment schemes with targets aimed at youth employment and the employment of women and vulnerable groups.
- Promoting voluntary incentives for pursuing green investments should also be encouraged, such as eco-certification schemes for environmental goods and services that recognized superior environmental performance in areas that are of significant concern to the Arab region, i.e. meeting higher water use efficiency targets in water scarce environments.

The following are the key questions and issues that should be thought of by the Arab countries in the transition to green economy:

- What is the economic, environmental and social case for moving towards a green economy?
- Does the green economy improve welfare?
- Who are the key players in the region and at the country level who can make this happen and what should be their role? What partnership agreements are needed?
- What institutional innovations are required to support these actors?
- What lessons can be drawn from the past experiences related to the national sustainable development strategies and to what extent did they have an impact on the region's development?
- What success stories are available in the region? What was the impact of these cases?
- What kind of ambitious national, sub-regional and regional projects would move the countries or the region as whole to a definite transition to a green economy and what sort of partnerships at the national, regional as well global levels are necessary?

[103] LAS, "The Sustainable Development Initiative of the Arab Region," adopted by CAMRE, 2002, p.1.

Box 15 includes the components of a regional position and policy priorities that should be considered in transition to green economy interventions by the Arab countries.

- Go far beyond the issue of emissions reduction
- State vision and objectives assigned to green economy transition
- Recognize role of existing institutions at international, regional and sub-regional levels
- Recognize lessons from past sustainable development experiences carried at the national and international levels
- Provide stable and predictable policy climates that foster green investment
- Enhance policies that stimulate the more efficient use of all available energy resources and minimize the wasteful use of other critical natural resources such as water, forests, minerals, agricultural lands and air.
- Empower business community to put in place emission-reducing technologies and solutions that create jobs, raise standards of living and address major environmental problems.
- Stimulate the development and deployment of innovative technologies which could provide the basis for green product development.
- Continue to work for greater awareness of the need to adopt lower carbon-intensive lifestyles in both the present and future generations of consumers and workers engaging them to take action for higher education and skills training programs needed to better prepare future generations of workers for a green economy.
- Ensure coordination and coherence among institutions and the Arab countries.
- Ensure engagement of all relevant stakeholders, including parliamentarians, local communities, the private sector, civil society, academia in the process.
- Support green partnerships at the national, regional as well international levels
- Encourage increased international support to science, technology and innovation
- Encourage increased international support to capacity building

BOX 15 PROPOSED KEY COMPONENTS OF A NATIONAL/REGIONAL GREEN ECONOMY STRATEGY OR INTERVENTION BY THE ARAB COUNTRIES

CONCLUSIONS AND RECOMMENDATIONS

Green economy has been seen recently as an essential vehicle to strengthen and speed up the process of implementation of sustainable development initiatives worldwide. The Arab region was hit by the financial crisis as well as climate change and food crises during 2007-2008. There have been global signals that the green economy would provide opportunity to redirect investments into green projects and activities to enhance long term economic performance while seeking to reduce environmental risks and generating future prosperity.

The green economy experiences from the Arab region showed that this model can be adapted to the region and can give positive results in terms of alleviating poverty, reducing unemployment and eventually achieving sustainable development. The recent revolutions the Arab region witnessed seek increased democracy and freedom and thus would help to establish new business environment that can embrace the green economy concepts in particular achieving social equity and creating decent jobs to help decrease unemployment.

The study proposed a set of actions for transfer to green economy in the Arab region such as strengthening the role of private sector and civil society through partnerships, accelerating regional integration, promoting national education and R&D systems, improving vocational training, and boosting technological transfer and innovation and new financial mechanisms. Also, of importance, green economy principles need to be merged into national development plans and regional policies and to be supported by good governance system in terms of new set of legislation and financial instruments. Institutional settings will need reforming at all levels in order to suit the transfer to green economy to improve harmony between sectoral strategies, increase involvement of local authorities and to build an Arab regional vision among all countries.

An Arab position should be developed that takes into consideration regional specificities and priorities. The transition to green economy is a multi-sectoral process and requires the development of a roadmap and committed efforts by the governments and all components of the society and providing access to financing for green investments across various sectors. The development of an Arab vision towards green economy would provide the political support needed to support its implementation and would facilitate building up common position and objectives to green economy transition by all Arab states within the framework of implementation of the Arab Sustainable Development Initiative launched in 2002. The following are the key recommendations of the study:

- The green economy agenda has a wide scope as it deals with all socio-economic and environmental aspects. Therefore it is advisable to initiate green economy activities based on prioritized actions in key sectors that will have immediate and short term impacts on the Arab societies especially, youth, women and poor and vulnerable groups.
- A number of success stories of the Arab initiatives that are recognized in the green economy context were presented. There is, however, a need to conduct an inventory to collect other best practices and lessons learned in order to document these existing Arab green initiatives and to build on in other countries in the Arab region.
- Promoting green job opportunities in the Arab region within the new atmosphere of transition to democracy in many countries in the region. This will require serving training needs and skills development in support of innovation, research and development, and the transfer of green technologies from developed countries.
- It is essential to empower civil society in the region and to encourage partnerships to boost the momentum of the genuine transfer to greener economies in the region. Special program and platforms might also be sought for supporting green investment in and by small and medium enterprises (SMEs), in view of generating green jobs and income opportunities through greening the economy.
- The demand for green economy should be fostered through increased awareness and understanding among consumer groups and civil society. Access to information is one of the primary tools by which consumers can be made aware of the implications of their consumption decisions. To achieve this, consumers, community-based organizations and the media are thus important partners to raise awareness on green economy concepts and principles.

- Intensify capacity building programs for public and private sectors on green economy should be a priority while stressing the role of UN organizations and non-governmental organizations in this area.
- The success of green economy interventions will be dependent on building effective public-private sector partnerships that provide bridges between the environmental, economic and financial communities.
- The green economy should not be seen only as revolving around industrial policies or low-carbon activities rather it should embrace a wide range of policies covering all productive and environmental sectors from the Arab region including the regulations and reforms required for the transition to a green economy.
- In order to the Arab countries to have a stronger position and identity in the global negotiations meetings, there is a need to adapt the Arab countries initiatives and positions towards the global agenda and to promote full involvement with the developing countries in other regions in order to benefit from South-South cooperation and also among each other by advancing regional and joint activities to support the sustainable development in the region.
- Promote international cooperation to support developing countries, especially in the areas of technology transfer, green financing, micro-financing, trade and investments including the best use of existing climate change adaptation and mitigation mechanisms. The role of UN agencies should be highlighted particularly with regard to supporting the concept of the green economy in the member states.
- Developing regional economic models and modalities for assessing the cost and benefits of transition to a green economy, and its potential in promoting economic growth, job creation and poverty eradication in the region. Also, there is a need to develop region-specific and reliable indicators to enable measuring the progress achieved in green economy activities.
- Encourage Arab governments to adapt green economy concepts and to create an investment climate that attracts related projects and technologies.
- Create national and regional institutional frameworks to facilitate coordination among all agencies concerned with the transition to a green economy.