GREEN ECONOMY AND GREEN FINANCE

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I. INTRODUCTION

In 2008 the world witnessed the worst financial crisis and the start of the most severe recession since the Great Depression of the 1930s. In order to address the global financial and economic crisis, UNEP launched the Green Economy Initiative in 2008. 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" (UNEP, 2010). The UN has further described green economy as a tool that can be used to achieve sustainable development and alleviate poverty.

It is estimated that every one percent fall in growth in developing economies will translate into an additional 20 million people consigned to poverty (World Bank, 2008). This happens at a time when economic inequality globally and within countries has been on the rise, increasing the gap between the rich and poor. Moreover, environmental deterioration continues unabated in spite of international and national efforts, negotiations, and a number of proposed environmental agreements aimed at address environmental problems. The current political situation, turmoil and unrest in several Arab countries and the continued occupation of the Palestinian territories have deterred efforts in these countries from transitioning to a green and more sustainable development path. However, since the launch of the UNEP Green Economy Initiative, several Arab countries have taken serious steps to adopt green and sustainable development strategies and direct investments towards green sectors.

II. GREEN ECONOMY AT THE NATIONAL LEVEL

This section of the report provides relevant actions and initiatives made in the Arab world supporting the transition to a green economy, focusing on a selected set of countries.

Algeria has initiated a number of reforms and initiatives intended, in particular, to diversify the economy, improve the business climate, enhance energy security, protect the environment, green its industries, and promote sustainable land use. These initiatives, however, need to be consolidated and articulated as part of a national strategy to promote the green economy, with an emphasis on promoting sustainable production and consumption, while contributing to wealth and job creation. Algeria considers green economy as a means of achieving the objectives of sustainable development, creating jobs, sustaining economic growth (diversifying the production base and increasing value-added), and strengthening innovation and reducing poverty.

Greening the economy in Algeria is reported to have provided about 450,000 jobs in 2012 and is projected to generate over 1.4 million jobs by 2025, especially in five sectors: renewable energy, energy efficiency, water management, waste treatment and recycling, environment-related services and management of green zones. Efforts in Algeria have also been devoted to the greening of cities. This included cities such as Boughezoul, where a pilot scheme in energy saving and renewable energy development (solar, photovoltaic and wind) has been introduced, combined with plans to develop green business areas and industries, such as agro-food processing and agricultural waste recovery, in the Wilaya of Tipasa (UNECA, 2015a). The country has also launched one of the largest solar projects with a capacity of 4,000 MW (UNECA, 2015a).

In February 2014 Algeria hosted a very successful High-Level African Conference on green economy in Oran, Algeria. The conference, which was very well attended, has resulted in a

declaration that encouraged African countries to develop strategies aimed at facilitating the transition to a green economy.

Bahrain has placed sustainable development plans amongst its top priorities and has developed a package of programs aimed at raising the standard of living of its citizens. Emphasis is laid on education, healthcare and social welfare as a reflection of the country's vision that citizens constitute the center of any development process. A great deal of attention is given to environmental issues, including the protection and maintenance of flora and fauna and protecting the environment from harmful emissions. A series of measures were initiated to conserve wildlife through the protection of natural habitats. The Kingdom has also taken measures to ensure adequate monitoring and compliance with environmental laws (UNEP, 2012).

The National Committee for the implementation of the energy efficiency and renewable energy plan in Bahrain has recently initiated action aimed at achieving the SDGs, particularly goal number 7 related to renewable energy and energy efficiency. The plan includes some 22 initiatives including green buildings, green procurement, a public transport system, and enhancing energy efficiency in the different economic sectors. The plan aims to reach five percent of renewable energy in the total energy mix by 2025 and ten percent by 2035, as well as six percent energy efficiency by 2025 (NCIEERE, 2017).

In its efforts to conserve energy, Bahrain has taken measures to produce potable water using waste heat recovery produced during the production of aluminum. Waste heat, known also as secondary or low-grade heat, refers to heat produced by engines, equipment or industrial processes, which is usually lost and unutilized in industrial processes. This is especially the case in the aluminum industry due to the high temperature of the exhaust gas in furnaces, which can reach between 650-760°C. The waste heat recovery (WHR) technique was adopted at Aluminum Bahrain (ALBA) where the flue gas is used to operate waste heat boilers. The exhaust gas from waste heat boilers is then used to produce steam for seawater desalination (ESCWA, 2013).

In 2016 ***Egypt*** launched its Sustainable Development Strategy 2030, promoting the use of green economy as a tool to achieve sustainable development. Furthermore, the Ministry of Planning and Administrative Reform (MPAR) together with the Ministry of Environment has established a "Green Economy Working Group" covering the different economic sectors in Egypt. Egypt has also undertaken a number of studies on green economy, including "Transitioning to a Green Economy in Egypt, 2013", "Egypt Success Stories, 2013", "National Action Plan for Sustainable Consumption and Production, 2015", and "Integrating Environmental Considerations in Five Priority Sectors in Egypt, 2016".

Egypt has also initiated a green and sustainable cities program. This has been translated in the design and construction of mega cities projects: Al Sheikh Zayed City, south of Cairo, the New Administrative Capital, Al Alamein City in the North Coast, and El Galala project along the Red Sea.

Other green economy related projects include converting organic waste into biogas and agricultural residues (rice straw) into fodder and fertilizers. Wastewater recycling, reuse, and seawater desalination is another area given priority in Egypt in order to meet current and future water needs in the country.

Egypt also began utilizing compressed natural gas (CNG) in transportation through a small demonstration project managed by the Ministry of Petroleum in 1992, which involved two oil companies (PETROBEL and GUPCO) introducing vehicles using CNG to their fleets. The program started in 1992, but CNG was introduced in the Cairo Transport Authority and Greater Cairo Bus Company in 1996. In 2012, eight natural gas refueling stations were opened and four locations in Port Said were identified as centers for converting cars to CNG and for refueling CNG vehicles in Sinai, Bahariya Oasis, El Minya, Siwa, Dakhla, Fayoum, Wadi El Natrun, and Aswan (ESCWA, 2013).

Egypt is working to reach a level of electricity production of 85,000 megawatts by 2030 compared to the 31,600 MW produced currently. Renewable and new energies, including solar and wind energy and biogas, are important components of this target, set to make up 20 percent of all energy produced by 2022 and

35 percent by 2030. The size of investments in renewable energy in Egypt is one clear demonstration of the government's policy to transition to green economy. By the end of 2017, Egypt is set to achieve a target of 4,300 MW of solar and wind energy. The renewable energy program includes the building of a 2 GW power generation capacity and wind rotor blade factory by Siemens. Under the feed-in-tariff scheme, investment in renewable energy is estimated to generate between USD 6 to USD 7 billion of investments between 2017 and 2018.

The private sector is also quite active in Egypt, where private sector companies such as Mansour Manufacturing and Distribution Group, after joining the Global Compact, have invested in energy efficiency and water and are converting the fleet of over 900 vehicles to natural gas. SEKEM Holding in Egypt is another organization which has based its operational strategy on caring for the environment through investments in organic agriculture and community development (AFED, 2008).

In ***Lebanon*** following a sustainable development path has been mainly reflected in addressing climate change. Priorities such as clean and renewable energy, the greening of the economy and promoting resilience in the face of increasing climatic change have been some of the main concerns for decision-makers, civil society, businesses and the general public.

Recently, the Ministry of Environment launched three new initiatives that form a significant step forward in building a low carbon economy and greater national resilience in order to address climate change concerns. These include the "Lebanon Low Emission Capacity Building" project, the "National Action Program to Mainstream Climate Change into Lebanon's Development Agenda", and the "Third National Communication to the UNFCCC" (Third National Communication, 2016)

Jordan has been taking steps in the last several years to transition into a green economy. With the support of UNEP, Jordan has implemented a project on greening the Jordanian economy in 2011. Jordan considers transitioning to a green economy as crucial for its current and future prosperity. It has developed its own green growth strategy (UNEP, 2011a), which underscores why green growth is an important concept for the country. UNEP, in its report "Towards a Green Economy – A Scoping Study", identifies six sectors as particularly important for Jordan's green economy – these are water, renewable energy and energy efficiency, transport, waste management, tourism and agriculture.

A great deal of progress has been achieved in recent years by the Jordanian government in achieving sustainable development, these include:

- Developing a Master Strategy for the energy sector, which includes generating 1,800 MW of renewable energy and reducing energy consumption by 20 percent by 2020.
- The adoption of the Renewable Energy and Energy Efficiency Law No. 13 in 2012, which introduces a regulatory and financial framework for renewable energy and provides incentives for energy efficiency.
- The development of the National Water Strategy 2008-2022, "Water for Life", which aims at improving water supply through investment in large water infrastructure projects, reduce the use of groundwater, and increase wastewater treatment and water efficiency.
- Promoting donor programs aimed at supporting the greening of the economy and improving access to finance, including through the Agence Française de Développement's renewable energy and energy efficiency credit line and the United States Agency for International Development's infrastructure and capacity building efforts to improve water efficiency (ASI, 2013).

Other initiatives launched in Jordan to green the economy included the launching of an eco-tourism initiative, which is part of the National Tourism Strategy for Jordan. Other initiatives included promoting energy efficiency and the use of renewable energy in the transport sector, and in converting waste from landfills into electricity through a non-profit company Al-Russaifah Biogas (ESCWA, 2013). Jordan has also launched an air conditioning initiative with solar energy for the Royal Cultural Centre. It has also recently signed off a contract for energy efficiency and renewable energy for 14 hotels

in the Petra area with a total cost of 3 million Jordanian Dinars (Government of Jordan, 2017).

Moreover, Jordan has recently launched a green economy strategy, and the Ministry of Environment announced in June 2017 a set of 24 projects to kick-off implementation of the strategy, covering energy, waste management, water, tourism, agriculture and transport.

Morocco in 2008 launched the National Renewable Energy and Energy Efficiency Plan, with the aim of developing alternative energy to meet 15 percent of local energy needs and enhance energy saving measures in the country. The Solar Plan was then introduced in 2009 using concentrated solar technologies and photovoltaic systems with a total installed capacity of 2,000 MW by 2020. Morocco plans to achieve 42 percent of installed renewable energy capacity by 2020 (UNECA, 2016)

Morocco's green economy program includes renewable energy, energy efficiency, water economy, sustainable solid and liquid waste management, inclusive agriculture, aquaculture and ecotourism. Further efforts include the adaptation and enforcement of regulations, environmental taxation, costing of environmental goods and services, sustainable financing mechanisms, mobilizing knowledge and innovation, and monitoring and evaluation (UNECA, 2015b).

Morocco has also initiated an ambitious green and sustainable development program. One of the first initiatives under this program is the generation of electricity through a concentrated solar power (CSP) program. In November 2009, the government of Morocco announced a program for renewable energy called the "Integrated Solar Energy Generation Project". The aim of the program is to install a CSP system with a capacity of 2,000 megawatts (MW) by 2019. The program includes five sites/plants covering 10,000 hectares with three sites/plants generating up to 500 MW each, one site/plant generating 400 MW and the last site generating 100 MW, all for a cost of USD 9 billion.

In 2008, the country adopted the Green Morocco Plan on sustainable agriculture (2010-2020). The plan aims to support the agriculture sector, which represents 19 percent of the GNP and directly employs more than four million people. A major pillar of the plan is the principle of aggregating agricultural production for addressing financial, structural and technical obstacles facing the development of the sector. A multidisciplinary approach is adopted in order to support the green plan for agriculture, including: (a) Integrating climate change considerations in the plan; (b) Encouraging water conservation practices through various mechanisms (economic incentives, new technologies, management practices, etc.); (c) Encouraging organic farming practices by focusing on natural fertilizers and organic seeds; (d) Supporting renewable energy use in agricultural activities; and (e) Enhancing land management and conservation practices in agriculture.

In 2010, Morocco introduced a "green tax", as well as a tax on raw materials and semi-finished plastic products. The revenues generated by the tax are re-injected into the environmental sector through the National Environmental Fund to invest in recycling and the treatment of waste. In 2009, the Energy Development Fund was created with USD 1 billion to support these initiatives. Moreover, Morocco's Economic and Social Council has identified potential sectors for greening. For example, investments in solar and wind energy is estimated to reduce CO_2 emissions by 9.5 million tons and create 23,000 new jobs by 2020 (UNEP, GIZ, 2016).

Zenata in Casablanca is designed as a green city with 30 percent vegetation cover, rapid transit system, for 400,000 inhabitants creating about 130,000 jobs. Mehdya project close to Rabat with eight kilometers of beachfront is another green project comprising of 400 hectares, including residential, medical, commercial services and a convention center, is considered to be the biggest eco city in the region. The main source of energy is solar and wind energy, recycling and reuse will be promoted as well as zero net energy consumption of both passive and active systems, with 100 percent of water and waste to be recycled. It also plans to include an electrical power transportation system.

The continued occupation of ***Palestine*** constitutes a major deterrent for the state to take serious

ARAMEX: SHIFTING TO A GREEN ECONOMY

Raji Hattar

Over the past ten years, we have seen a change in the way some corporates view sustainability across the Arab world. In the past, corporate activism was merely seen as a way to give back to the local community or support environmentally friendly initiatives. Organizing philanthropic activities, such as employee volunteering programs or donating to charities, broadly captured how these companies approached corporate activism. But with business dynamics changing, and some companies beginning to look for new ways to enhance performance, corporate activism is taking on a different role. Rather than being seen as only geared towards environmental and community development, corporate activism is starting to be viewed as a strategic investment for business development.

What has facilitated this shift? There are four main drivers:

First, staying in business. Regulations are raising the bar when it comes to environmental protection, and companies must find solutions to reduce their carbon footprint if they want to stay in business. In the UAE, Abu Dhabi introduced new laws in 2009 requiring all new building developments to adhere to green building codes. Dubai Municipality also introduced its green building regulations and specifications in 2011, which any new government building had to abide by. The government also recently announced its plans for a new federal environmental legislation, allowing the Ministry of Environment and Water to directly impose penalties on polluters and implement recycling and waste reforms. Corporates across the Arab world must become more environmentally friendly to continue to operate, and this trend will only grow as governments across the region introduce more environment-based laws.

Second, improving financial performance. Businesses increasingly realize the positive benefits corporate activism can have on their bottom line. A decade ago, running a successful business may have been broadly defined as 'output' - or what the company is capable of producing. An increase in share price, a newly acquired company, or expanding into a new market would all possibly contribute to stronger financial results. But what companies didn't always think about was that business growth could also come from cutting back. Minimizing operational efficiencies can significantly impact finances, and investing in initiatives that reduce water and electricity output can lead to an internal rate of return of up to 80 percent, according to consulting firm McKinsey. With more research and data in the public domain on this trend, companies quickly realize that half the battle in maintaining sustainable business growth is keeping operational costs low.

Third, maintaining and developing stakeholder relationships. Clients, employees, and investors are increasingly choosing to pursue relationships with firms that have active corporate activism programs. According to EY, many investors are finding companies' non-financial disclosures, such as their corporate activism activities, a prerequisite to making an informed decision about their future investments. Because of this growing trend, a lot of organizations are now required to include sustainability activities in their annual financial reports. There is no doubt that companies are seeing the value in robust corporate activism programs, as this has a direct impact on the decisions that existing and potential stakeholders make when it comes to pursuing a relationship with a business.

Fourth, becoming a market leader. Businesses are starting to see how corporate activism can raise industry standards and make them market leaders. Technology has played a major role in promoting this trend, with advancements over the past decade turning corporates on to the idea that they can outperform competitors if they have the right innovative, digitally based solutions in place. Some companies have been so successful in sourcing technology-based solutions that they have put competitors out of business, or significantly reduced their share in the market. So while corporate activism continues to support the environment and community, it now also has a material impact on the growth and success of businesses and their ability to lead in their sectors.

It is this holistic approach to corporate activism across the Arab world – one that focuses on the success of all aspects of a business - that will contribute to the development of the region's green economy in the future. We cannot go on managing businesses in ways that are inefficient or harmful to the communities where we operate. We also cannot go on only contributing to environmental and community initiatives, as this is just one piece of the bigger

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puzzle. Making our own businesses more lean and efficient is just as important as our ongoing dedication to the local environment and community-based initiatives. If we can get this balance right, I am confident that the region's economy will truly be green in the years ahead.

There is also a catalyst that companies can leverage to better and more quickly achieve this balance. As the Chief Sustainability Officer of Aramex, a company that is becoming technology-driven, I have seen first-hand the benefits digital solutions can bring to a business. We fully embrace this mindset when developing programs and activities for our corporate activism platform 'Delivering Good', putting technology at the heart of many of our programs. We currently have over 140 sustainability initiatives and projects in 97% of our locations around the world, and technology has been critical to ensuring that we truly can 'deliver good' in the markets where we operate.

For example, in recent years we have undertaken a number of technology-driven initiatives to achieve this balance between supporting the environment and community, while also making our operations more green and efficient. We are currently in the process of making all of our facilities entirely powered by solar technology. This has already been completed in Jordan, and we are in the final stages of obtaining the license to commence a similar project across Dubai. We continue to adopt global best practices in environment certifications and have Leadership in Environment and Energy Design (LEED) accreditations for our warehouses. We are also exploring options to make our Aramex fleet entirely electric. These technology-based initiatives have not only positively impacted the environment and communities where we operate, but have also made our business more sustainable.

When it comes to corporate activism, it's all about balance. We must deploy programs and initiatives that not only give back to the environment and communities where we operate, but that help us sustainably grow our own operations. Technology will also continue to play a fundamental role in how quickly we strike this balance and move towards a green economy. What is key is that we not only work hard to get there, but that we fully leverage technology in our everyday corporate activism practices moving forward. This will not only contribute to more efficient and successful business operations, but will also fuel the development of our future green economy.

measures for developing and implementing green and sustainable development policies. During the Israeli attack of December 2008-January 2009, more than 15 percent of available residential housing in Gaza was destroyed or partially damaged, and about 12,000 refugees lost their homes. Unemployment in Gaza continues to be a challenge and contributes to the overall impoverished situation of the population, placing Gaza among the poorest areas in the world (about 70 percent of the inhabitants live on less than $1 per day). However, this situation led the ILO, in collaboration with the United Nations Relief and Works Agency and the Cooperative Housing Fund, to develop a project to address immediate housing needs while at the same time increasing the possibility of generating job opportunities in Gaza. The new houses followed a green approach for construction, using compressed earth blocks instead of cement and other standard materials. The basis of this approach is grounded in the reuse and recycling of raw materials, eliminating steel reinforcement bars or concrete materials, saving energy and water and reducing waste and pollution.

Saudi Arabia has recently launched its 2030 Development Plan, where sustainable development has been streamlined in the management of the country's resources. This has been translated in the following main priority objectives:

- Promote a sustainable petroleum industry within an environmental framework that ensures a healthy living environment and a balance between the consumption of natural resources and the achievement of development objectives without denying future generations access to these resources.
- The use of renewable sources of energy for the production of electricity and seawater desalination.
- Protection of non-renewable water resources and promote efficiency in the use of water.
- Promote the use of treated water for agriculture.
- Minimization of waste, recycling and safe disposal.
- Reduction of waste from factories and vehicles.
- Conservation of natural resources and natural reserves, including land, coastal areas, and biological diversity (Ministry of Economics and Planning, Kingdom of Saudi Arabia, the 10th Development Plan and its Priorities, 2016).

Investment in renewable energy is one of the main components of the plan, with the initial

target of generating 9.5 GW of renewable energy. It is also planned to localize a significant portion of the renewable energy value chain in the Saudi economy, including research and development, and manufacturing (2030 Vision, 2017). Saudi Arabia plans to invest between USD 30 to USD 50 billion in renewable energy by 2023. It also plans to achieve 4 percent contribution of renewable energy of total energy supply, amounting to 3,450 MW by 2020 (Ministry of Energy, Industrial and Mineral Resources, Kingdom of Saudi Arabia, 2017). Furthermore, The Ministry of Energy has recently announced the launch of its ambitious National Renewable Energy Program (NREP) (MOE, 2017). It is planned to generate 50 percent of the demand for electricity from non-fossil fuels by 2032 (SASIA, SAWIA, 2017).

Tunisia has taken serious steps towards transitioning to a green and sustainable economy. The National Strategy for Sustainable Development of Tunisia estimates that green investments will reach 2 percent of GDP and is expected to create between 227,000 to 307,000 jobs, which is 7-9.5 percent of the total population. The government has also developed a national solar energy plan with the objective of increasing the percentage of renewable energy sources from 1 percent to 4.3 percent in 2014. The plan includes the use of solar photovoltaic, solar water heating and solar concentrated power units for electricity generation (UNECA, 2016). Moreover, the Tunisian Government has recently announced its plans to invest USD 1 billion towards the installation of 1,000 MW of renewable energy in 2017, 650 MW derived from photovoltaic power and 350 from wind (UNEP, 2017).

Moreover, Tunisia has recently launched a Green Economy Strategy with the following main objectives:

- Promoting sustainable agriculture
- Providing safe drinking water and sanitation for all citizens
- Promoting integrated waste management and recycling and reducing GHGs
- Reducing dependency on fossil fuel
- Enhancing the industrial sector through the use of clean technologies
- Improving mass transit system
- Promoting energy efficiency and eco buildings
- Promoting ecotourism (Green Economy Strategy, 2017).

Tunisia has had a successful wastewater treatment program since 1960. The number of wastewater treatment plants has gradually risen in the last decade. The largest wastewater treatment plant is situated in Choutrana with a daily performance of 120,000 m^3 (Bahri, 2002).The government plans to build four seawater desalination plants in Djerba, Kerkennah, Zaarat near Gabès and Sfax. The total installed capacity of the plants is 381,000 m^3 per day (GWI, 2014).

Plans are underway to produce solar water heaters (SWH) through the Biome Solar Industry (BSI) company for households, hotels, hospitals and the local stadium, with a capital investment of 400,000 Tunisian dinars (USD 50,000). The firm is classified as private, though it was established through strategic partnerships between public and private entities, including the National Agency for Energy Conservation, the Electricity and Gas Company of Tunisia, and the Professional Association of Renewable Energy, and with international partnerships (KBB/Germany and CEDRIS/France). BSI produces SWH according to international standards, which has facilitated its access to international markets. Market opportunities for SWH in Tunisia are enhanced through a subsidy system and through soft loans from commercial banks. Other drivers for industrial development include the year-round sunny climate in Tunisia and the high electricity and gas prices. BSI began producing SWH in 2007 and by 2011 its market share had reached 17 percent of the local market. The company expanded its operations by exporting to Morocco and France (ESCWA, 2013). Furthermore, the government plans to invest USD 15 billion in the energy sector with half of it in renewable energy with the aim of achieving self-sufficiency in energy by 2030. The World Bank, the European Investment Bank, and the African Bank for Development, as well as other organization in France, Belgium and Spain have expressed interest in investing in the energy sector in Tunisia, (RCREEE, 2016) with plans to generate 30 percent of electricity from renewable energy by 2030 (UNEP, 2017).

Qatar has launched its Green Economy Roadmap and Energy and Environment Commission in 2014, which was led by the International Chamber of Commerce Qatar (ICC Qatar). The Roadmap aims at supporting the Qatar National Vision 2030 (ICC Qatar, 2014).

Qatar has created a Green Building Council in 2009 to promote the development of efficient and environment-friendly building practices. Since then Qatar has built several green structures and is now ranked the fifth highest Leadership in Energy and Environmental Design (LEED) registered and certified buildings outside the USA. Moreover, Qatar National Convention Center located in Doha is accredited for its approach to environmental stress mitigation. It is considered one of the world's most energy efficient convention centers in the world (Suresh, 2016).

In February 2006, through the Qatar General Electricity and Water Corporation (KAHRAMAA) and ESCWA, the country signed a cooperation agreement to develop an energy efficiency program for the Qatari electricity sector, which is expected to run until 2020. The aim of the program is to improve energy efficiency and increase the contribution of the energy sector in achieving sustainable development. In order to achieve this end, KAHRAMAA prepared detailed implementation plans for several energy efficiency projects such as: phasing out inefficient lamps in residential areas; setting new power factor limits in order to reduce losses during distribution, particularly for bulk electricity consumers; and improve energy efficient labelling for air conditioning units. In addition, KAHRAMAA started to organize a national conservation campaign (Tarsheed), which is now annually recognized on international Earth Day. This campaign aims to raise awareness on: 1) Increasing efficiency in the electricity and water sectors; 2) Decreasing per-capita electricity consumption by 20 percent and water consumption by 35 percent; and 3) Eliminating waste and reducing consumption (ESCWA, 2013).

Moreover, Qatar plans to build the largest 200 MW solar power project in the country. It will be constructed as a joint venture between the Qatar Electricity and Water Company and Qatar Petroleum. It is expected that the project will become operational by 2020. The project can be expanded to a capacity of 500 MW. It also plans to set up 1,800 MW of solar power capacity by 2020, which is expected to contribute up to 16 percent of total power generation, and plans to set up 10 gigawatts of solar capacity by 2030 (Mahapatra, 2017).

The United Arab Emirates (UAE) was one of the first Arab countries to develop a Green Economy Strategy. The country's Green Economy approach was one of the key pillars for sustainable development, following the launch of the country's Green Growth Strategy almost a decade ago. The approach is part of the UAE Vision 2021 inspired by the National Work Program of the President His Highness Sheikh Khalifa bin Zayed Al Nahyan. This has been translated into action on the ground, which included undertaking major investments in renewable sources of energy and the introduction of energy saving measures in the building sector. Other measure included the introduction of an environmental friendly mass transport system. The UAE has also initiated a number of projects related to water recycling. Serious consideration is also being given to the use of solar energy in seawater desalination. The second edition of the UAE State of Green Economy Report was recently released by the Minister of Environment and Water.

Dubai encouraged green buildings by introducing in 2011 Green Building Regulations and Specifications, which is considered to be one of the most important legislations adopted by the government. Its main objectives are to protect its natural resources and the environment, as well as to ensure human health and welfare. Initially, the Dubai municipality only made the regulations and specifications mandatory for governmental buildings. The regulation was then made mandatory for all new buildings in Dubai. More than 44 green governmental buildings have been constructed so far (Government of Dubai, 2017).

The UAE's first World Green Economy Organization (WGEO) based in Dubai was launched in 2016 to promote a culture of green economy in the country, the region and around the world. The organization provides consultations and technical, financial and moral

support in the field of green economy. It also aims to be a primary reference for green sector parties undertaking research related to clean energy, the environment and human protection. The WGEO has been established through the support of the Dubai government in partnership with UNDP. The UAE has also created a new council in 2016 for Climate Change and Environment.

Masdar City is one of the main projects translating the green economy concept into a reality on the ground. Located in Abu Dhabi, the 6km^2 eco city project started in 2006. Its main source of electricity is solar and treated wastewater produced by the city's treatment plant is used for irrigating green public space. It is a car free city with space for walking and cycling. Other projects include renewable energy projects, the introduction of the Green Building Code in 2008, and the launch of a recycling program "Bee'Ah".

Moreover, in the field of tourism, Al Maha Resort is a world-class retreat where ecology has been put to work for tourism (AFED, 2008).

III. FINANCING GREEN ECONOMY FOR SUSTAINABLE DEVELOPMENT

As far as financing of a green economy and sustainable development is concerned, it has been estimated that the financial requirements needed to transition to a green economy and implement sustainable development activities worldwide are in the range of USD 1.05-2.59 trillion annually. This figure is less than one tenth of the total annual global investment (measured by global Gross Capital Formation). In order to allocate an annual level of funding of USD 1.3 trillion, 2 percent of global GDP will be required to finance sustainable development (UNEP, 2011b). Applying the same percentage of 2 percent for Arab countries to support sustainable development activities, USD 57.38 billion (GDP USD 2.869 trillion – 2014) would need to be allocated annually for greening the Arab economies (AFED, 2016).

However, according to ESCWA, the financing gap in Arab countries is estimated between USD 80 to USD 85 billion per annum in 2015 and 2016. This estimate, which results in a higher estimate than the one based on 2 percent of GDP

as referred to above, is calculated using a balance of payment forecasts of the International Monetary Fund (IMF) and the Economist Intelligence Unit (EIU). These forecasts do not necessarily take into account additional and changed spending patterns geared to sustainable development, nor possible synergies between various sustainable development goals.

The financing gap was estimated on the basis of two scenarios, as reflected in Table 1. Scenario I depends on the latest forecasts provided by the World Economic Outlook Database and published by the IMF in October 2014. It includes projections for the current account balance and gross domestic product for most Arab countries, except Palestine and Syria. Scenario II is based on the forecasts of the Economist Intelligence Unit forecasts as of December 2014 and January 2015, and therefore reflects more accurately the impact of the recent drop in oil prices (ESCWA, 2015a).

The Arab region has supported international environmental programs through contributions to the Environment Fund of UNEP. Kuwait continues to be the largest Arab contributor to the Fund of UNEP, with USD 1.8 million during the period between 2008-2016, followed by the Kingdom of Saudi Arabia with USD 531,757 during the period between 2011-2015; UAE: USD 200,000 (2012-2016); Egypt USD 120,000 between 2008-2013; Morocco USD 87,599 between 2010-2015; Algeria USD 50,000 between 2008-2014; Jordan, USD 41,000 between 2012-2015; Lebanon USD 34,000 between 2008-2015; and Tunisia USD 32,400 between 2008-2015 (UNEP, 2017).

TEN YEARS OF ACWA POWER AND CORPORATE RESPONSIBILITY

Paddy Padmanathan

Since 2007 the Arab region has undergone a number of changes because of economic cycles, movement of people and changes in attitudes to climate change and renewable energy. As a major regional producer of electricity and desalinated water, ACWA Power sits at the nexus of the water-energy-green economy. The challenges faced by this tripartite relationship have been discussed at many of AFED's conventions and meetings, and will be adopted as the structure for this look back.

It has long been recognized that the cornerstone of any green economy strategy needs to address the significant portion of locally produced hydrocarbons that are consumed to meet local demand. As such, the region has embarked on an aggressive strategy to wean itself from hydrocarbons by embracing energy efficiency, demand-side management, and most importantly by deploying renewable energy. In parallel, over the past decade the cost of photovoltaic panels has dropped by more than 80 percent, which has led to regional initiatives embracing utility scale projects and some of the largest renewable power plants in the world. This year, the Kingdom of Saudi Arabia sought bids from companies to build wind and solar plants with a total capacity of 700 MW as a start to meeting their goal of generating at least 9.5 GW of renewable energy by 2030. The government of Jordan has entered into multiple agreements for solar projects with a total capacity of 1000 MW to be operational by 2018. Last November saw the award of a 176 MWp photovoltaic (PV) plant in Morocco – a new phase in the NOOR Solar program that aims to develop a total solar capacity of 2 GW by 2020. Already 165MW of electricity generated from solar energy is powering thousands of homes during the day and for three hours in the night in Morocco.

In the early part of 2017 almost every Gulf Cooperation Council (GCC) member and regional state utility (service provider in the GCC region) have announced ambitious plans for photovoltaic and concentrated solar power projects. ACWA Power is proud to have been part of kick-starting this renewable renaissance with our, at that stage, lowest ever worldwide tariff of US 5.86 cents for the Mohammed bin Rashid Phase II 200 MW photovoltaic plant. The plant was successfully commissioned two weeks ahead of schedule in March 2017 and is now supplying

electricity to 50,000 homes in Dubai and reducing carbon emissions by 214,000 tons per year. Subsequent bids for utility scale photovoltaics have dropped still further which, coupled with the speed of installation as compared to fossil fuel power plants, makes the technology very viable and attractive.

The coming years will see a large-scale rollout of renewable power plants that will be supplying power around the clock using thermal and battery storage, making them base load plants. Battery technology, for the storage of electricity produced during the day and for delivery at night, is reaching an inflection point with its cost dropping and capacity increasing. ACWA Power is including the option for battery storage into current and future utility scale photovoltaic project proposals. In addition, desalination of water will be increasingly supplied using renewable power and hybrid technologies. The combination of both cheaper renewables and cheaper storage combined with the region's abundant solar potential (the majority of days per year are cloud free with high solar insolence in combination with available land in close proximity to existing transmission networks) is enabling a reduction on the dependence on fossil fuels as a base load.

The benefits of harnessing renewable energy to soften the water-power-development entanglement is now a foregone conclusion. These material changes in the affordability, maturation and demonstration of renewables' central role in providing energy and water to the region are the greatest paradigm shift since 2007.

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ACWA Power has been a strong advocate for consumers paying the full cost, or as close to it as possible, for the power and water they use without the support of subsidies. Over the past decade, all regional governments and state utilities have implemented pricing structures that have incentivized users, via slab pricing, to avoid excessive consumption. These policies have avoided rampant wastage of precious non-renewable resources, contributed to moderating investments and the need for new infrastructure and so reduced the carbon intensity of national economies. The strategic importance of demand-side management is now engrained into growth strategies. In parallel with these successful economic instruments, the region's growth and demand for power and water is still strong and growing rapidly to keep up with social economic development.

Finding funding for major developmental projects has been a bumpy road over the past decade, with some periods seeing liquidity and availability of financing while others have seen dramatic and acute reductions and increased risk aversion by funders. At the same time, local and international funding has increasingly embraced the Equator Principles as a benchmark for environmentally and social responsible lending. Nearly 80 financial institutions that have arranged around 80 percent of global project finance lending have adopted the Equator Principles. The principles set standards for environmental and social sustainability to ensure environmental and socials risks of any project are assessed and managed. ACWA Power has always ensured that the company's projects and assets comply with the World Bank and International Finance Corporation's Environmental and Social Performance Standards. These standards set by the global financial institutions are pushing the region and the supply chain to meet common international standards through financing projects. In addition, in recent years these standards have been included as a minimum requirement in requests for proposals from national utilities. This gradual maturation of environmental and social performance is another notable change that is welcomed as it has win-win benefits for all parties and stakeholders.

The final significant change has been the rise in the maturation of environmental and social reporting by public and private organizations. This change has been spurred by a combination of factors including organizations' strategies to become the "best in class" environmentally and socially, subtle pressure from central governments and the support

and encouragement of regional non-governmental organizations (NGOs). NGOs such as AFED continually emphasize the benefits of corporate social responsibility while simultaneously developing grassroots support and understanding. In parallel, there are several regional award schemes focusing on corporate social sustainability reporting and performance, which have become highly sought-after. The Global Reporting Initiative (GRI) standard for corporate reporting is commonly accepted as the good practice whereas in the past it was considered the standard. Reviewing international databases of regional corporate social reports demonstrates the evolution of corporate reporting which could only have come about by changes in corporate strategies and leadership. Sustainability reports of the sector's leaders now routinely include independent assurance statements as is common in Europe, which supports local and international stakeholders' requests for transparency. Overall, the development both in technical depth and breadth of adoption of corporate social reporting is an area to be watched for the future.

Looking back, it seems hard to believe that ten years have passed so quickly as ACWA Power and the region have both grown and changed tremendously. The continued reduction in the carbon intensity of power supply coupled with the increases in efficiency of consumption and a focus on responsible corporate behavior all bode well for a sustainable and successful regional green economy. Looking to the future I would expect the successes achieved by the sector's leaders and by multinational corporations to be adopted by the next tier and wave of entrepreneurs in order to take us even further, and to push the leaders to stay at the forefront of development.

TABLE 1 **Financing Gap Based on Two Scenarios (Billions of United States dollars)**

Classification	Country	Scenario I*		Scenario II**	
		Financing gap/surplus 2015	Financing gap/surplus 2016	Financing gap/surplus 2015	Financing gap/surplus 2016
UMI	Algeria	-9.98	-12.12	-15.88	-17.50
HI	Bahrain	2.86	2.57	1.35	0.77
LDC	Comoros	-0.11	-0.12	-0.11	-0.12
LDC	Djibouti	-0.76	-0.92	-0.76	-0.92
LMI	Egypt	-17.57	-21.72	-11.45	-13.64
UMI	Iraq	3.14	0.40	0.66	3.18
UMI	Jordan	-6.34	-5.06	-4.60	-5.26
HI	Kuwait	82.28	82.51	59.27	56.10
UMI	Lebanon	-9.91	-10.45	-12.67	-12.49
UMI	Libya	-12.45	-5.08	-2.49	-3.05
LDC	Mauritania	-3.14	-2.76	-3.14	-2.76
LMI	Morocco	-9.09	-8.92	-6.80	-7.30
HI	Oman	5.23	3.05	-0.05	0.65
LMI	Palestine	NA	NA	NA	NA
HI	Qatar	58.73	50.82	17.07	17.58
HI	Saudi Arabia	73.73	63.70	-5.73	0.26
LDC	Somalia	NA	NA	NA	NA
LDC	Sudan	-6.22	-6.29	-6.22	-6.29
LMI	Syria	-4.51	-4.20	-4.51	-4.20
UMI	Tunisia	-4.79	-4.39	-5.70	-5.74
HI	United Arab Emirates	51.79	50.17	28.36	19.27
LDC	Yemen	-0.44	-0.64	-0.44	-0.64
Number of Arab countries with financing gap		**13**	**13**	**15**	**13**
Total financing gap (USD bn)		**85.32**	**82.69**	**80.19**	**79.92**

*Mainly using IMF forecasts dated October 2014 for current account balances and GDP except for the Syrian Arab Republic where EIU forecasts were used due to the unavailability of forecasts by IMF. Principal repayments and disbursements of private debt were estimated in view of historical average levels. Net investment and portfolio flows were estimated as per the historical average to GDP.

**Mainly using EIU forecasts dated December 2014 and January 2015 for current account balances and GDP except for Comoros, Djibouti, Mauritania, South Sudan, the Sudan and Yemen, where IMF forecasts were used due to the unavailability of forecasts by EIU. Principal repayments and disbursements of private debt and net private investment and portfolio flows are estimated in a similar manner to Scenario I.

Source: ESCWA, 2015b

Total cumulative financing to Arab countries by the Coordination Group (CG) institutions[1], comprising major development funds operating in the Arab region, amounted to about USD 164 billion over a period of 40 years up to December 2015. Out of this, USD 90 billion, or 55 percent, was spent over the last ten years. This represents a sharp increase in financing development projects mainly related to infrastructure and environment, including renewable energy, wastewater treatment, food production, health and housing.

Moreover, the CG institutions committed about US dollars 107 billion over 2006-2016 to finance development operations in various sectors in Arab and other developing countries, with a share of about 48 percent for Arab countries.

With respect to Arab countries, the CG institutions supported 1,396 development operations, including renewable energy, wastewater treatment, agricultural and livestock products, education, health, and housing, which not only contributed to improving living standards, but also addressed environmental concerns through the implementation of renewable energy, wastewater treatment and other projects which contributed to protection of the environment (AFESD, 2017).

However, given that funding allocated covers environmental activities as well as other economic sectors, it would be rather difficult to precisely estimate the amount of financial resources allocated to green economy and sustainable development programs in the Arab region, as it should cover investments in green and sustainable agriculture, eco-tourism, green industries, sustainable cities and green buildings, mass transit systems, and integrated waste management systems.

Given that there is increasing recognition to the need and importance of adopting a green and sustainable development path, there is an incremental increase in green investments in Arab countries over the last decade and the trend is expected to increase in the coming years, particularly as Arab countries are bent on achieving the SDGs.

It should be pointed out though that countries adopting green and sustainable development strategies implies the gradual greening of national budgets and that the bulk of future investments should eventually be largely directed to fund green investments.

IV. CONCLUSION AND RECOMMENDATIONS

It would be fair to conclude that apart from the lack of real progress in several Arab countries in the region facing political unrest and instability, other countries in the region have made strides towards shifting onto a more sustainable path, with major financial resources directed towards investments in environmental infrastructure. In several instances, the shift towards a green and sustainable economy was sparked by the sheer need to address critical problems and shortages in resources such as water, food, and energy. For example, major investments in energy efficiency and in renewable energy has been prompted by an increased demand for energy as a result of population increase, changes in consumption patterns, and increased rate of urbanization and economic activities. Investing in solar and wind energy represented cheaper, faster, and cleaner solutions to shortages in energy supply in several countries in the region. Water shortages in Arab countries have also led to investments in water efficiency and in renewable sources of water, including wastewater recycling, reuse and seawater desalination projects in many Arab countries.

In order to achieve food security, efforts in many Arab countries have been directed towards sustainable agricultural practices. This has included promoting efficiency in the use of water and energy and renewable sources of both. Moreover, adopting a nexus water, food, and energy approach is increasingly being considered in Arab countries in order to enhance synergies and complementarities between water, food, and energy policies in the region.

It should be emphasized that transitioning to a green economy as a tool to achieve sustainable development provides an opportunity for Arab countries to address main economic, social, and environmental challenges facing countries in the region. More efforts are therefore needed by Arab countries to develop and implement policies that contribute towards achieving sustainable

development. Providing the necessary finance is essential to fund a transition to a green economy and a sustainable development path.

The following are key recommendations for achieving this end:

National Level

- Promote political stability and security in Arab countries as a necessary requirement for the formulation and implementation of long term strategic sustainable development plans.
- Promote a stable macroeconomic environment through predictable fiscal policies, regulations and market incentives.
- Raise awareness to the benefits of adopting a green economy approach by communicating to decision makers and different stakeholders, including the finance and private sector, and highlighting the financial, social and developmental gains of transitioning into a green and sustainable economy.
- Promote the adoption of an integrated approach in order to ensure the integration of social, economic and environmental considerations in policy and decision making and close coordination and inter linkages between sectoral policies.
- Design a package of coherent regulations and incentive measures that facilitates the transition to a green and sustainable economy.
- Encourage domestic and foreign investment by the finance sector in green infrastructure projects through a package of regulatory and incentive measures.
- Allocate sufficient financial resources for R&D and innovation and the development of green technologies.
- Further develop and strengthen local capacities needed to support green and sustainable development projects through formal education and vocational training.
- Designate a national institution to ensure the development and implementation of integrated sustainable development policies, plans, and programs, as well monitoring and evaluation.
- Promote green public procurement to include green consumable products, services, and fixed assets.

Regional Level

- Enhance regional cooperation to end the state of occupation of Palestinian territories, hostilities and wars in the region.
- Promote the exchange of experience, knowledge, good practices and policies in the field of green economy and sustainable development, including the exchange of expertise.
- Promote regional cooperation among Arab countries in the field of innovation, research, and capacity development.
- Undertake joint regional projects in the field of sustainable agriculture, water, and energy.
- Promote market access and trade between Arab countries in green and environmentally friendly products.
- Create a regional university in the field of green economy and sustainable development in order to provide the necessary calibers needed to support the development and implementation of green and sustainable development strategies, plans and programs.
- Develop a regional plan for refugees in the Arab region to promote their integration in the economies of the host countries and contribution in the national sustainable development plans of those countries.
- Create an Arab Green Fund to finance green and sustainable projects in the Arab region, and consider the use of green bonds as a means to promote investments in this area.
- Convene an annual Arab conference on Green Economy and Sustainable Development in order to promote cooperation, exchange experience and knowledge in the field of green economy and sustainable development.

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NOTE

1. The CG comprises of the Islamic Development Bank, Abu Dhabi Fund for Development, OPEC Fund for International Development, Saudi Fund for Development, Arab Fund for Economic and Social Development, Kuwait Fund for Arab Economic Development, Arab Bank for Economic Development in Africa, Arab Gulf Programme for Development, Arab Monetary Fund and Qatar Development Fund.