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GREEN ECONOMY INITIATIVES SUCCESS STORIES AND LESSONS LEARNED IN THE ARAB REGION

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TABLE OF CONTENTS

"Green Economy Initiatives, Success Stories and Lessons Learned in the Arab Region"

TABLE OF CONTENTS

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INTRODUCTION

In order to achieve sustainable development, governments can aim towards a green economy by undertaking targeted actions in several economic sectors. Renewable energy together with energy efficiency; sustainable transport; sustainable agriculture; sustainable tourism; green building and waste management are economic sectors which are often considered capable of paving the way for a transition towards a green economy and providing, to a certain extent, a win-win solution offering job creation, poverty alleviation and environmental protection. However, there are a number of obstacles and challenges that might inhibit these sectors in their contribution towards greening the economy. These include limited knowledge and awareness relevant to green economy and green jobs; gaps in policy and regulations; limited financial incentives to support green initiatives; and related awareness and skill shortages.

In order to benefit from green economy opportunities, governments and regional organizations need to work on key issues including: 1) Enacting appropriate policies and strategies, improving governance, mainstreaming green economy principles in national development plans and regional agendas; 2) Enhancing private sector involvement in green economy activities/projects and building related capacity; 3) Accelerating integration/cooperation and exchanging experience/ knowledge at national, regional and international levels with a focus on best practice related to green growth; 4) Strengthening the role of civil society and individuals and encouraging partnerships among concerned stakeholders; 5) Supporting innovation, research and technology related to green economy in different areas; and 6) Disseminating initiatives, success stories and lessons learned at national and regional levels.

This booklet on "Green Economy Initiatives, Success Stories and Lessons Learned in the Arab Region" responds to the call for disseminating information and best practice as noted above. It aims to inform stakeholders of success stories, initiatives and programmes related to selected sectors: renewable energy; energy efficiency and conservation; sustainable agriculture; green/sustainable transport; sustainable tourism; waste management; and green building. Each case presented in the booklet provides an introduction/background followed by a brief description of the success stories and initiatives/programmes and their impact.

RENEWABLE ENERGY
Background

Renewable energy offers business opportunities in the transition towards a green economy: it can contribute to all three dimensions of sustainable development in an integrated manner. For example, socially, through the provision of green jobs and access to energy sources, environmentally, through the reduction of harmful emissions, and economically, through the fostering of related industries. Renewable energy is particularly important for the social development of rural and remote areas, as it can provide access to the energy needed for lighting, cooking, health-care facilities, schools, television and Internet, etc… Renewable energy related activities can lead to the creation of a considerable number of jobs. For example, in 2009, the number of jobs globally in renewable energy industries (mainly solar and wind) exceeded 3 million.[1]

Implementing national renewable energy projects requires strong cooperation between various stakeholders including governments, the private sector, non-governmental organizations (NGOs) and financial institutions. In addition, such projects require monitoring and follow up during the implementation period. In order to demonstrate the positive impact of renewable energy projects in the region, one success story and one initiative/programme from the region are provided below.

[1] ESCWA, Small and Medium Enterprises Opportunities in Energy Services, E/ESCWA/SDPD/2010/Technical Paper.5.

RENEWABLE ENERGY
Success Story

Production of Solar Water Heaters: Biome Solar Industry, Béja, Tunisia[2]

Description

Biome Solar Industry (BSI) is a company that, starting with a capital investment of 400,000 Tunisian dinar (around US$50,000), produces solar water heaters (SWH) for households, hotels, hospitals, and the local stadium. 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. The market opportunities for SWH in Tunisia are enhanced by supporting mechanisms for subsidies and loans from conventional commercial banks to end users. Other drivers for industry development include the year-round sunny climate in Tunisia and the high price of electricity and gas.

Timeline

BSI began producing SWH in 2007. By 2011 its market share had reached 17 per cent of the local market and the company had expanded through exporting to Morocco and France.

Impact

The endeavour supported the greening of industries from various perspectives. Socially, it led to the creation of 45 direct jobs and 130 indirect jobs. Environmentally, the company installed around 36,000 m² of solar collectors, thereby contributing to a reduction of emissions equivalent to about 7,000 tons of carbon dioxide. Economically, the company installed 12,000 solar water heaters in Tunisia, contributing to reducing the energy bills of households and public and private organizations. In addition, it will help to reduce energy imports and enhance the SWH market at the national level.

[2] State of the Art of Green Entrepreneurship in Tunisia, Regional Activity Centre for Cleaner Production (CAR/PL), p. 74, December 2011.

Concentrated Solar Power Programme in Morocco (2015-2019)

Description

Concentrated Solar Power (CSP) systems use mirrors or lenses to focus a large area of sunlight onto a small area in order to convert it into heat, which can then run a steam engine connected to an electrical power generator. In November 2009, the Government of Morocco announced a programme for renewable energy called the "Integrated Solar Energy Generation Project".[3] The aim of the programme is to install a CSP system with a capacity of 2,000 megawatts (MW) by 2019. The programme 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 $9 billion. The capacity of the programme (2,000 MW) is equivalent to 38 per cent of the total capacity currently installed in Morocco. Electricity generation through CSP could reach 4,500 gigawatt hours (GWh) per year, or about 18 per cent of the current annual electricity production. To assist in the financing of the power station, the African Development Bank has approved a loan of $336 million to the Moroccan Agency for Solar Energy.

Timeline

According to the proposed plan, the first plant is expected to commence operating in 2015, with the final stage of the project being completed in 2019. The first phase of installation started end 2012, with the 160 MW CSP plant at Ouarzazate, which will eventually have a total capacity of 500 MW.

Impact

It is expected that this renewable energy project will save the equivalent of around 1 million tons of oil per year and reduce carbon dioxide by about 3.7 billion tons per year. This project will enable the emergence of low-carbon and climate-friendly technology in Morocco, as well as reducing energy imports. In addition, the project will create job opportunities and promote an integrated local solar industry.

[3] Provision of Technical Support/Services for an Economical, Technological and Environmental Impact: Assessment of National Regulations and Incentives for Renewable Energy and Energy Efficiency - Country Report Morocco (DRAFT), p. 50, January 2010.

ENERGY EFFICIENCY
Background

Securing economical, reliable and environmentally-friendly energy supplies is one of the top priorities in national policymaking in various countries. Improving energy efficiency is a major priority in any comprehensive green economy programme as it supports the three dimensions of sustainable development through: energy savings and associated reduction of emissions; increasing profitability through a reduction of energy costs, increasing revenues for oil and gas exporters or reducing the balance of payment deficit for oil and gas importers; and providing job opportunities. The saved cost or increased revenue could also be re-directed towards other government priorities, such as enhanced social welfare to remote and rural areas (education, health, lighting and cooking, etc.).

The potential for energy saving is apparent in many Arab countries and is estimated at more than 700 million barrels of oil per year.[4] In the industrial sector, for example, a 30 per cent reduction in energy consumption through more efficient industrial processes could provide annual savings of up to 150,000 billion kilowatt hours (KWh) (equivalent to about $12 billion). Also, rationalizing energy subsidies is important, as a 25 per cent reduction in energy subsidies could save about $100 billion over a three-year period.[5] Implementing energy efficiency projects could generate numerous direct economic opportunities and a great number of jobs in various areas including: energy audits/consultations, installation/operation/ maintenance/monitoring of energy efficiency projects, and contracting/trading/ procuring/capacity-building/training related to energy efficiency and conservation. To these can be added all the indirect benefits resulting from the savings made, which could be reinvested in many other economic endeavours. Below are one success story and one initiative related to energy efficiency.

[4] ESCWA, Small and Medium Enterprises Opportunities in Energy Services, E/ESCWA/SDPD/2010/Technical Paper.5.

[5] http://www.afedonline.org/en/inner.aspx?contentID=677.

Producing Potable Water by Waste Heat Recovery in Aluminium Bahrain (ALBA), Manama, Bahrain

Description

Waste heat, also known as secondary or low-grade heat, refers to the heat produced by machines, engines, equipment or industrial processes which is usually lost. Waste heat can be recovered, particularly in industrial processes. This is especially true in the aluminium industry because of the high temperature of the exhaust gas in furnaces, which can reach 650-760°C.[6] The waste heat recovery (WHR) technique was adopted at Aluminium Bahrain (ALBA)[7] where the flue gas is funnelled in order to operate waste heat boilers. The exhaust gas from the waste heat boilers is then used to produce steam for seawater desalination.

Timeline

The WHR programme has been operating at ALBA since 2001.

Impact

The project provides a number of benefits related to sustainable development as it enables the production of 41,000 m^3/day of potable water of which: 32,000 m^3/day is supplied to the Ministry of Electricity and Water; 6,000 m^3/day is used at the ALBA complex; and 3,000 m^3/day is distributed to various customers. The project thereby increases energy efficiency and decreases the energy costs for the ALBA complex while also contributing to the reduction of gas emissions.

[6] Combustion Quality of Coal and Lignite - Learning Session on Energy Equipment: Waste Heat Recovery.

[7] Arab Forum for Environment and Development "AFED", Report, 2011, p. 120.

Energy Efficiency Programme in the Qatari Electricity Sector

Description

In February 2006, ESCWA and Qatar General Electricity and Water Corporation (KAHRAMAA) signed a cooperation agreement to develop an energy efficiency programme for the Qatari electricity sector. The aim of the programme was to improve energy efficiency and increase the contribution of the energy sector to the achievement of sustainable development in the country. In line with the recommendations proposed, KAHRAMAA established a department for energy conservation and efficiency and proposed the adoption of a national action plan for energy conservation.[8] In this regard, 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 improved 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 (22 April). This campaign aims to raise awareness on: 1) Increasing efficiency in the electricity and water sectors; 2) Decreasing per-capita electricity consumption by 20 per cent and water consumption by 35 per cent; and 3) Eliminating waste and reducing consumption.

Timeline

The agreement was signed in 2006 and the programme is expected to run until 2020.

Impact

From a sustainable development point of view, this programme is expected to provide several advantages, among which are: 1) Reducing the peak load by 550 MW, which could avoid the construction of a new power plant (valued at $325 million) and related electricity transfer and distribution networks (valued at $90 million); 2) Reducing electricity consumption by 2.33 GWh annually, or about 19 per cent of total consumption, which would in turn save close to $600 million annually in fuel consumption; 3) Reducing carbon dioxide emission by 1.3 million tons per year and nitrogen oxides by 5.4 thousand tons per year; and 4) Creating new energy efficiency related job opportunities.

[8] Conservation Plan for Tarsheed, Eng. Fahad Al Kaabi - Manager, Conservation & Energy Efficiency Department; at: http://www.sustainableqatar.com/wp-content/uploads/2012/06/Conservation-Plan-for-Tarsheed.pdf.

The development of a green transport system can provide several social and environmental benefits, particularly relating to emission reduction and employment opportunities. For example, about 3.8 million job opportunities could be generated internationally from low emission vehicle production. Also, investment in cleaner and more efficient public urban transport systems could generate secondary employment with a rate of 2.5-4.1 indirect jobs per direct job.[9] In the Arab region, it is estimated that greening 50 per cent of the transport sector through increased energy efficiency, promoting the use of public transport, transitioning to hybrid vehicles, improving vehicle maintenance and enhancing traffic management could save about $23 billion annually.[10]

Green/sustainable transport in the Arab region could also foster economic and social development, assist in the integration of Arab countries into the world economy and contribute towards the eradication of poverty.

The following policies, measures and actions are among some of the priority options for achieving green/sustainable transport in the region: 1) Implementing policies and measures for improving the operation and management of the transport sector; 2) Adopting improved transport technologies such as natural gas and low emission vehicles; 3) Improving fuel specification of gasoline and diesel; and 4) Promoting urban planning, road networks and rural transportation. Below are case histories related to green/sustainable transport in Arab countries.

[9] Transport in a low carbon economy - Ricardo-AEA, at http://www.ricardo-aea.com/cms/assets/Uploads/DFID-Low-carbon-summary-sheets/DFID_low_carbon_development_transport.pdf.

[10] http://www.afedonline.org/en/inner.aspx?contentID=677.

SUSTAINABLE TRANSPORT
Success Story

Using Compressed Natural Gas in the Egyptian Transport Sector

Description

Egypt 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. After that, two companies (GasTech and CarGas) were established to convert gasoline-based vehicles to run on natural gas. By 2012, Egypt had six CNG companies, 150 CNG fuelling stations and 67 centres for the conversion of cars running on gasoline to natural gas. The use of natural gas in the transport sector increased significantly in Egypt as CNG vehicles increased from 813 in 1996 to 173,200 by July 2012. Natural gas consumption in vehicles increased from 0.3 million m^3 in 1996 to 457 million m^3 in 2011 and it is anticipated to reach 879 million m^3 by 2017. The annual growth rate was around 65 per cent between 1996 and 2011 but will only be about 15 per cent between 2012 and 2017. Currently, Egypt is ranked 11th globally among countries using natural gas. The Egyptian authorities established appropriate policies and took suitable measures to encourage conversion to CNG, among these: 1) Developing CNG infrastructure including natural gas networks, refuelling stations and vehicles conversion centres from gasoline to natural gas; 2) Encouraging the private sector to participate in CNG activities; 3) Providing incentives to promote switching to natural gas; for examples: tax reduction on CNG components, financial assistance related to conversion costs and setting natural gas at a lower price than gasoline. An electronic card system, "Smart Card", was provided to secure the fuel price differential in the paying of conversion loans from Egyptian banks. Accordingly, car owners are granted loans for the cost of the conversions, which are paid back monthly through their normal fuel bills; and 4) Developing related regulations and standards: three Egyptian standards have been issued to identify the specifications of natural gas vehicle systems, CNG cylinders, and natural gas refuelling stations.

Timeline

The programme started in 1992, but CNG was introduced in the Cairo Transport Authority and Greater Cairo Bus Company in 1996. In 2012, eight natural gas refuelling stations were opened and four locations in Port Said were identified as centres for converting cars to CNG and for refuelling CNG vehicles.

Impact

The use of CNG in the Egyptian transport sector has provided economic, social and environmental benefits: 1) The increased consumption of gas resulted in a reduction in domestic oil consumption, providing additional revenue from oil exports which could be allocated to sustainable development activities; 2) CNG activities created new jobs in the area of vehicle conversion and maintenance/inspection of natural gas vehicles; and 3) The conversion to natural gas in transportation contributed to mitigating air pollution, especially in Cairo.[11]

[11] Using natural gas instead of gasoline in vehicles could reduce emissions of CO_2, CO, NOx, and particulate matters (PM) by 16 per cent, 99 per cent, 79 per cent and 99 per cent respectively.

Improving Vehicle Maintenance and Implementing Inspection Programmes in Egypt

Description

Vehicle efficiency is relatively low and fuel consumption is high in many Arab countries. Thus, the introduction and implementation of inspection programmes are expected to provide significant benefits, particularly in big regional cities like Cairo, Alexandria, Baghdad, Damascus and Beirut. Recently, several Arab countries (e.g., Egypt, Jordan, Kuwait, Lebanon, Saudi Arabia and Syrian Arab Republic) introduced regular vehicle emission testing and engine tuning programmes. According to the Egyptian programme,[12] it is estimated that average emission reduction due to engine tuning could be well above 60 per cent for carbon dioxide and 35 per cent for hydrocarbons, while fuel savings could reach about 15 per cent. Based on results of vehicle emission testing, traffic authorities in Egypt have introduced vehicle emission testing requirements for the renewal of vehicle licenses.

Timeline

The Egyptian vehicle emission testing programme started in 1999 with a test on 13,000 vehicles in Cairo and the test revealed that about 35 per cent of vehicles did not meet emission standards.

Impact

The vehicle emission testing programme would result in economic and environmental benefits, according to the green economy paradigm. These could include a reduction in fuel consumption and vehicle emissions, the creation of new jobs, extension of vehicle life, increase in vehicle resale value, and reduction of running costs. Besides the environmental benefits, vehicle emission testing programmes at the national level could open green business opportunities for the private sector; including: 1) Performing regular maintenance/inspection and tuning engines; 2) Installation of engine test facilities and laboratories required for vehicle maintenance and inspection, such as brake friction testers and exhaust gas analysers; and 3) Procurement for instrumentation and devices required for vehicle emission testing programmes. The participation of the private sector in vehicle emission testing activities should be within an overall national plan and in cooperation with concerned stakeholders, including vehicle owners, traffic authorities, and ministries of transport, environment and trade.

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

GREEN BUILDING
Background

Green building refers to a structure and using process that is environmentally responsible and resource-efficient throughout a building's life-cycle.

The main actors involved are green designers, architects, engineers, operation/ maintenance teams and building users. The key measures for transition towards a green economy in the construction sector include: location and structure design efficiency; energy and water efficiency; material use efficiency; indoor environmental quality; operation and maintenance optimization; and waste reduction.

In the Arab region, integrated energy efficient measures/policies in building design are expected to result in considerable reductions in energy consumption. Some cases related to green building are summarized below.

GREEN BUILDING
Success Story

LEED Platinum Certification for King Abdullah University of Science and Technology in Saudi Arabia

Description

In June 2010, the King Abdullah University of Science and Technology (KAUST) was awarded a platinum rating in Leadership in Energy and Environmental Design (LEED), awarded by the U.S. Green Building Council.[13] LEED is a voluntary, consensus-based, market-driven programme that provides third-party verification of green buildings. From individual buildings and homes, to entire neighbourhoods and communities, LEED is transforming the way built environments are designed, constructed and operated.

The remarkable achievement of being awarded LEED platinum certification was possible thanks to the environmentally-friendly construction techniques used in the KAUST buildings, which utilize renewable energy, natural light and optimum ventilation. The buildings include 12,000 m² of solar thermal and photovoltaic arrays, which produces 3,300 megawatt hours (MWh) of clean energy per year. The unique desert climate of Saudi Arabia and other Arab countries (plentiful sunlight, limited rainfall and potable water resources) allows KAUST and other universities/institutions in the region to play a leading role in supporting sustainable development through developing alternative energy sources.

Timeline

KAUST received platinum LEED certification in June 2010.

Impact

The project produces 3,300 MWh of clean energy per year and reduces carbon dioxide emissions by 1,650 tons per year (based on 0.5 kg/KWh).[14] Environmentally, it saw the application of a sustainable approach in several areas including water and energy efficiency, and proper materials selection and recycling. Socially, it raised awareness among future generations about the benefits of green building.

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

[14] CO_2 Emissions per KWh of Electricity and Heat Output http://www.eea.europa.eu/data-and-maps/figures/co2-emissions-per-kwh-of.

Developing Green Jobs in the Construction Sector in Gaza[15]

Description

During the Israeli attack of December 2008 - January 2009, more than 15 per cent of available residential housing in Gaza was destroyed or partially damaged, and about 12,000 refugees lost their homes.

Unemployment in Gaza is also a challenge and contributes to the overall impoverished situation of the population, placing Gaza among the poorest areas in the world (about 70 per cent of the inhabitants live on less than $1 per day).

This situation led the International Labour Organization, in collaboration with 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 employed 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.

Timeline

The project started in 2009 after the Israeli attack that began in December 2008. The initial phase of the project took 18 months to complete.

Impact

With regard to social outcomes, the project aimed to create jobs during the first 18 months. With regard to economic sustainability, an entrepreneurship information centre was established to provide technical assistance and financial support to young entrepreneurs and to promote self-employment opportunities. Finally, the project responded to the need for environmental sustainability as it increased energy efficiency, promoted the reuse and recycling of raw materials, and encouraged the reduction of waste and pollution.

[15] ILO: Success stories in Arab States, PARDEV October/2011.

SUSTAINABLE TOURISM
Background

According to the International Ecotourism Society,[16] ecotourism should be based on a number of principles, including: the minimization of impact, building environmental and cultural awareness and respect, providing positive experiences for both visitors and hosts, providing direct financial benefits for conservation and providing financial benefits and empowerment for local people.

In the Arab region, sustainable/ecotourism has the potential to support a green economy, as it can contribute towards generating direct revenues, enhancing sustainable production and increasing the sale of local products. In addition, it can involve tourists in responsible agricultural activities.

Ecotourism could provide considerable opportunities for poverty alleviation in rural areas in several countries, particularly Lebanon, Egypt, Syrian Arab Republic, Iraq, Yemen and Jordan. Promoting sustainable/ecotourism at the national level requires an integrated plan/strategy and cooperation between concerned stakeholders including governments, ministries, financial bodies, NGOs, private and public sectors and individuals.

[16] Opportunities of ecotourism in promoting sustainable land management in the Caribbean, April 2011.

SUSTAINABLE TOURISM
Success Story

Taziry Ecolodge: Sustainable Ecotourism Lodge in Siwa, Egypt[17]

Description

The Taziry village sustainable development project started in 2007 in order to support cultural heritage, environment awareness and livelihood improvement. The Ecolodge offers recreational activities including horse and camel riding and a library which is being completed to enable scholars from Siwa and around the world to study poetry, calligraphy and astrology. The lodge also produces a number of organic products including bovine, poultry and fish produce, cereal grains, fruits and vegetables. It will also be launching a solid waste management program shortly. In addition, a gallery of artefacts and a market place for local Siwan products, suitable for markets within and beyond Egypt, are also being developed to refresh the local craftsmanship. The main stakeholders in the project are local NGOs, consultants, and entrepreneurs.

Timeline

The construction phase of the Ecolodge was between 2007 and 2009. Between 2009 and 2010, the team was being trained and initial plans were put into place. From 2010 to 2012, programmes were initiated for waste management, local product marketing, and organic agriculture and culture development projects.

Impact

The Ecolodge supports various aspects of sustainable development. Socially, it sustains culture development through its gallery, library, local handcrafts, and educational programmes and builds strong partnerships with the local community, NGOs and the city council. Environmentally, it provides a waste management system, eco-tour guide training and public awareness activities. Economically, it created 108 jobs in various activities (project management, marketing, construction and services such as cooking, cleaning, managing horses and camels, security, agriculture), and initiated 50 local shops for handcrafts as well as marketing and transportation of Siwan products to Cairo and Alexandria.

[17] Business cases of green entrepreneurs: case No. 7, http://www.cprac.org/en/media/business-cases-of-green-entrepreneurs.

Pioneering Ecotourism in Jordan

Description

Jordan's National Tourism Strategy 2004-2010[18] recognized ecotourism as a potential market-led growth area and sought to strengthen NGOs active in this sector, conduct specialist research, develop specialist marketing and promote investment opportunities in eco-lodges and other green initiatives. The National Tourism Strategy from 2011 onwards is expected to place an even stronger emphasis on ecotourism as one of Jordan's primary tourism products, re-affirming the kingdom as a destination for 'boutique' tourism rather than mass tourism. Jordan's protected landscapes are being increasingly used in tourism marketing as a key element of the country's tourism brand values.

One of the main actors in the National Tourism Strategy is the Royal Society for the Conservation of Nature (RSCN), which, with years of experience in conservation work, has garnered considerable acquired knowledge that can be shared throughout the Arab region. The RSCN is actively working on sustainable tourism, providing training and capacity-building to environmental practitioners and other institutions throughout Jordan and the Middle East in an attempt to empower others in their efforts to protect the environment.

Timeline

Jordan's National Tourism Strategy timeline is 2011-2015.

Impact

The greatest impact the RSCN has been in helping to ensure the survival and protection of significant aspects of Jordan's national heritage. The economic sustainability of the initiative is demonstrated by the following key economic indicators for 2010, which include: revenues from ecotourism of about $1.4 million; 50 per cent of protected area costs being covered by ecotourism; and income raised from crafts and other SMEs reaching around $845,000.

Regarding environmental sustainability, many geographical areas have been revaluated and protected through ecotourism activities, while socially the initiative has supported 16,000 people directly or indirectly through various activities.

The successful development of ecotourism in Jordan illustrates not just the market potential of this environmental product and its important economic and social benefits, but also the importance of delivering on a significant promise through a real commitment to environmental protection.

[18] Environmental Goods and Services in the ESCWA Region: Opportunities for Small and Medium-sized Enterprises, E/ESCWA/SDPD/2011/Technical Paper.2.

SUSTAINABLE AGRICULTURE
Background

A shift towards sustainable agricultural practices in the Arab region is expected to result in an enhanced GDP through increased water productivity, improved public health and better-protected environmental resources.

To improve the sustainability of the agricultural sector in the region, decision makers should focus on policies that: 1) Encourage organic agriculture and traditional/healthy foods; 2) Control and regulate water abstraction; 3) Promote the reuse of treated wastewater; 4) Enhance irrigation and improve water use efficiency; 5) Improve energy efficiency of agricultural machines/equipment; and 6) Minimize related agricultural waste. The following section provides case histories related to sustainable agriculture in the Arab region.

SUSTAINABLE AGRICULTURE
Success Story

Promoting Healthy Foods in Lebanon: Souk el-Tayeb

Description

Souk el-Tayeb in Lebanon is an organization working to promote and preserve culinary traditions, rural heritage and the environment by supporting small-scale farmers and encouraging organic and eco-friendly practices, among others.

Souk el-Tayeb aims to preserve traditional foods and the culture of small farmers in Lebanon, protecting the interests of small farmers and producers and enabling them to compete in this era of industrial and globalized food trade. Souk el-Tayeb was created in 2004 and holds markets every Saturday in downtown Beirut. The number of participants in Souk el-Tayeb grew from 10 farmers in 2004 to about 60 farmers in 2011. The income ranges from $300 to more than $1,000 a day per farmer. The success of Souk el-Tayeb has led to the introduction of activities such as: one-day regional food festivals; preparation of traditional Lebanese foods; organization of a series of educational activities in schools and universities (Souk@school); and the issuance of el-Tayeb Newsletter. This e-magazine is designed to inform, raise awareness, and discuss a variety of topics about green living, food, urban planning, ecotourism and a green lifestyle.[19]

Timeline

Souk el-Tayeb was created in 2004 and holds markets every Saturday.

Impact

Souk el-Tayeb is the perfect example of an organic market benefitting the sustainable development of a country. From a social sustainability perspective, Souk el-Tayeb promotes customs and social communication through local agriculture and local cooking, and better visibility of local areas through tourism. The environmental aspect of sustainable development is supported through the organic nature of the products, by the healthy food sold and through the awareness raised on organic and sustainable agriculture. Economic sustainability is ensured by the support it gives to small farmers and producers, providing them with a platform for selling their products and food in addition to providing a number of job opportunities for local staff.

[19] Business cases of green entrepreneurs: case No. 8, http://www.cprac.org/en/media/business-cases-of-green-entrepreneurs.

Green Agriculture Plan in Morocco[20]

Description

In 2008, Morocco adopted its Green Morocco Plan for agricultural development. The comprehensive plan seeks to support the agriculture sector which represents 19 per cent 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 resolving financial, structural and technical obstacles facing the development of the sector. The Green Morocco Plan is expected to: 1) Create 600,000 new jobs; 2) Increase exports; 3) Improve agricultural incomes by two to three times for 3 million rural inhabitants; 4) Launch new investments and start up to 1,500 projects; and 5) Create win-win partnerships between upstream production and downstream commercial and/or industrial phases.

As planned by the government, a multidisciplinary approach will be employed in order to support the green plan for agriculture, including: (a) Integrating climate change considerations throughout 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 for increasing the sustainable agricultural area.

Timeline

The Green Morocco Plan was adopted in 2008 for implementation over a 10 year period (2010-2020).

Impact

The three dimensions of sustainable development will be supported through the creation of new job opportunities, new investments and support for the export market, and through encouraging organic farming, the use of renewable energy and land conservation.

[20] Agency for Agricultural Development, "Green Morocco Plan", available at http://www.ada.gov.ma/en/Plan_Maroc_Vert/plan-maroc-vert.php.

WASTE MANAGEMENT

Background

Generally speaking, the waste management sector in the Arab region is characterized by underdevelopment, underinvestment and insufficient regulations and standards. Despite the increase in waste generated, there is weak political commitment and limited availability of national strategies or integrated plans for waste management in most countries of the region.

Most Municipal Solid Waste (MSW) is directed to open or controlled dumpsites with open-air burning. Furthermore, MSW is usually mixed with industrial and medical wastes. Inappropriate dumping and open-air burning of solid waste allow decomposed waste products to pollute the air, ground and surface water, and soil. Waste management at the country level needs well-prepared national strategies/master plans and strong cooperation between all concerned stakeholders (governments, municipalities, the private sector, NGOs, financial bodies, individuals, etc.).

Given the situation of waste management in Arab countries, there are considerable business opportunities in greening waste management, including reduction, reuse, recycling and recovery. Therefore, the private sector/SMEs have an opportunity to join this business, particularly in large markets existing around big cities (Cairo, Alexandria, Damascus, Beirut and Baghdad), which in turn could lead to a great number of green jobs in various related projects. The next two sections present examples of waste management from a green economy perspective in the Arab countries.

WASTE MANAGEMENT
Success Story

Al-Russaifah Biogas Company in Jordan[21]

Description

Al-Russaifah biogas company in Jordan is a "non-profit company" established to produce electrical energy and to contribute to the protection of the environment by reducing the quantity of pollutants in landfills in Jordan. The company was created by the Ministry of Energy and Mineral Resources in 1998 through a UNDP supported project. Given the progress achieved by this biogas project and according to the Kyoto Protocol mechanism, the Finnish Government agreed to buy carbon credits from the company for a price of 7.8 Euro per ton of carbon dioxide. The company then requested that the Jordanian Government provide incentives within the biogas industry in order to enhance sustainable development at the national level.

Timeline

Al-Russaifah was established in 1998 and is still active.

Impacts on Green Economy

This type of biogas project provides multiple benefits to a green economy. Environmentally, it contributes towards solving the organic waste problem and protecting the environment from harmful pollutants. During the period 2000-2009, Al-Russaifah treated about 19,000 tons of solid waste and about 44,000 m^3 of liquid waste and trimmed down about 40 million m^3 of gas emissions. Economically, it generates energy and produces fertilizer from the residual waste generated. Al-Russaifah generated about 60 GWh during the period of 2000- 2009. Socially, the company has created a considerable number of jobs across different processes (from waste collection to electricity generation). Moreover, the electricity generated enhanced the welfare of rural/remote areas (education, health and cooking).

[21] شركة الغاز الحيوي تنتج الكهرباء من النفايات http://alrai.com/article/384104.html.

Recycling Programme in Jordan: Jordan Environment Society

Description

The Jordan Environment Society (JES) is a non-profit and non-governmental organization that promotes recycling through training, research and capacity-building, awareness campaigns, eco-products and waste sorting and collection.[22] JES operates a broad waste collection system with 300 recycling points and two secondary sorting centres and has 15 branches around the country.

All ages of the population can participate in JES activities through various community activities at the local level.

JES received funds from GEF, Canada Fund, USAID and UNDP, totalling $200,000.

Timeline

JES was established in 1988. Waste collection sites increased from two in 1995 to 300 by 2010.

Impacts on Green Economy

The JES programme focuses on minimizing unemployment, especially among youth and poor women, by creating job opportunities and improving standards of living, in addition to training, capacity-building and raising awareness. From an environmental point of view, JES supports eco-products and mitigates solid waste problems in Jordan, and collects waste paper, which increased from 3 tons/year in 1995 to about 500 tons/year in 2010, while the use of recycled paper increased from 5 tons/year in 1995 to 10 tons/year in 2010.

[22] Business cases of green entrepreneurs: case No. 25, http://www.cprac.org/en/media/business-cases-of-green-entrepreneurs.