

**Regional Experts Meeting on Climate Change Education
for Sustainable Development in the Arab States
(Beirut, 5 - 7 May 2015)**

**Working Document (3)
Sub-Regional Study on Climate Change Education for
Sustainable Development in the Arab States
(Wadi El Nile Countries: Egypt, Libya, and Sudan)**

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Foreword

Education in general and Education for Sustainable Development (ESD) in particular play an essential role in increasing the adaptation and mitigation capacity of communities and nations in regard to climate change by enabling individuals to make informed decisions. Quality climate change education for sustainable development designed with the purpose of empowering people to address climate change and sustainability issues improves the adaptation capacities of affected communities. Climate change poses a serious and additional threat to water resources, agriculture and rural communities in the region, especially in remote areas, post-conflict countries, dry lands and deserts; and countries with limited natural resources, communication and transportation networks/systems are particularly impacted. These developments jeopardize the achievement of the current Millennium Development Goals (MDGs), as well as the transition towards Sustainable Development Goals (SDGs) by the year 2030.

UNESCO Regional Bureau-Beirut and the Education for Sustainable Development (ESD) Section at UNESCO HQ-Paris, in cooperation with the National Commission for UNESCO in Lebanon organized a Regional Expert Meeting on Climate Change Education for Sustainable Development (CCESD) in the Arab region (Beirut, 5-7 May 2015), as part of ESD work plan for 2014-2015. The Meeting Programme included the preparation of four Sub-Regional Studies on CCESD key issues and programme development at the country and regional levels. Dr. Mona Zoghbi, Lebanon and Dr. Hani Sewilem, Egypt had prepared the four studies and contributed to the technical programme of the Expert Meeting in Beirut. UNESCO Working Team: Dr. Sulieman Sulieman, Ms. Julia Heiss, and Ms. Julia Viehofer provided guidelines and coordination for the studies and the outcomes of the Regional Expert Meeting.

The Sub-Regional Studies and the Final Report of the Regional Expert Meeting will assist ESD experts and policy makers in the region in developing quality educational and learning opportunities related to Climate Change Education for Sustainable Development (CCESD), and the Global Action Programme on ESD (2015-2019).

We would like to thank the team of experts on their efforts and contributions to the studies and the ESD programme in general, which will reflect positively on developing joint actions in the education and learning communities around the world.

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Executive Summary

This Sub-Regional study highlights good experiences, identifies needs, and generates recommendations for the advancement of climate change education for sustainable development (CCESD) in the Wadi El Nile countries (Egypt, Libya, and Sudan). This study is one of four sub-regional studies which have been prepared for the Arab States (Mashreq-5, Arab Gulf & Yemen-7, Wadi El-Nile-3, and Maghrib Countries-4) to serve as background papers for the Regional Expert Meeting in the Arab region (Beirut, 5-7 May 2015). The findings presented in this study are based on a combination of desktop review and a needs assessment survey/questionnaire to identify organizational strategies and CCESD programmes in the countries, and the gaps and needs in capacity building in the area of policy development, teacher training and curriculum on CCESD including Disaster Risk Reduction-DRR at the levels of general education (including technical and vocational education), higher education, and life-long learning (LLL) in the Wadi El Nile countries.

The different initiatives performed and implemented in the Sub-Region left more to be desired in order to achieve real CCESD development. The potential power behind the education can lead to solving many of the sub region current environmental, social, political and economical problems. More focus should be given to Developing policies, Teacher training, Curriculum development and cooperation with Civil societies in order to successfully implement CCESD and ESD in the Sub Region.

There are already many economical, social and political challenges facing the studied countries, which make the priorities and agenda not having a major focus on CCESD. This also arises from the uncertainty and low awareness level of climate change phenomenon. Hence, the decision makers are therefore unable to make the right decision which will lead to the implementation of steps and funding plans that require the expenditure of large sums of money.

General Education

There are some promising initiatives like Bezra programme for students in schools in Egypt was developed as a direct communication with the children of primary stage through a magazine, workshops and awareness sessions for introducing the environment principles including climate change. The ministries of education are already over loaded with different challenges regarding Human resources development. Thus, the private sector, NGOs and research centers should cooperate in this stage. It is important to integrate all these stakeholders in this stage in order to increase and enhance the amount and quality of the investment given to the teachers. Developing the Human resource sector in the educational systems is one of the main keys of the success of the new recommended policies.

Key Recommendations: The ministries of education should work on updating their curricula for all educational levels and implement more CCESD concepts within. This should go side by side with giving attention to teachers training on enhancing their awareness level and soft skills. The new curricula should be able to identify the relationship between sustainable development and climate change with existing case studies within the area of the education institution. The government should work on enhancing the technological infrastructure of schools, in order to increase the potential of the new educational programmes.

Higher Education

At the sub-regional level, there are some promising initiatives in numerous universities in the region, such as the initiatives by The Center for sustainable development in American University in Cairo, which promote sustainable development education. The programmes applied by the center are targeted students from different educational backgrounds as well as and teachers. It would be valuable to expand these initiatives in order to engage a wider number of universities from the region, as well as to replicate these programmes in more specialized fields on climate change and disaster risk reduction with special focus on the Arab region. At the country level, numerous universities have developed courses on climate change and sustainability yet only a few have established long-standing specialized diplomas and degrees in climate change and sustainable development.

Key Recommendations: The shifting of the courses content to integrate CCESD will provide an easier and faster transition towards the goals of the new policies. It is also important to learn from other world countries experiences and international organizations in the field of CCESD when developing the new curricula. The new content will provide different levels of knowledge to students from different educational backgrounds.

Life-Long Learning (LLL)

Some of the interesting initiatives include the initiatives by the Sudanese network for climate change for educational development in Sudan which supports both teachers and students and organize campaigns for adult education classes. One of the main factors which will directly lead to the success of the CCESD development plan, is guaranteeing the participation of civil societies and NGOs in the form of raising awareness and Life Long Learning (LLL).

Key Recommendations: Governments should encourage adult and illiterate education programmes by NGOs and civil societies to implement CCESD. It is important to start initiatives for green job training as it will speed up the move for achieving the goals needed. These training should target professionals from all sectors and educational backgrounds. It is also very important to host national partnerships between the public and private sectors, in order to work together on solving CCESD issues. Pilot projects should be worked on in Universities and schools and engage students in solving real climate change problem within the area.

1. Introduction

One of the main objectives of developing the Sub Regional study on climate change education for sustainable development is to increase the flexibility of the Wadi El Nile sub-region community in dealing with the risks and disasters that might be caused by climate change while considering the three pillars of sustainability. It also aims at strengthening the capacity to absorb and reduce the risks and disasters to be caused by such changes. In essence, the study adopts accommodation and protection as the two basic means of defense. There are many issues associated with climate change, which the region has to take in to consideration to overcome any future extreme event.

In the Arab region climate change already has impacted on people's livelihoods and lives. There is evidence of prominent increases in the intensity and frequency of many extreme events such as heat waves, tropical cyclones, prolonged dry spells, intense rainfall, tornadoes, thunderstorms, and severe dust storms in the region. Furthermore, the region is highly subject to natural hazards, such as desertification's, earthquakes and landslides. Such impacts pose additional risks for already vulnerable communities striving to combat poverty and achieve sustainable development.

Climate change poses a serious and additional threat to water resources, agriculture and rural communities in the region, especially in remote areas, post-conflict countries, dry lands and deserts; and countries with limited natural resources, communication and transportation networks/systems are particularly impacted. These developments jeopardize the achievement of the current Millennium Development Goals (MDGs), as well as the transition towards Sustainable Development Goals (SDGs) in the region.

Education in general, and Education for Sustainable Development (ESD) in particular play an essential role in increasing the adaptation and mitigation capacity of communities and nations in regard to climate change by enabling individuals to make informed decisions. Quality climate change education for sustainable development designed with the purpose of empowering people to address climate change and sustainability issues improves the adaptation capacities of affected communities. It should be enhanced by educational programmes that explicitly prepare communities for natural disasters. Furthermore, it needs to incorporate sustainable knowledge, and promote sustainable lifestyles and development in which the importance of heritage is recognized as an integral part of their identity and an important asset that can help building resilience. Climate change education for sustainable development can stress the unique cultural and natural heritage of countries in the region, which plays an important role in the building of community resilience.

While education plays a key role in strengthening adaptation and mitigation capacities, such capacities are also needed to equip education systems and infrastructures to prepare for climate change. Entire school communities - including local education authorities, administrative staff, teachers and parents - must be prepared to ensure a climate-safe and climate-friendly school environment. Adaptation needs also must be taken into account when constructing new schools which are safe and have a climate-resilient design. Education for mitigation should be supported by sustainable school and campuses that serve as a learning laboratory for students to demonstrate and further deepen understanding of the principles learned in the classroom. Furthermore, the capacity of education systems to respond to new migration streams caused by climate change impact, or to new skill requirements due to a changing environment needs, to be included in education strategies for adaptation to climate change.

In order to address these urgent needs, a three-day Regional Expert Meeting in the Arab region (Beirut, 5-7 May 2015), had been organized with main focus on the challenges that climate change poses to education systems. The Expert Meeting structured around four thematic areas of CCESD in the Arab region:

- a. Engaging with youth and communities;
- b. Developing partnerships for Climate Change Education (CCE);
- c. Preparing for disaster and emergencies; and
- d. Building green societies through green job training.

The Expert Meeting supports the UNESCO's action in collaboration with the Member States in the Arab region to integrate ESD and CCE in their education plans and practices. Moreover, the Meeting had developed recommendations and plan of action to promote education as an important means to enhance climate change mitigation and adaptation in the context of sustainable development in the Arab region.

As part of the technical preparations for the meeting, the UNESCO Regional Bureau-Beirut has undertaken 4 sub-regional studies and country surveys on CCESD in the Arab States (Mashriq-5, Gulf & Yemen-7, Wadi El-Nile-3, and Maghrib Countries-4). The four sub-regional studies served as background papers for the Meeting, presenting an overview of challenges, needs and the state of climate change education for sustainable development (CCESD) in the sub-regions.

The sub-regional study presents an overview of challenges, needs and the state of CCESD in the Wadi El Nile countries (Egypt, Libya, and Sudan).

2. Methodology

In order to obtain a broad overview on CCESD in the sub-region (Egypt, Libya, and Sudan); and to prepare the study, the methodology for data collection procedures was applied based on the following steps:

- Desktop study and analysis of background documents; and
- Questionnaires distributed among the targeted countries.

The methodology also included the following:

- a. Review national education policies and programmes, formal and non-formal, at primary and secondary education levels including TVET, as well as teacher training programmes and curriculum materials on CCE, DRR and ESD. The desktop review was organized into four sections:
 - Regional documentation (documentation on CCESD, DRR and ESD in the sub-region);
 - Country-specific/national documentation on Egypt, Libya, and Sudan;
 - Academic reports and articles; and
 - Survey/Questionnaire on CCESD in the Arab States (developed and disseminated by UNESCO Regional Bureau-Beirut, February 2015).
- b. Identification of gaps and needs in capacity building in the area of policy development, teacher training and curriculum on CCESD including DRR.
- c. Consult with main stakeholders, including concerned line Ministries, NGOs, UN Agencies, and Civil Society working on CCESD and DRR on findings and challenges, needs of CCESD in the Arab States and the sub-region.
- d. Mapping of partners-stakeholders to identify future activities and responsibilities related to CCESD in the sub-region.
- e. Develop and submit a final draft of the Study in English and Arabic, to UNESCO Regional Bureau-Beirut on CCESD education and future teaching and learning opportunities, as part of UNESCO and UN programmes in the Arab region.

The study output also includes a proposal for potential national partner institutions at the Cluster/Country levels for implementing CCESD and the GAP-ESD, including government, universities, international/regional organization, and non-government organization (NGOs).

Desktop Study and Background Documents

Much of the data for the survey report was collected through a desktop study of available relevant background documents. Such documents include government policies and legislation, curricula and education programmes, regulations, annual reports, government and non-governmental publications (magazines, brochures and newsletters), funding proposals and available CCESD related literature. The value of these lies in its ability to reveal the history and how past programmes are regarded by different stakeholders. Such data indicated other areas of enquiry and topics for

intensive discussions, while the data also exposed aspects of the programme that would otherwise be ignored. The reviewed documents included:

- Existing strategies of the Basic Education and Higher Education ministries in the cluster countries;
- Reports of all national and international Climate Change education programmes in the cluster countries in the 21st century;
- Governmental policies related to education in the cluster countries;
- Curricula or list of topics of subjects with relevance to climate change in the cluster countries. This includes subjects like: Science, Social subjects and Geography;
- Annual reports of education statistics made by government or third parties; and
- Non-governmental organizations (NGOs) reports of projects related to environmental and sustainable education projects.

Analysis of these documents provided a better understanding of the current situation of the cluster regarding climate change education and sustainable education in general. The data extracted from the analysis were highlighted more than the questionnaires, which can be more biased towards to the interviewee opinion.

Questionnaires

Questionnaires were distributed to key stakeholders like schools, teachers, education experts, politicians, environmentalists, NGOs, institutions and funding agencies who play a major role in providing courses and programmes in Education for Sustainable Development (ESD), especially those that have Education Centers nationally or regionally. The participants of the questionnaires were representatives of the following institutions:

- Schools teachers;
- Environmental agencies;
- Ministries of Education;
- Ministries of Higher Education;
- Ministries of Environmental Affairs;
- Civil Societies and NGOs;
- Education and Training Initiatives at Universities;
- Education for Sustainable Development (ESD);
- Projects and Initiatives by Business and Industry (Private Sector);
- ESD Coordinators;
- Policymakers; and
- Researchers.

The Questionnaires/Surveys included information on national, sub-regional, and regional initiatives relevant to CCESD, partner institutions and entities that work on ESD and CCE (including Disaster Risk Reduction-DRR). The survey also reviewed relevant national policies, curricula and teacher education programmes. The survey was organized into three sections: CCESD educational strategy; programme development, and building of capacities-partnerships on CCESD at the national and regional levels.

3. CCESD in the Education and Learning Systems

i. Regional and Sub-Regional Initiatives

The desk study review in the three countries (Egypt, Libya, and Sudan) had resulted in the identification of several initiatives related to the four themes related to CCESD. These initiatives include the following:

ClimaSouth (2010-2014):

The ClimaSouth project supports climate change mitigation and adaptation in 9 South Mediterranean countries. The project was initiated in February 2013 and will be implemented over 48 months with a total budget of 5 million Euros provided by the European Union (ENP). Key stakeholders include technical government departments at operational and policy level, UNFCCC focal points, decision makers, and other stakeholders such as local government and civil society representatives. Its overall objective is to assist with the transition of partner countries towards low carbon economies and enhanced climate resilience. The ClimaSouth project supports climate change mitigation and adaptation in 9 South Mediterranean countries: Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, Palestine and Tunisia. The project was initiated in February 2013 and will be implemented over 48 months with a total budget of 5 million Euros provided by the European Union (ENP). Key stakeholders include technical government departments at operational and policy level, UNFCCC focal points, decision makers, and other stakeholders such as local government and civil society representatives. Its overall objective is to assist with the transition of partner countries towards low carbon economies and enhanced climate resilience. Capacity development initiatives for climate change are mainstreamed with capacity development programmes for domestic negotiations and mainstreaming of climate change related measures. Awareness activities will highlight the importance of climate change and of associated costs and benefits of mitigation and adaptation actions as well as how climate change could be integrated throughout national policymaking. General climate change through technical and help desk facilities (face to face or online) and specific events on practical issues, such as expert meetings and training courses on Low Carbon Development, Resilience to Climate Change and Finance.

<http://www.climasouth.eu/drupal/en>

Euro-Med (Shared Environmental Information System for the European Neighborhood and Partnerships):

The project aims to modernize and simplify the collection, sharing and use of data and information required for the design and implementation of environmental policy processes, through the dissemination of the principles of shared environmental information system to the neighborhood and developing the capacity of the competent authorities responsible for environmental data management and reporting. The project helps to develop the capacities of

stakeholders in the areas of cooperation and networking, monitoring and evaluation, data management, and raise environmental reports based on indicators. It also provides long-term and sustainable opportunities for cooperation with partner countries. It identifies and develops data and information flows and environmental indicators suitable for the design and review of environmental policies. It also develops supporting, monitoring and compliance with various national, regional and international obligations and targets; Improves capacities in the field of monitoring, collection, storage, assessment, and reporting of environmental data in the relevant environmental authorities including the national statistical systems, in compliance with reporting obligations to international agreements and in coordination with relevant regional initiatives. It supports efforts to set up national and regional environmental information systems in the countries of the ENP area that are in line with the EU's SEIS. It tracks progress in regional environmental initiatives (ENP, Eastern Partnership, Strategic Partnership, and Horizon 2020). The project aims to promote the protection of the environment in the countries of the ENPI area by extending the principles of the Shared environmental Information System (SEIS) to the Neighborhood area, and developing the capacities of the relevant authorities responsible for environmental data management and reporting. The SEIS is an EU initiative to modernize and simplify the collection, exchange and use of the data and information required for designing and implementing environmental policy. The project is implemented by the European Environment Agency in collaboration with Eurostat, DG Environment and the EU's Joint Research Centers (EU-JRC). Modernizes and simplifies the collection, exchange and use of the data and information required for the design and implementation of environmental policy. The partner countries include Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, Palestine, Syria, Tunisia (South), Armenia, Azerbaijan, Belarus, Georgia, Moldova, Russia, and Ukraine (East). http://www.enpi-info.eu/mainmed.php?id=489&id_type=10

EuroMed Disaster Risk Reduction Project:

Euro-Mediterranean project programme focus on the prevention of natural disasters caused by human activity, preparedness and response in the Mediterranean countries. This programme is funded by the European Union aimed at the national level to raise the national adjustment for each South partner countries level (target countries through political European Neighborhood) prone to natural disasters or those resulting from human activity, and it is mainly through risk reduction. PPRD South Programme supports international cooperation for the reinforcement of Civil Protection capacities between the European Union, the Mediterranean and Balkan Partner Countries under the umbrella of the European Neighborhood Policy (ENP). The purpose of the Programme is to contribute to the development of improved civil protection prevention, preparedness and response capacities at international, national and local levels. These objectives will be pursued over 3 years through four broad areas of activity aimed at risk assessment

by developing national and regional risk assessment tools such as risk review, risk maps, CP Operational Manual, prevention and preparedness by organizing training workshops, study visits and technical assistance, by sensitizing the creation of national platforms for disaster risk reduction and by supporting regional cooperation, response by improving the coverage and the coordination of existing warning systems and of the relevant operational centres and implementing simulation exercises, and information/communication by improving the information and awareness of affected populations regarding risk exposure, prevention and response. Specific activities aimed at achieving the Programme's goal include moreover the establishment of a network of permanent National Correspondents. The PPRD South Programme will also contribute to bringing the Mediterranean Partners closer towards the European Union Civil Protection Mechanism in accordance with the Joint Declaration of the Paris Summit for the Mediterranean in 2008, which states that: "A joint Civil Protection programme, linking the region more closely to the EU Civil Protection Mechanism is one of the main priorities of the region".

<http://www.preventionweb.net/english/professional/contacts/v.php?id=6147>

CLIMAtE Change and Sustainability Policy – CLIMASP:

The programme is an inter-disciplinary programme on climate change and sustainability policy, which works on developing and implementing capacity-building workshops for building interdisciplinary and multi-stakeholder driven climate change curricula responsive to societal needs. It also involves university staff and other key stakeholders (e.g. students, professionals) in the development of an undergraduate interdisciplinary programme on CLIMAtE change and Sustainability Policy (CLIMASP) in each partner country university. Moreover, it integrates, implements and assesses the CLIMASP programme as an integral part to existing undergraduate academic degrees in disciplines like education sciences, applied sciences, technical sciences, economics/business sciences, humanities and social sciences.

The focus of the interdisciplinary CLIMASP programme is to address the issue of climate change and sustainability policy from an environmental, social, economic, cultural and political perspective, with regional reference.

Higher Education plays a critical role in making a healthy, just, climate-neutral and sustainable society. It prepares most of the professionals who develop, lead, manage, teach, work in, and influence society's institutions. Higher Education Institutes (HEIs) in Middle East, while recognizing that their region's contribution to the damage of the global climate is less when compared to developed regions, they do recognize the urgency for meeting the challenge as Middle East is one of the most vulnerable regions to climate change. Tackling the urgency of the regional climate change impacts, HEIs necessitate developing interdisciplinary learning, curricula and teaching.

The wider objectives are to transform current unsustainable practices with respect to interdisciplinary collaboration and promote interdisciplinary climate change curricula in the partners' countries universities.

The specific objectives of the project are to:

- Develop and implement capacity-building workshops for building interdisciplinary and multi-stakeholder driven climate change curricula responsive to societal needs;
- Involve university staff and other key stakeholders (e.g. students, professionals) in the development of an undergraduate interdisciplinary programme on CLIMAtE change and Sustainability Policy (CLIMASP) in each partner country university;
- Integrate, implement and assess the CLIMASP programme as an integral part to existing undergraduate academic degrees in disciplines like education sciences, applied sciences, technical sciences, economics/business sciences, humanities and social sciences; and
- Contextualise the Europass supplement diploma in the partner countries' universities and the Arab region.

The Partners on this project: University of Crete, Leuphana University Lueneburg, Heliopolis University for Sustainable Development, Suez Canal University, Aswan University, Port Said University, Education for Employment Foundation Egypt, Egyptian Business Women Association, Hashemite University, University of Jordan, American University of Madaba, Jerash Private University, Jordan Environment Society, Notre Dame University -Louaize, Lebanese American University.

<http://www.ncu.org.cy/climasp.html>

ICARDA Regional and Sub-Regional Programmes:

The programmes of the International Centre for Agricultural Research in the Dry Areas (ICARDA) is funded by International Fund for Agriculture Development (IFAD)-Rome, and built on previous ICARDA research initiatives to improve awareness of climate change at the policy and community levels, deliver technologies to resource-poor communities, and encourage farmers to adopt sustainable agricultural practices. The research team expects to eventually extend interventions to communities living in similar agro-ecologies throughout the Middle East and North Africa. The main programme objectives are to improve awareness of climate change at the policy and community levels, deliver technologies to resource-poor communities, and encourage farmers to adopt sustainable agricultural practices. Barley-based livestock production systems largely depend on agricultural production and animal keeping activities, and sustain some of the poorest segments of the rural population in North Africa and West Asia. Although resilient, climate change is a serious threat to the environment, natural resources, and productivity of marginal, semi-arid areas where barley-livestock farmers operate. Interventions for improved barley cultivation such as zero tillage,

early sowing, improved drought-tolerant barley varieties, and basic advancements in fertility or early weaning for livestock production will help farmers adjust to the effects of climate variability and boost farming productivity and crop yields. Beneficial technologies being tested and disseminated in this work include seed cleaning machines, village-led seed multiplication schemes, and the introduction of improved drought tolerant barley varieties. The research team expects to reach an initial 1600 households in the target areas in Iraq and Jordan – approximately 10,000 people – and will eventually extend interventions to communities living in similar agro-ecologies throughout the Middle East and North Africa. ICARDA’s Regional Programme works with national agricultural research institutions in Algeria, Libya, Mauritania, Morocco, Nile Valley and Tunisia. <http://www.icarda.org/>

ii. Country Initiatives

- **Egypt**

National Climate Change Policy

| Milestones in Egypt's Climate Policy | Date |
|--|------------------|
| Ratification of the Framework Convention on Climate Change | 05 December 1994 |
| Submission of the initial National Communication | 19 June 1999 |
| Ratification of the Kyoto Protocol | 12 January 2005 |
| Establishment of the CDM –DNA | 06 February 2006 |
| Submission of the Second National Communication | 07 June 2010 |

The national climate change policy stresses the importance of adaptation with a possibility of contributing to the international community’s efforts towards the mitigation of GHGs. Egypt is one of the most vulnerable countries to the potential impacts and risks of climate change, even though it produces less than 1% of the world total emissions of GHG, with a vulnerability of all sectors of development and a low resilience of the majority of stakeholders. The sectors of water resources, agricultural resources and food security, coastal resources, tourism, and health are all particularly vulnerable with serious socioeconomic implications. For each of these sectors, detailed analyses of adaptation measures have been carried out and specific policies have been developed.

The Context of Climate Change in Egypt

- Total GHG emissions: 193 MtCO₂e
- Per capita GHG emissions: 2.3 metric tons per capita (2007)
- Carbon intensity of the economy: 0.5 kg of CO₂e per PPP \$ of GDP (2006)
- Carbon intensity of the energy sector: 0.54 kg of CO₂e /KWH
- Share of renewable energy: 9%

In October 2007, the Supreme Council for Energy adopted a strategy for energy supply and use, which comprehensively integrates the main policies and measures that could meet the longer term challenges facing the national energy industry. The strategy confirms the ongoing activities, adding to them nuclear power generation, carbon capture and storage, the reduction of electricity losses through transmission and distribution systems and demand-side management.

Over the years, a series of policies and measures have been adopted to result in a general decrease in GHG emissions per unit of product in industrial processes and product use (excluding those related to energy). Accelerated developments are taking place for introducing renewable, fuel switching in industry and transport, domestic and industrial efficiency programmes, energy-efficient buildings, agriculture and plantation schemes to enable establishment of an economic structure that prioritizes energy efficiency. This reflects Egypt's basic policy direction and measures for greenhouse gas reductions to contribute to the global efforts to mitigate climate change, though not legally required to do so.

Adaptation/Resilience

Since 2007, Egypt held detailed analysis of adaptation policy and measures has been carried out. Vulnerabilities, socioeconomic implications and suggested adaptation policies and measures for each sector are outlined.

- **Programmes and Projects by the Government-Public Sector**

Project Technical Guidance Development in Egypt:

The goal of the project to improve the performance of mentors in all disciplines in all governorates of Egypt, it has been trained mentors in the programme of 5 days on the job function description of the prompt in all disciplines at all levels of education, and follow-up mechanisms teachers' performance, was the preparation and implementation of the programme in partnership between the Ministry of Education and the National Center for Educational Research and Development, and the National Center for Examinations and Educational Evaluation, in collaboration with the World Bank and the European Union during the years from 2000 to 2002.

Japanese International Cooperation Agency (JICA) Project:

The project goal in its first phase to prepare a teacher guide the decisions of the primary school in English, has been translated into Arabic language, so as to improve the teaching of science and mathematics at the primary level, and aimed the second phase to workout guide and stomach lessons using problem-solving in four schools strategy official languages in Cairo in the period from

April 2003 until March 2006, was the design and implementation of many of the work and training for teachers of the pilot schools on the teaching of science and mathematics in accordance with the Japanese philosophy workshops. The project was in collaboration with the National Center for Educational Research and Development at the Centre, as are many members of the center in training programmes in Japan travel

School Sanitation Project:

The project was implemented in cooperation between the Ministry of Education, National Center for Educational Research and Development and UNICEF Cairo Office, and the goal of the project to work on the assurance of some environmental education components in schools especially with associated water issues, hygiene and health, and solid waste management, and communication and work volunteerism, communication and other topics, was the establishment of a number of workshops and training courses for teachers in schools. The sample consisted of schools governorates of Qena, Sohag and Assiut, have also been programmes to follow up on the performance of teachers in schools, and work planning refresher meetings, with presentations of the activities of the students inside the school.

Project (Hand Notepad):

The project was implemented in cooperation between the Ministry of Education and the National Center for Educational Research and Development French Cultural Center during the period 2001/2002 till 2004/2005, and for the design of scientific activities for the development of science education for pupils three grades of primary school.

Egypt Education Reform Programme (ERP):

It adopted a learning-centered school to build the capacity of teachers, assurance and the role of boards of trustees, teachers and parents, with a focus on supporting the girls in education. And professional development programmes focused on: active learning and classroom management, and activating the role of boards of trustees in resource development, teacher training and other exercises.

Establishing of Boards of Trustees, Teachers and Parents in each School:

It aims to establish the principle of decentralization in the calendar and follow-up, and making decision-making, and work to consolidate democracy in the hearts of students, and to encourage self and voluntary efforts of members of civil society, and community mobilization efforts in order to enhance the educational process, while maximizing the role of school in the service of the environment and the community.

Establish a Unit for Training and Quality in each School of Education:

It aims to develop a vision and message, with a developmental plans to improve school performance, and ensure the continuity of the self evaluation of the school as a community, and activate the community participation, and studying the training needs, while working to establish sustainable professional development, and to benefit culture of envoys, and coordination with mentors and observers to evaluate school performance.

Environmental and Population Educational Directorate General of the Ministry of Education:

It issued a document environmental and population and health activities 2014/2015 aimed at integrating environmental, health and population concepts in educational curricula. The document addressed the areas of environmental and health education to the school as an educational institution also included many of the activities related to sustainable development (public administration environmental and population Educational 2015).

World Environment Day:

Since 1973, every year on 5 June, a celebration is held including exhibitions, scientific seminars and environmental campaigns to raise awareness towards climate change. In 2008, Egypt joined the celebrations with activities held at Azhar Park on June 7 and Bibliotheca Alexandria on June 12. Leading the group of Ministers, who celebrated the event under the slogan kick the Habit! Towards a Low Carbon Economy, was the minister of state for environmental affairs? During the event, George announced the issuance of his ministry's annual report. The report sums up the achievements of the ministry during the time between 2005 to 2008, including promoting the use of natural gas as a clean fuel, the vehicle inspection programme, monitoring air pollution, and the preparation of a survey of gas emission sources. The ministry also issued a booklet on climate change, as well as special editions of its magazine Eyoun Al-Bia'a (Eyes of the Environment), and Bezra (Seed) magazine for children. <http://www.dailynewsegypt.com/2013/06/05/egypt-the-question-of-the-environment/>

Raising Awareness of Educational Groups:

The Ministry of environment holds training courses for teachers and educational inspectors on how to simplify the climate change phenomenon for students, teaching them positive behaviors, with a group of ideas and teaching aids.

Bezra Campaigns:

The character of "Bezra" is used in awareness campaigns for students. Publication materials were produced including, posters, copy books, tickets (do and don't s), CD. The campaign initiates direct communication with the children at primary stage, through workshop of introducing the environment and explaining each poster.

Environmental teams in schools were formed from teachers and students where they use Bezra Magazine in documenting their activities. It is also true, however, that the Awareness Department / media of the Ministry of State for Environmental Affaire; the head of Media Department is very active on all environmental issues. The Department, In addition to ensuring media coverage of all activities and projects carried out by the Ministry, has an effective awareness-raising activities not only through the interactive website (face book, twitter), but through "BEZRA" a quarterly magazine for children, through the production of documentaries, media production tools / material of the child and education environmental cultures used in the propagation of environmental awareness among children: such as posters, books, and environmental video games. In cooperation with the youth and sports broadcasting, a programme is executed on environmental awareness entitled "Akhdarino". In cooperation with the media authorities, tools /materials and programmes are produced. www.eeaa.gov.eg/english/main/allnews.asp

The Green Corner:

The Green Corner is considered one of the most important programmes targeting the environmental awareness especially among children and teenagers. Since the year 2001, the Ministry of State for Environmental Affairs has adopted the Green Corner Project. The expansion and replication of the Green Corner has taken place in all Egyptian Governorates and at the end of year 2002 the establishment and refurbishment of 30 Green Corner sites have been developed in all Governorates. The Global objective of the Green Corner is dissemination of environmental awareness all over the country among children and teenagers. The aim is to develop a new generation capable and responsible vis a vis the protection of the environment. Cooperation with the awareness department will be suitable, above all to reinforce the issues of Climate Change.

Media & Publications:

Many public awareness programmes were implemented through audio & visual media means plus publishing series of books, posters and scientific articles in magazines on the phenomenon of climate change. There are now weekly environmental pages in several national daily newspapers such as Al-Ahram, Al-Gomhoria, and Al-Akhbar. There are several specialized T.V. and

radio programmes address environmental problems and community participation in solving such problems. A number of training courses were given to journalists to help in shaping the thought of civil society towards activating policies and making decisions in this area.

- **International Organizations Programmes and Projects**

The UNDP GEF Small Grants Programme:

The programme was launched in Egypt in 1992, and has directed more than 60% of its 175 grants in small scale projects to NGOs implementing small scale climate change projects. The SGP funds, which do not exceed US\$50,000, are eligible for non-governmental organizations (NGOs) and community based organizations (CBS) in recognition of the key role they play as a resource and constituency for environment and development concerns. The areas supported by SGP are identical to those supported by the GEF: biodiversity, climate change and international waters. In 2002, two additional focal area have been added, which are: land degradation and persistent organic pollutants. Regarding climate change, several topics are being tackled like removing barriers to energy conservation and energy efficiency, promoting the adoption of renewable energy by removing barriers and reducing implementation costs, reducing the long-term costs of low greenhouse gas emitting energy technologies and promoting environmentally sustainable transport. <http://www.gefsgpegypt.org/>

Millennium Development Goals (MDGs) Achievement Fund:

The programme built the awareness and capacity of key decision makers and development actors to implement pilot projects and to integrate climate change into key policy, regulatory, institutional and operational frameworks.

Reorient University Curricula to Address Sustainability Network (RUCAS):

Joined efforts with six HEIs from the Arab region along with UNESCO Regional Office for the Arab States and pioneering NGOs to form a Consortium to tackle the identified constraints and needs. The overriding goal of the project is to help partner HEIs in Egypt, embed ESD into their curricula. The Project will initiate a wide range of activities to develop resources, revise and develop new curriculum initiatives, build capacity and strengthen national and regional networks.

Addressing Climate Change in the Middle East and North Africa Region:

This project is executed by the World Bank through a trust fund, aims to strengthen the technical and institutional capacity in the region, and to promote knowledge on climate changes exchange, seeking to integrate climate change in their own various sectors planning processes, including water, agriculture, energy and social sectors, and other related fields, to make more sustainable development and reducing vulnerability to climate change.

MENA-Desert Ecosystems and Livelihoods Programme (MENA-DELP):

The Programme is designed to provide a clear strategic framework to address deserts as valuable ecosystems, reconciling the needs of local and global communities, along with those of humans and other biota. The Programme is particularly important for the Middle East and North Africa (MENA) region. Sustaining the capacity of desert ecosystems to provide goods, services and livelihoods in an integrated manner represents a critical cornerstone for long-term development prospects in fragile deserts at local, national and regional levels and targeted investments. It also integrates biodiversity into production landscapes, improve the flow of desert ecosystem services into agricultural systems, reduce vulnerability to climate change impacts, and pilot innovative low carbon technologies. The Egypt project would provide incremental support to national baseline investments implementing the 2002-2017 National Environmental Action Plan (NEAP), specifically, existing water supply investments (deep wells) and planned investments (drinking water treatment plants, reservoirs and water distribution networks), by introducing sustainable water harvesting and use practices, through water conservation works and the cultivation of adapted fodder and food crops. This would also help frame current Government efforts in animal health and nutrition within a broader framework of integrated management of land and natural resources. The Egypt project would also enhance the understanding of ecosystem services and pilot potential opportunities (namely ecotourism) in select desert locations, and support the necessary outreach, dissemination and monitoring for an eventual scaling up of activities.

<http://www.oss-online.org/en/mena-delp>

- **Private Sector and NGOs Programmes and Projects**

Vodafone Egypt to Raise Climate Change Awareness Programme:

Vodafone is teaching students the importance of preserving the environment and is doing seminars and projects encouraging individuals to learn about the environmental issues including climate change. Some of their activities include "Green Energy", where Vodafone Egypt started using solar energy to power remote and off grid sites in 2001, to help us improve our environmental performance and decrease our overall carbon emissions. And there is also "Paper Recycling" programme, where Vodafone Egypt has also been recycling paper waste for many years, with paper recycling bins in all our offices as well as shredders, enabling most paper waste to be recycled.

<http://www.vodafone.com.eg/vodafoneportalWeb/en/P19004264251359627746393>

Rotary District 2541 in Egypt:

Rotary has been working on environmental awareness in Egypt for years. For example, since 1995-1996, the Rotary worked on environmental awareness

project for Heliopolis students (192 school)" Primary and Preparatory schools" and the project included artistic, cultural and planting competitions, gifts and financial rewards were distributed and certificates for the outstanding students and schools also and an exhibition was arranged for the artistic works.

Center for Sustainable Development in American University in Cairo:

The Center for Sustainable Development works on several research and educational projects which promote sustainable development education. The programmes applied by the center are targeted for Basic and Higher education as well as students and teachers. "EduCamp" is a programme aimed for Sustainable development education for schools, where it developed its own curricula for the teachers and students. The Graduate Diploma and Master's programme for Sustainable development is one of a kind post graduate programme for education of sustainable development which accepts students from different educational backgrounds and teaches them many sustainable development concepts, and environmental problems including climate change and how to tackle it sustainably.

- **Libya**

National Climate Change Policy

| Milestones in Libya's Climate Policy | Date |
|--|-------------|
| Ratification of the Framework Convention on Climate Change | 1999 |
| Submission of the Initial National Communication | 2005 |
| Ratification of the Kyoto Protocol | 2006 |

Libya is listed as a Non Annex 1 and is eligible to the GEF. Some capacity building to support the preparation of the Initial National Communication to the UNFCCC was completed in 2005 but no new developments are currently on-going due to the post-conflict situation.

The Context of Climate Change in Libya

- Total GHG emissions: 34.89 Mt CO₂e, IEA 2011
- Per capita GHG emissions: 5.43 t CO₂e, IEA 2011
- Carbon intensity of the economy: 1.67 kg CO₂/2005 USD, IEA 2011
- Carbon intensity of the energy sector: 2.26 t CO₂/ toe, IEA 2011
- Share of renewable energy: 0.06%

The sources of CO₂ emissions between 1950 and 2000 show a sharp increase over the last 30 years with annual trend of CO₂ emissions strongly positive for fossil fuels at 284,220 t/year followed by liquid fuel consumption 189,790 t/year, while the emissions of CO₂ from solid fuel consumption decreased at 33,000 t/year from 1950-2000" (Source: Marland et Al 2003). No further GHG analysis or mitigation strategy were carried out.

Adaptation/Resilience

These projected temperature increase and rainfall decrease combined to a key vulnerability indicator such as permanent cropland percentage (which is well below those of other Middle East and North Africa countries) would necessarily result into an acute water/food security issue: the total area of the country is estimated at 1,760,000 km²; the area suitable for cultivation approximates 22,000 km² where approximately 93% of the land surface receives less than 100 mm of rain per year. No further vulnerability assessment nor adaptation strategy were further carried out.

Note: it was difficult to get more information on CCESD in Libya due to current political situation in the country, which limited the analysis on this country as part of the study.

- **Sudan**

National Climate Change Policy

Sudan is making a maximum effort to ensure adaptation to climate change. The government established a process for the development plan to enter the climate and vulnerability in sector development policies and complementary environmental programme, which is included in the decimal National Strategy (1992 - 2002). Moreover, the full strategic plan extended for a period of 25 years and became parallel with the goals of adaptation to climate change plan.

The plan summary is as follows:

- Poverty Reduction Strategy: The most important part in the Sudan Report fighting poverty (2004 - 2006) focuses on agriculture, public health - water resources. These are the same sectors targeted by the National Action Plan to adapt to climate change.
- Water harvesting: As part of the national projects, we find that the techniques of water harvesting began to be applied in the nine districts in a number of states (North Darfur, the state of the Nile, North Kordofan and West Kordofan). These projects have led to increasing access to water and to strengthen the capacity of those areas to cope with shrinking rain and high temperatures and drought has ensured all the axes of the National Action Plan to adapt to climate change.
- Roll Back Malaria programme: This programme is currently a part of the Sudanese national programme under the title of the Roll Back Malaria, which contains an integrated approach aiming to improve the supervision and management of diseases and epidemic diseases in order to create options for preventive intervention. Taking into account the expected effects of climate change already deteriorating situation of public health

- **Programmes and Projects by the Government-Public Sector:**

Institute of Desertification Studies:

This Institute is at the University of Khartoum and cares for graduate studies in the fields of desertification, drought and natural resource management, risk management and Remote Sensing Authority. <http://iddcs.uofk.edu/index.php?lang=en>

Faculty of Crisis Management:

The faculty is in the University of Science and Communications and is dealing with environmental education including CCESD.

Faculty of Civil Protection and Organizations:

The faculty is one of the faculties in the National University in Ribat. It focuses on civil protection, risk management, desertification prevention and drought control.

Institute of Environmental Studies:

This institute is part of the University of Khartoum. It works as a mean for education of environmental issues including climate change.

Roll Back Malaria Programme:

The programme is currently performed under the name of "The Sudan national program under the Roll Back Malaria". The programme contains an integrated approach aiming to improve the supervision and management of diseases and epidemic diseases in order to create options for preventive intervention address. Taking into account the expected effects of climate change already deteriorating situation of public health. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3516068/>

- **Private Sector and NGOs Programmes and Projects**

Sudanese Environment Conservation Society:

This NGO is committed to Voluntary work, wide participation and cooperation, sound environmental attitudes at all levels, good governance and consideration of environmental rights in their broader spectrum. Between 2014 and 2015, it hosted many environmental awareness seminars to promote problems like climate change. <http://www.secs.org.sd/>

Sudanese Network for Climate Change:

This NGO focuses on educational seminars on reduction of emissions, desertification prevention, minimizing the effects of climate change and the interconnection between climate change and food security.

4. Partners and Stakeholders

Mapping partners and stakeholders should include all the key persons and organizations working closely with the system whether they are in General Education, Higher Education and R&D or Life Long Learning. They have to include:

- Schools teachers;
- Environmental agencies;
- Ministries of Education;
- Ministries of Higher Education;
- Ministries of Environmental Affairs;
- Civil Societies and NGOs;
- Education and Training initiatives at Universities;
- Education for Sustainable development (ESD);
- Projects and Initiatives of Business and Industry (Private Sector);
- ESD Coordinators;
- Policy Makers; and
- Researchers.

Examples of collected promising practices on CCESD, according to educational and learning programmes, are:

General Education:

Bezra programme for students in schools in Egypt was developed as a direct communication with the children of primary stage through a magazine, workshops and awareness sessions for introducing the environment principles including climate change.

Higher Education and Research and Development (R&D):

The initiatives of the Center for Sustainable Development in the American University in Cairo (AUC), promote sustainable development education at the country (Egypt) and regional level. The programmes applied by the center are targeted General Education (Schools, Teachers, and Students), and Higher Education (Universities- R&D Institutes and Programmes).

Life Long Learning (LLL):

The initiatives by the Sudanese network for climate change for educational development in Sudan which supports both teachers and students and organize campaigns for adult education classes.

5. Developing Plans and Strategies on CCESD

i. Policy Planning and Programme Review

In Wadi El Nile Sub Region, Egypt is the prominent country for CCESD. The government adopts some policies for implementing environmental issues in their educational systems, compared to Sudan and Libya, who barely have any policies that consider climate change, sustainable development, or environmental issues. However, the implementation done by the Egyptian government is quite low in effect and action. For the other countries in the Wadi El Nile Sub region, most of the implementations towards CCESD are even lower in value. Sudan and Libya do not even have a clear and concrete policy for climate change. Egypt may seem to have a more clear strategy to tackle climate change, but it is not translated to CCESD. The main positive side in the Egyptian experience is that the private sector, NGOs and some research centers have contributed effectively for CCESD and environmental awareness in general. If some policies are made to increase the interaction with the NGOs and private sector, it will be quite fruitful for both the government and the community, especially with teachers' education problems.

Therefore, it is clear to state that Egypt has some individual steps and limited plans to implement the principles of CCESD and ESD. There are many missing direct and indirect policies, which can provide adaptation procedures towards CCESD and facilitate the incorporation needed into all the educational systems and all educational levels. The support of the governments is needed to develop such policies for enhancing the existing educational programmes. New policies must also provide better interaction between the private sector, NGOs, Universities, research centers and CCESD experts in the region. The sub-region should also work on establishing cooperation in different ways, as the climate change problem is a regional problem which needs the move for CCESD.

Purpose

The main objective of this step is to plan a road map for implementing CCESD in the educational systems in the Sub-Region. The policy should be considering all the challenges and opportunities found around the process. The policies suggested should be sustainable and upgradeable with time in order to adapt with the all updates in the ESD field.

Assessment of the Policy

An assessment will be performed to identify the outcomes and results in terms of high-value goods and services that supports education opportunities in the sub region. The assessment will consist of an identification, measurement, and valuation of policies relative to improving education, enhancing sustainable development awareness in the sub region, and generating environmental

benefits. An important outcome of the assessment is expected to be the identification of a portfolio of potential educational opportunities for climate change and other environmental issues.

Framework

The future of the MENA dry lands, and adjacent or embedded semiarid lands, are certain to face increasing constraints as a direct result of decreasing rainfall, increasing temperatures, growing populations and what appears to be an uncertain political and economic future. Globally, these regions are the most likely to suffer most from climate change, and their generally impoverished populations are also the least able to deal with change. Climate change education attempts to address the range of possible futures that will confront these regions, given the surprises that have been encountered in the past and which are certain to occur in the future. Thus, rather than work within a set of alternative and ultimately vague scenarios of change, we suggest that the assessment focus instead on the degree to which any activity will build adaptive capacity independent of but resistant to projected climate futures, and create a comprehensive vision of development that is not focused on a single project, but which is coordinated with other efforts to address the well-being of the population of the sub region over the long run.

Efficiency, Equity and Governance

In light of political upheaval in the MENA region since January 2011, it would be difficult to overemphasize issues of equity in any proposed development opportunity. Aside from the number of potential employment opportunities, the potential for engaging male and female teachers from primary, preparatory secondary and higher education levels from rural and urban areas would be very important for the success of the process.

A second equity-related set of issues to be considered are those of governance, particularly as it relates to human resources tenure. While it is essential to consider the effects of any type of development on the educational systems services and how they are practiced, as we are dealing with different systems. Any and every potential educational development opportunity must be framed within the appropriate economic and social contexts at multiple levels of economic integration, resource governance and how these might be changing.

ii. Curriculum Development

The newer policies will facilitate newer cycles of curriculum development. When developing the new materials, it is important to implement ESD and CCESD in all educational levels and systems. It is also important to implement these principles in several educational subjects and topics, instead of

concentrating on topics related to environment and climate change. The shifting of the courses content to integrate CCESD will provide an easier and faster transition towards the goals of the new policies. It is also important to learn from other world countries experiences and international organizations including UNESCO in the field of CCESD when developing the new curricula. The new content will provide different levels of knowledge to students from different age ranges and educational backgrounds.

Curriculum development includes a variety of activities around the creation of planned curriculum, pedagogy, instruction, and delivery methods for guiding student learning. Various approaches have been used in developing curricula. Commonly used approaches consist of analysis, design, selecting appropriate learning/teaching methods, appropriate assessment methods, and development of content.

iii. Teacher Education and Training

One of the important stages in applying the new policies is the teacher education and training phase. This cannot be achieved only through the government alone. The ministries of education are already over loaded with different challenges regarding Human resources development. Thus, the private sector, NGOs and research centers should cooperate in this stage. It is important to integrate all these stakeholders in this stage in order to increase and enhance the amount and quality of the investment given to the teachers. Developing the Human resource sector in the educational systems is one of the main keys of the success of the new recommended policies.

Teacher education refers to the policies and procedures designed to equip prospective teachers with the knowledge, attitudes, behaviors and skills they require to perform their tasks effectively in the classroom, school and wider community. It is a very important step in developing efficient CCESD and implementing it in the educational systems.

Although ideally it should be conceived of, and organized as, a seamless continuum, teacher education is often divided into these stages:

- Initial teacher training/education (a pre-service course before entering the classroom as a fully responsible teacher);
- Induction (the process of providing training and support during the first few years of teaching or the first year in a particular school); and
- Teacher development or continuing professional development (CPD).

iv. Programmes of Civil Society and NGOs (Life Long Learning)

One of the main factors which will directly lead to the success of the CCESD development plan is guaranteeing the participation of civil societies and NGOs in the form of raising awareness and Life Long Learning (LLL).

CCESD can be implemented through Lifelong Learning, which may be broadly defined as learning that is pursued throughout life: learning that is flexible, diverse and available at different times and in different places. Lifelong learning crosses sectors, promoting learning beyond traditional schooling and throughout adult life.

The suggested LLL opportunities in CCESD can include:

Learning to know: mastering learning tools rather than acquisition of structured knowledge;

Learning to do: equipping people for the types of work needed now and in the future including innovation and adaptation of learning to future work environments; and

Learning to live together and with others: such as peacefully resolving conflict, discovering other people and their cultures, fostering community capability, individual competence and capacity, economic resilience, and social inclusion.

Life Long Learning (LLL) can install creativity, initiative and responsiveness in people thereby enabling them to show adaptability in post-industrial society through enhancing skills to manage uncertainty, communicate across and within cultures, sub-cultures, families and communities and negotiate conflicts.

6. Issues, Challenges, and Opportunities

Before reviewing the recommendations to upgrade the existing CCESD situation in the region, it is important to focus on the main challenges and opportunities for CCESD in the Wadi El Nile countries. There are already many economical, social and political challenges facing the studied countries, which make the priorities and agenda not having a major focus on CCESD. This also arises from the uncertainty and low awareness level of climate change phenomenon. Hence, the decision makers are therefore unable to make the right decision which will lead to the implementation of steps and funding plans that require the expenditure of large sums of money.

The main challenges of CCESD in Wadi El Nile countries are:

- a. The lack of proper governmental funding programmes in the education agenda. This issue increases as there are no enough attention given to attracting international investment in the education sector and implementing CCESD in the region's educational systems;
- b. The political situation of the Arab Region in the last years has been one of the negative factors against development;
- c. The severe lack of hosting partnerships and committees to guarantee cooperation between public and private sectors on CCESD initiatives; and
- d. The general society's lack of awareness regarding climate change, environmental issues and sustainable development is directly affecting the awareness level of the stakeholders including both teachers and students. It may also have to do with the reasons behind the low attention given to the case by the policy makers.

However, some available opportunities are currently present, which can be helpful if used in order to enhance the chance of efficient implementation and integration of CCESD in different educational systems. Some of the most important opportunities are:

- Egypt is a pioneering example in the region for starting implementation of CCESD and ESD even on a small level. There are some good initiative by some ministries, universities, private sector entities and NGOs which are showing positive progress. These initiatives can be used as a good base for next steps;
- Egypt is having a good strong political relationship with Sudan and Libya, which can contribute in future successful and efficient cooperation between the governments of the sub region; and
- The numbers of universities, research centers and training centers which are interested in CCESD in the region is increasing.

7. Conclusions and Recommendations

In this report, an overview was given on the current situation of CCESD in the Wadi El Nile Sub-Region including Egypt, Sudan and Libya. The different initiatives performed and implemented in the Sub-Region left more to be desired in order to achieve real CCESD development. The potential power behind the education can lead to solving many of the sub region current environmental, social, political and economical problems. More focus should be given to Developing policies, Teacher training, Curriculum development and cooperation with civil societies in order to successfully implement CCESD and ESD in the sub-region.

Governments should encourage adult and illiterate education programmes by NGOs and civil societies to implement CCESD. It is important to start initiatives for green job training as it will speed up the move for achieving the goals needed. These training

should target professionals from all sectors and educational backgrounds. It is also very important to host national partnerships between the public and private sectors, in order to work together on solving CCESD issues. Pilot projects should be worked on in Universities and schools and engage students in solving real climate change problem within the area.

The Ministries of education should work on updating their curricula for all educational levels and implement more CCESD concepts within. This should go side by side with giving attention to teachers training on enhancing their awareness level and soft skills. The new curricula should be able to identify the relationship between sustainable development and climate change with existing case studies within the area of the education institution. The government should work on enhancing the technological infrastructure of schools and universities, in order to increase the potential of the new educational programmes.

Upgrading the education system with the above-mentioned recommendations should be supplied with needed financial, technical and political support. It is important to develop a clear new strategy for the educational systems of the sub region countries, which includes all stakeholders from schools, universities, ministries, research centers, industrial key entities, private sector, education experts, NGOs and international organization.

References and Resources

Regional Initiatives:

ClimaSouth: <http://www.climasouth.eu/drupal/en>

Euro-Med(Shared Environmental Information System for the European Neighbourhood and Partnerships: http://www.enpi-info.eu/mainmed.php?id=489&id_type=10

EuroMed-Disaster Risk Reduction (DRR):

<http://www.preventionweb.net/english/professional/contacts/v.php?id=6147>

CLIMAtE Change and Sustainability Policy – CLIMASP:

<http://www.ncu.org.cy/climasp.html>

ICARDA: <http://www.icarda.org/>

Country Initiatives:

Egyptian World Environment Day:

<http://www.dailynewsegypt.com/2013/06/05/egypt-the-question-of-the-environment/>

Raising Awareness of Educational Groups:

https://unfccc.int/files/cooperation_and_support/education_and_outreach/application/pdf/egypt_gambia.pdf

Bezra Campaigns: www.eeaa.gov.eg/english/main/allnews.asp

Media & Publications:

<https://books.google.com.eg/books?id=ckSAqu8n3qcC&pg=PA22&lpg=PA22&dq=environment+ahram+newspaper&source=bl&ots=rocLmY6Wtd&sig=dc9MDo1okwB763lk-ep4o5Pm3YQ&hl=en&sa=X&ei=XqlpVYkIxpzuBvbFgBg&ved=0CDoQ6AEwBQ#v=onepage&q=environment%20ahram%20newspaper&f=false>

The UNDP GEF Small Grants Programme: <http://www.gefsgpegypt.org/>

MDGs Achievement Fund: <http://www.mdgfund.org/country/egypt>

(RUCAS) Sustainable University Network (SUN): <http://www.rucastoolkit.eu/wp-content/uploads/2013/12/RUCAS-E-Book.pdf>

Addressing Climate Change in the Middle East and North Africa Region:

<http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/MENAEXT/0,,contentMDK:21596766~pagePK:146736~piPK:146830~theSitePK:256299,00.html>

MENA-Desert Ecosystems and Livelihoods Programme (MENA-DELP): <http://www.oss-online.org/en/mena-delp>

Programmes and Projects of Vodafone Egypt to Raise Climate Change Awareness: <http://www.vodafone.com.eg/vodafoneportalWeb/en/P19004264251359627746393>

Rotary Environmental Programmes: <http://www.rotaryd2450.org/index.asp>

Center for Sustainable Development in American University in Cairo: <http://www.aucegypt.edu/Sustainability/CSD/Pages/default.aspx>

Institute of Desertification Studies: <http://iddcs.uofk.edu/index.php?lang=en>

Institute of Environmental Studies:

https://unfccc.int/files/cooperation_and_support/education_and_outreach/application/pdf/sudan_the_role_of_the_institute_of_environmental_studies_university_of_khartoum_in_addressing_climate_change.pdf

Roll Back Malaria Programme:

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3516068/>

Sudanese Environment Conservation Society: <http://www.secs.org.sd/>

Annex 1: Number of Surveys Received from Sub-Region Countries

| <i>COUNTRY</i> | <i>NUMBER OF SURVEYS RECEIVED</i> |
|-----------------------|--|
| <i>EGYPT</i> | 2 |
| <i>SUDAN</i> | - |
| <i>LIBYA</i> | - |
| <i>Total</i> | 2 |