Summary of Activities carried out by CB3 Project in the field of Pre/University Education

"Enhancing National Capacities for Improved Public Participation for Implementing Rio Conventions (CB3 Project)"

funded by the Global Environment Facility (GEF) / United Nations Development Program (UNDP) and implemented by Ministry of Environment

CONTENT

Pre-University Education Program

Ministrial meeting

August 2019
Ministry of Education

- The ministerial meeting in the presence of Dr. Tarek Shawky, Minister of Education and Dr. Yasmine Fouad, Minister of Environment, and agreement on the need to integrate environmental concepts, especially what was included in some environmental agreements signed by the Egyptian state, within the new education system 2.0
- Referring to several meetings between the CB3 project team representing the Ministry of Environment and officials of the Ministry of Education, which ended with the CB3 project preparing and submitting a draft of a set of environmental messages that include a summary of the main concepts to be available to school students before they join the stages of university and higher education. Note that a large group of these concepts will already be included in the indicators of the Ministry of Education's curricula, but it is useful to re-check the proposed contents and support methods of communicating concepts for students (and teachers) and its implications for changes in the civilized behavior of students.

Follow up meeting

Mainstreaming environmental messages in the curricula of the Ministry of Education in implementation of the strategic objectives of the Egyptian government program, especially the higher goal of building (and supporting) the capabilities of the Egyptian human being.

Date: Thursday, May 4, 2020 - 16:00 to 18:00 pm
Zoom Online Meeting

Attendees:
Representatives of the Ministry of Education
Dr. Nawal Shalaby, Head of Curriculum Development Programs
Dr. Thanaa Jumaa Department of Social Studies, Curriculum Preparation Program
Dr. Abdel Moneim Ibrahim, Department of Science, Curriculum Preparation Program

Representatives of the Ministry of Environment, Third Capacity Building Project CB3
Dr. Ahmed Wagdy, Project Executive Director
Eng. Samah Saleh, the national project manager
Dr. Karim Omar, Project Technical Director
Ms. Sana Sherif Project Coordinator

The main themes
Review previous meetings

- Reference to the ministerial meeting in the presence of Dr. Tarek Shawky, Minister of Education and Dr. Yasmine Fouad, Minister of Environment, and agreement on the need to integrate environmental concepts, especially what was included in some environmental agreements signed by the Egyptian state, within the new education system 2.0
- Referring to several meetings between the CB3 project team representing the Ministry of Environment and officials of the Ministry of Education, which ended with the CB3 project preparing and submitting a draft of a set of environmental messages that include a summary of the main concepts to be available to school students before they join the stages of university and higher education. Note that a large group of these concepts will already be included in the indicators of the Ministry of Education's curricula, but it is useful to re-check the proposed contents and support methods of communicating concepts for students (and teachers) and its implications for changes in the civilized behavior of students.

Current situation

- Dr. Nawal presented the efforts of the Ministry of Education to translate and categorize the messages prepared by the project team and compare them with the current curricula matrices.
- Dr. Nawal confirmed that the current priority of the Ministry is directed towards the final preparation of the fourth, fifth and sixth years of primary school (expected by the end of August 2020), while welcoming the possibility of participating in the current stage of updating the curricula and integrating the selected messages into the curricula starting from the fourth grade that is being prepared Currently until the sixth grade, and then at a later stage in the middle and secondary grades
- The selected messages will be mainly integrated into the science and social studies curricula, and then added to peripheral subjects such as religion, English, and Arabic.
- Integrating environmental messages with curricula to contribute to achieving the government's vision and program towards building the Egyptian person. Which contributes to achieving the strategic vision for sustainable development: Egypt Vision 2030.

Message review

- Both Dr. Thana and Dr. Abdel Moneim made presentations and thought about including environmental messages in the curricula and what was already planned to be included and what they saw the importance of adding.
- The most important thing that was addressed by Dr. Thana's presentation was as follows:
- Many messages have already been included in the school curricula, starting with a focus on the Egyptian situation at the primary level and then on the Arab world and the global level later. Already added, those relating to pollution, natural resources, clean energy, cultural heritage, population growth, urban sprawl, Climate history,...
- Newly merged topics include:
  - Indicators of desertification and soil salinization in agricultural systems in fifth grade curricula.
  - Climate maps, temperature measurement methods and weather forecasts.
  - The impact of climate change on health in the fifth-grade curricula.
  - Sustainable development and its relationship to the climate in Egypt.
  - Topics that may be revised or developed include:
  - Food security.
  - Energy and its relationship to climate change independently.
  - International efforts to protect natural and cultural resources, and the addition of a UNESCO heritage map was discussed.
  - Linking environmental issues with history (such as Islamic history or the Industrial Revolution), economics and geography.
  - Inclusion of the different roles and influences of the individual on climate change in the school curricula.
  - National and global historical efforts on these issues are also of importance. Likewise, the national role in addressing climate change is included through multilateral environmental agreements and personal efforts.
  - The presentation made by Dr. Abdel Moneim focused on the following points:

- Lots of messages already exist in science subjects, however, curricular-related activities are needed.
- Activities will be categorized based on what can be incorporated into the curricula or activities, or those that already exist but need to be developed.
- There should be interest in the following topics in the higher grades, especially in the third secondary grade, which are the topics contained in the letters submitted by the Ministry, the most important of which are:
  - o Biomass - ecosystems - environmental services - sustainability - extinction - important plant areas.
- Topics to focus on at the other grade level include:
  - o Global average temperatures - economic dimensions - environmental culture.

The main points of discussion

- Dr. Ahmed pointed out the necessity of communicating the messages that already exist in a way that ensures the consolidation of environmental concepts, which are agreed upon globally and locally, in the student's mind and his civilized background. The full awareness of the teacher and his conviction of these concepts and their meanings and effects is considered a cornerstone of an effective educational system that will actually change the behavior of generations.
- He added that the information already in place should be accompanied by engaging teaching aids for the receiving student with illustrations, videos, educational websites, or additional curricular activities.
- The contribution of a project can be through checking the matrices and providing assistance proposals for the authors of scientific materials, training, preparing cultural portfolios and preparing career paths
- Dr. Nawal suggested that a project contribute to the following:
  1. Planning by suggesting guidelines and frameworks for teachers and students.
  2. Implementation by participating in the curriculum review period with the experts of the Ministry of Education.
  3. Prepare some cultural packages
  4. Training by suggesting entities that can contribute to teacher training programmes.

Conclusion and next steps

- The Ministry of Environment and the Ministry of Education agreed on the importance of including environmental messages in the curricula of the Ministry of Education in implementation of the strategic objectives of the Egyptian government program and building the capacities of the Egyptian human being.
- The attendees agreed on all the points previously raised.
- Commending the great efforts exerted by the Ministry of Education within the educational system 2.0, followed by indicators for integrating environmental messages into the school curricula.
- The Curriculum Department of the Ministry of Education and the CB3 project team exchange environmental matrices and messages.

- Based on the Ministry's proposal, the CB3 project team will provide the required support regarding environmental concepts to the Curriculum Review Committee with experts from the Ministry of Education, giving priority to the fourth-grade matrix
- The CB3 project team will contribute to the preparation of several cultural portfolios on:

1) Concepts of climate change.
2) Concepts of sustainable development.
3) Positive behavior through one of the following two approaches:
    a. Reducing carbon emissions, efficient use of natural resources/energy, and responsible behavior towards the environment.
    b. Behaviors consistent with the Rio conventions on biodiversity, desertification and climate change.

- Communication continues on a weekly basis between the Curriculum Department at the Ministry of Education and the CB3 project team to achieve the maximum public benefit for our daughters and schoolchildren.
- Presenting the final outputs to the Ministers of Environment and Education for the necessary guidance towards completing the procedures for their approval.

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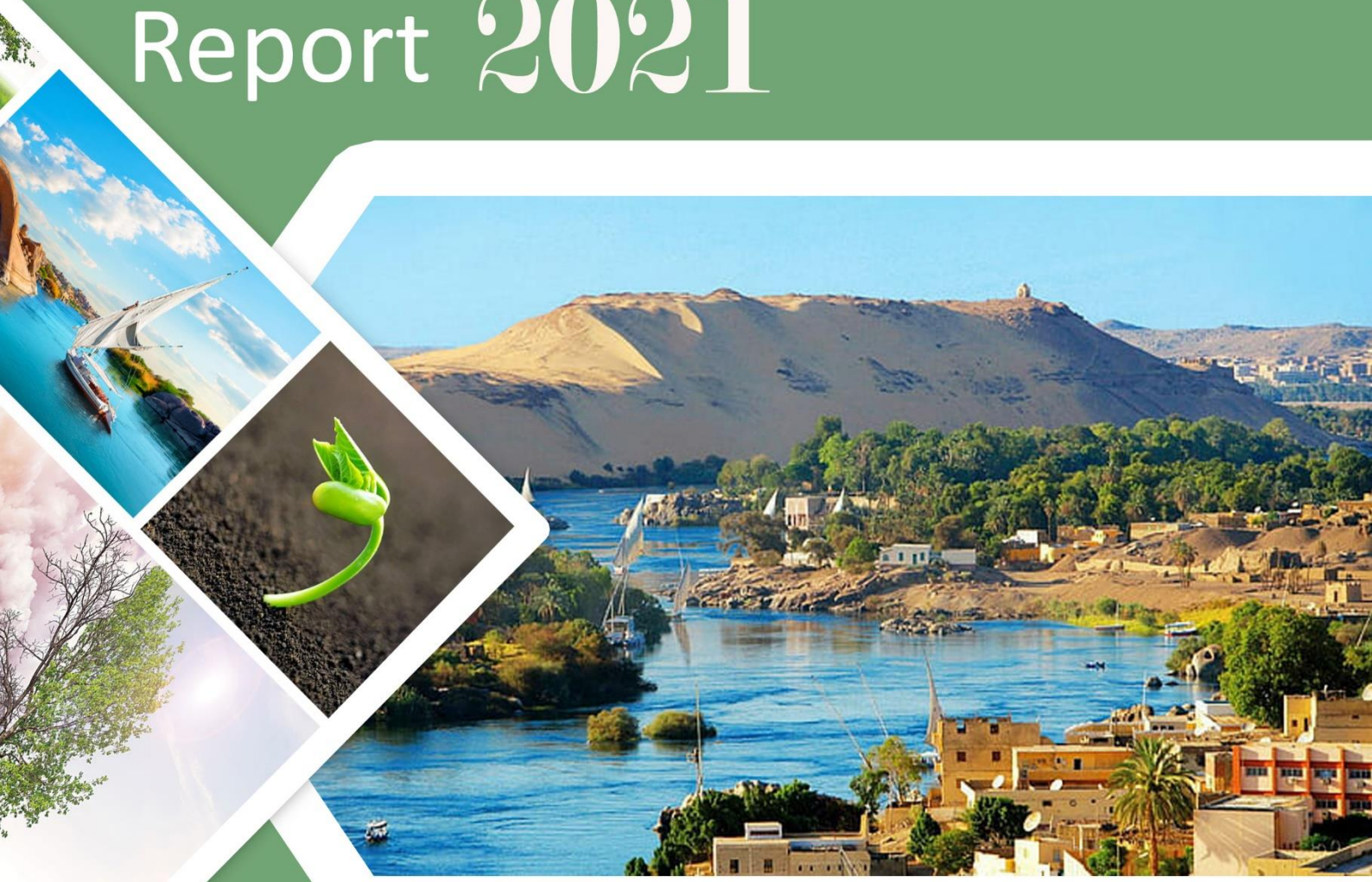

Education Package for Biodiversity

Pre-university Education

Education Package for Biodiversity

This package is developed by
Dr. Haitham Farouk as part of the outputs of the project:

"Enhancing National Capacities for Improved Public Participation for Implementing Rio Conventions (CB3)"

funded by the Global Environment Facility (GEF) / United Nations Development Program (UNDP) and implemented by Ministry of Environment

Citation: Farouk, H.[1], Harhash, K.[2], Hamed, Y.[3], Wagdy, A.[4.5], Saleh, S.[5], Omar, K.[5], and Sayed, A.[5] (2021). Educational Package for Biodiversity. Enhancing National Capacities for Improved Public Participation for Implementing Rio Conventions Project (CB3)". Global Environment Facility (GEF) / United Nations Development Program (UNDP) and Ministry of Environment. Report 202112ES, English version, 250 pp.

[1] Suez University, Cairo, Egypt
[2] Ministry of Environment
[3] Egyptian Italian Environmental Cooperation
[4] Cairo University, Faculty of Engineering
[5] CB3 Project, Ministry of Environment

Preface for this guide

This is the English version of the "**Environmental Teaching Guide on Biodiversity**", which was issued in cooperation between the Egyptian Environmental Affairs Agency, (Ministry of Environment) and the “Enhancing National Capacities for Improved Public Participation for Implementing Rio Conventions” (CB3 Project) with financial support from the Global Environment Facility. The guide contains all the modern concepts related to biodiversity that have been collected from all related conventions and organizations entrusted with protecting biodiversity at the international level, as the project had previously coordinated with the Ministry of Education and identified sixteen topics related to biodiversity and its components, concepts that need to be more highlighted on in order to increase educational knowledge as well as awareness of regarding biodiversity and its various components among those in charge of teaching in the primary and preparatory stages to support their efforts to increase awareness of biodiversity among students of these stages and make it part of the daily behavior of students in their prime, who in the near future may become policy makers related to the preservation of biodiversity or researchers or implementing officers related to the conservation of biodiversity. The Egyptian Environmental Affairs Agency (the Ministry of Environment) has taken upon itself to issue this document in the English language, to support the efforts of the Ministry of Education in developing environmental education in the educational stages targeted in this guide hoping to increase students' environmental awareness regarding biodiversity as one of the objectives of the Egyptian Environmental Affairs Agency.

This guide contains all the information related to biodiversity, helping to increase the knowledge about the balance of ecosystems, the definition of biodiversity, ecosystem services, endemic organisms, threats to biological diversity, the impacts of climate change on biodiversity, alien and invasive species , Wetlands, mountain ecosystems, desert ecosystems, marine ecosystems, agricultural ecosystems, protection of biological diversity, protected areas, important biodiversity areas, traditional knowledge related to biodiversity. In addition, the guide provides a large amount of scientific references and electronic links to educational videos and practical activities that can be applied with students.

Finally, the Environmental Affairs Agency (the Ministry of Environment) also thanks all those who contributed to the issuance of the English edition of this educational guide.

The Package containe:

Educational package: The Devine Ecological Balance
Section I: the technical content of the educational package
I. Species
II. Ecosystems
III. Genes
IV. How do species maintain their environment?
V. From "habitats" to "ecoregions"
VI. Preserving habitats for the conservation of species
VII. Classification of ecosystems in Egypt
Section II: References and links
I. References
II. Links
Section III: Educational activities
I. First activity: The whole world is one network
Educational package (): Biodiversity Definition
Section I: the technical content of the educational package
I. Introduction
II. Definition of biodiversity
III. Importance of biodiversity
IV. Threats affecting biodiversity
V. Threats affecting biodiversity in Egypt
VI. How we conserve biodiversity
Section II: References and links
I. References
II. Links
Section III: Educational activities
I. First activity: Life network
II. First activity: Biodiversity Investigator
Educational package (): Ecosystem services
Section I: the technical content of the educational package
I. Introduction
II. Definition of ecosystem services
III. Ecosystem services and human well-being
IV. Ecosystem services in Egypt
V. Risks and threats that cause loss of ecosystem services
VI. What can be done to protect ecosystems?
Section II: References and links
I. References
II. Links
Section III: Educational activities
I. First activity: Mapping ecosystem services
Educational package (): Endemism
Section I: the technical content of the educational package
I. Introduction
II. Definition of endemism
III. Factors affecting the endemism phenomenon
IV. Threats affecting endemic species
V. Examples of the endemic species in Egypt
VI. Conservation Status of Endemic plants:
Section II: References and links
I. References
II. Links
Section III: Educational activities
I. First activity: Ask ... know ... learn

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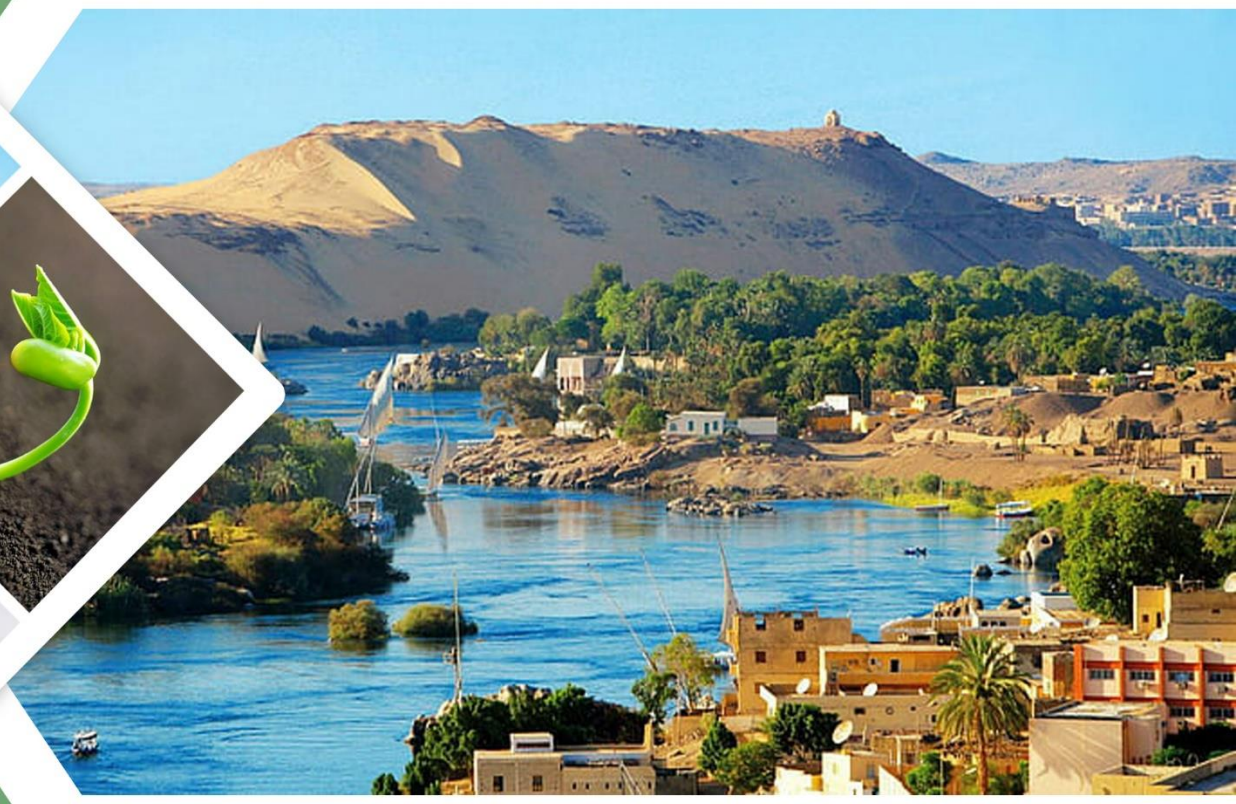

Education Package for Climate Change

Pre-university Education

Educational Package for Climate Change

This package is developed by
Integral Consult as part of the outputs of the project:

"Enhancing National Capacities for Improved Public Participation for Implementing Rio Conventions (CB3)"

funded by the Global Environment Facility (GEF) / United Nations Development Program (UNDP) and implemented by Ministry of Environment

Citation: Osama, A. [1], Eltouny, N. [1], Gouda, E. [1], Adel, M. [1], Mahmoud, L. [1], Elmenshawi, Y. [1], Akram, S. [1], Wagdy, A.[2.3], Saleh, S.[3], Omar, K.[3], and Sayed, A.[3] (2021). Educational Package for Climate Change. Enhancing National Capacities for Improved Public Participation for Implementing Rio Conventions Project (CB3)". Global Environment Facility (GEF) / United Nations Development Program (UNDP) and Ministry of Environment. Report 202111ES, English version, 150 pp.

[1] Integral Consult
[2] Cairo University, Faculty of Engineering
[3] CB3 Project, Ministry of Environment

One of the objectives of the project is to integrate environmental concepts derived from the Rio Conventions into pre-university education programs. To achieve this, a series of formal discussions and meetings was established between the Ministry of Environment (represented in the CB3 project) and the Ministry of Education, and a committee is formed to discuss the merging mechanism. **A total of 17 messages on climate change were prepared to be incorporated into Pre/university education systems (See annex**). To facilitate its teaching, it was agreed to create an Educational Package on climate change and its impact, listing case studies in Egypt and neighboring countries, and interactive activities aimed at raising awareness and changing behavior. The main aim of the package is to provide the instructor (teacher) with the necessary background information, material and knowledge related to each message, along with practical tools that guide the teacher towards efficient, effective, and well received conveyance of the message. Within the framework of the project endeavor to integrate environmental concepts derived from the Rio conventions (especially UNFCCC) into primary and secondary education system, and under the full supervision of the CB3 Project Manager, the national consultant will provide the following deliverables.

I. Package Components: for each message, the following components should be covered:

- One to three pages of background information, knowledge, physics, and applications on the scientific concepts contained within the message (especially the Bold Highlighted) in a smooth manner directed to teachers;
- One page including links to various illustrations related to the concerned message (videos, papers, press releases, case studies, extracts from books, …etc.)
- One to three pages outlining extra curriculum activities, which may include an observation, a continued measurement of a climate parameter, an experiment, a demonstration illustration, …etc.;
- One page to explain examples of how to change student behavior in the field of message (e.g. practical examples to reduce energy consumption, water, etc.);
- An annotated PowerPoint file (inclusive of an explanation with an audio note) presenting the previous points in a simple and clear manner targeting teachers.

II. Deliverables

- A detailed booklet (90 to 120 pages; six pages' average for each message) containing the mentioned components, in English and Arabic languages.
- A total of 17 Power Point files explaining and displaying the information for each message along with an audio explanation as per each slide.

The following messages represent the heads of topics that are proposed to be included in pre-university education programs and activities as a first step that follows in detail on these topics in an illustrative manner and examples at the international and local levels to reach to expand perceptions and knowledge background among students to ultimately change their behavior towards the nature and the surrounding environment.

Message 1: Climate and Weather

Weather is the mix of events that happen each day in our **atmosphere**. Weather is different in different parts of the world and changes over minutes, hours, days, and weeks. **Climate** describes what the weather is like over a long period of time in a specific area. Different regions can have different climates. **Climate change** refers to the variations in the long-term average weather conditions, such as **temperatures**, **wind speed, storm patterns**, **humidity**, **precipitation, solar irradiance, snow falls**- in a region over a long period of time.

Message 2: Earth's climate throughout its history

Before studying the current warming in Earth's climate an overview of **paleoclimates (ancient climates on Earth)** is necessary for better understanding of its history. The climate of the Earth has been constantly changing throughout interchanging cycle of climate (e.g. **ice ages**). Different forms of life on earth have been similarly changing in accordance with prevailing climate, with **mass extinction** events being landmarks in this history.

Message 3: Heat Transfer Mechanisms

This message is concerned with identifying and analyzing main mechanisms by which **heat energy** from the Sun is transferred (e.g., **radiation, conduction, and convection**) throughout Earth's systems (e.g., biosphere, hydrosphere, geosphere, atmosphere, and cryosphere). Conduction transfers heat energy through direct contact. Convection is the transfer of heat through the movement of a fluid such as water or air, affecting **ocean currents** for example.

Message 4: Earth's thermodynamic balance

Solar irradiance transfers energy from the Sun to the Earth. **Short waves (electromagnetic)** travel from the Sun through space with high frequency and high penetrative properties. Part of the incoming shortwave radiations is absorbed (nearly 50%) by a substance or material as heat energy, increasing the Earth's temperature. It considerably evaporates water from the oceans, forming clouds and providing rainfall. At night, the earth cools down by emitting **longwave radiations (infrared)**, radiating the heat away.

Message 5: Climate Forcing

Global climate is controlled by **climate forcing**; the amount of **solar energy** received, and the amount of energy held in the system. Variances in climate forcing are determined by either **natural** or **anthropogenic forces**. Anything which affects the incoming radiations from the sun will affect our climate. This is driven mainly by the relative position of earth with respect to Sun (orbit, tilt, precision), that changes over 23,000 years cycles. Other physical forces include volcanoes, ice coverage, aerosols, and greenhouse gases in the atmosphere. Forcings may be **positive** (ie. causing warming, like GHGs) or **negative** (ie. causing cooling, like volcano ashes).

Message 6: Greenhouse Gases

Greenhouse gases (GHGs), such as carbon dioxide, water vapor, methane and nitrous oxide, are 3 or more atoms molecules that are capable of absorbing infrared radiation and trapping heat within the atmosphere, then remitting back to the cryosphere and hydrosphere. This is called the **greenhouse effect.** Accordingly, more concentration of greenhouse gases will lead to increase in average temperature of earth. However, if greenhouse gases are completely absent from the atmosphere we would have been freezing on Earth.

Message 7: Global warming

Global warming refers to the increasing average global temperature, caused mainly by the accumulation of various greenhouse gases that collect in the atmosphere. This excess emission of greenhouse gases destabilizes the **thermodynamic balance of Earth.** An overwhelming scientific consensus maintains that climate change is due primarily to **human activities** starting with the industrial revolution, including burning fossil fuels, agricultural waste burning, and industrial processes.

Message 8: Signs of a Changing Climate

Rising average temperature on Earth is only one of many **indicators of global warming**. Global warming can have a range of effects on ecosystems globally, including rising sea levels, extreme weather events, heat waves, accelerated rates of ice melt, and droughts that render landscapes more susceptible to wildfires. The recent unprecedented storm in **Egypt** on March 2020 is one of the signs where patterns for extreme events have drastically changed.

Scientists look at many factors for clues about climate change. For example, they examine **historical records**, collect **measurements,** and observe **trends** in temperature, weather patterns, changes to sea level and other environmental features.

Message 9: Impacts of a Changing Climate

Predictions indicate that increases in **global mean temperature** of 1 to 3 degrees Celsius, above 1990 levels. The net **damage costs** of climate change are likely to be significant and to increase over time. The **magnitude of climate change** beyond the next few decades depends primarily on the amount of heat-trapping gases emitted globally, and how sensitive the Earth's climate is to those emissions. The **expected impacts** in the next few decades, even after greenhouse gases are stabilized, include ocean acidification, longer thermal growing season, increased vulnerability of ecosystems and severe ecological impacts (ex: species extinction, coral bleaching).

Message 10: Socioeconomic Impacts of Changing Climate

Climate stressors impose multiple **socioeconomic risks** on human health, food security, water resources and coastal areas. Significant **land-use activities** such as fish production, tourism and agriculture land resources are affected. Activities, areas and values of the most important economic sectors will be affected as well. The impacts of climate change extend to affecting jobs, livelihood and sustenance, possibly triggering **environmental migration**.

Message 11: Egyptian Situation

Egypt is a typical example of a developing country with an increasing population density that is highly **vulnerable** to climate change and faces numerous threats to its economic, social and environmental sustainability, including **energy, health, water and food security**. For example, its low-lying delta is extremely vulnerable and is expected to be heavily affected by soil salinization and habitat destruction due to **flooding**. The agriculture and tourism **economic sectors** are expected to be heavily impacted and lose **competitive advantages** due to changing precipitations and sea level rise. On the other hand, there are increasing **market opportunities** for renewable energy in Egypt.

Message 12: Climate Resilience

Climate resilience can be defined as the capacity for a social or ecological system to respond effectively in the face of external stresses imposed by climate change and improve **sustainability.**

Message 13: Climate Adaptation

Climate adaptation is a way to cope with future climate change impacts through different **response strategies** (retreat, accommodation, protection), for example by constructing barriers to protect against rising sea levels, or conversion to crops capable of surviving high temperatures and drought.

Message 14: Climate Mitigation

Climate mitigation refers to an action that will reduce or prevent greenhouse gas emissions either by increasing **energy efficiency**, adopting **renewable energy**, using **clean technologies.** reducing sources of these gases for example by developing technologies, or using **renewable energies** like wind and solar, or enhancing **sinks** that accumulate and store these gases such as planting trees.

Message 15: The Carbon Footprint

Humans emit carbon dioxide, one of the greenhouse gases, on a day-to-day basis. The amount that is emitted is referred to as our **carbon footprint**. To make the **calculation**, all greenhouse gases are measured in carbon dioxide equivalents. The bigger the footprint, the more negative impacts that comes from each as a result of the choices made.

Message 16: Actions to Reduce Climate Change Impacts

There are many practical ways to reduce the amount of greenhouse gases, including **monitoring** daily transportation, food consumption, electricity and waste**. Reducing, reusing and recycling** can help individuals, communities and the environment by saving money, energy and natural resources. There are also other ways to **take action** including volunteer work, awareness campaigns, projects or career options.

Message 17: Global Agreements and Responsibilities

Climate change is obviously a **global environmental issue** because the action of one country in generating GHG is affecting other countries who have not produced the gases, and vice versa. For this reason, global agreements, such as the UNFCCC under which the Paris Agreement and Kyoto Protocol were negotiated, have continuously evolved to fulfill **collective goals** and **national determined contributions** for climate change.

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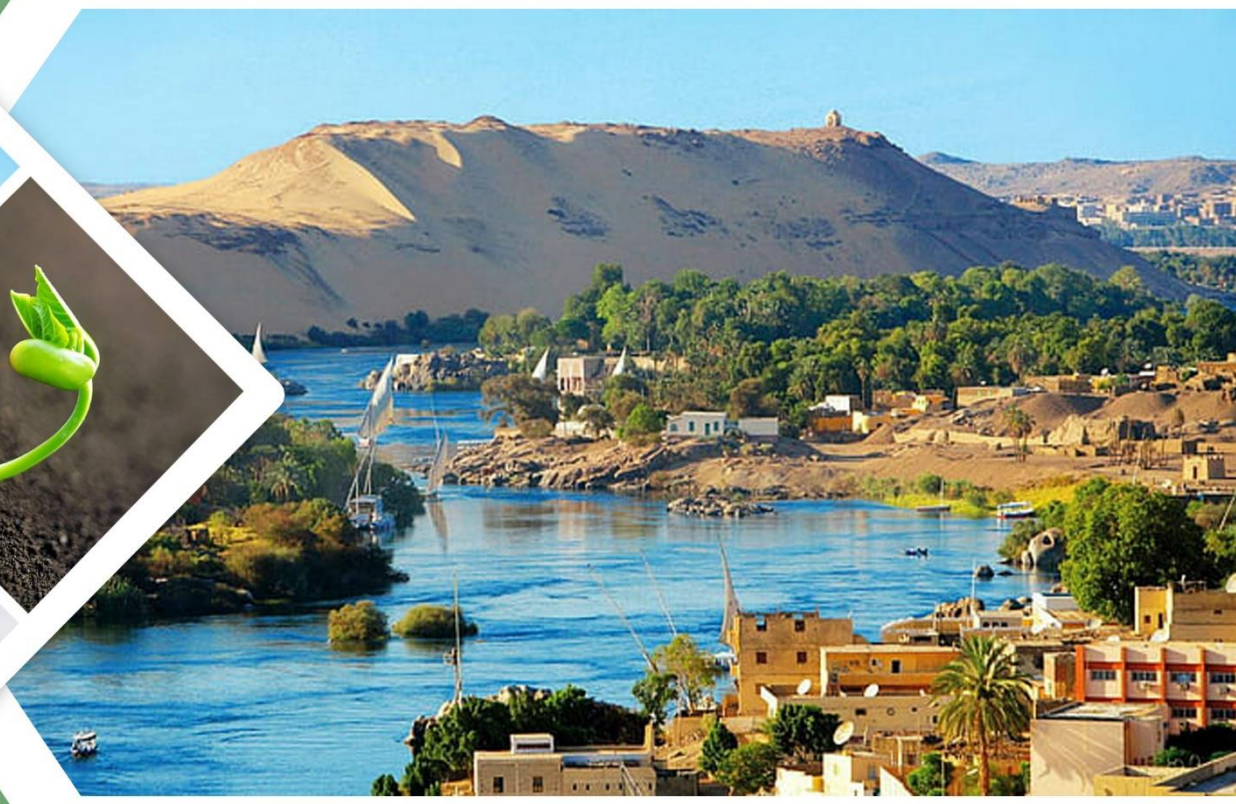

Education Package for Environmental Sustainability

Pre-university Education

Educational Package for Environmental Sustainability

This package is developed by
the Center for Applied Research on the Environment & Sustainability – CARES
at the American University in Cairo as part of the outputs of the project:

"Enhancing National Capacities for Improved Public Participation for Implementing Rio Conventions (CB3)"

funded by the Global Environment Facility (GEF) / United Nations Development Program (UNDP) and implemented by Ministry of Environment

Citation: El-Awamri, Y. [1], Maher, L. [1], Tamer, N. [1], Omara, M. [1], Wagdy, A. [2.3], Saleh, S. [3], Omar, K. [3], and Sayed, A. [3] (2021). Educational Package for Environmental Sustainability. Enhancing National Capacities for Improved Public Participation for Implementing Rio Conventions Project (CB3)". Global Environment Facility (GEF) / United Nations Development Program (UNDP) and Ministry of Environment. Report 202113ES, English version, 196 pp.

[1] the Center for Applied Research on the Environment & Sustainability – CARES
[2] Cairo University, Faculty of Engineering
[3] CB3 Project, Ministry of Environment

One of the objectives of the project is to integrate environmental concepts derived from the Rio Conventions into pre-university education programs. To achieve this, a series of formal discussions and meetings was established between the Ministry of Environment (represented in the CB3 project) and the Ministry of Education, and a committee is formed to discuss the merging mechanism. To facilitate its teaching, it was agreed to create an Educational Package on Environmental sustainability and its goals, sup-groups, themes and impact, listing case studies in Egypt and neighboring countries, and interactive activities aimed at raising awareness and changing behavior. The main aim of the package is to provide the instructor (teacher) with the necessary background information, material and knowledge related to each message, along with practical tools that guide the teacher towards efficient, effective, and well received conveyance of the message. Within the framework of the project endeavor to integrate environmental concepts derived from the Rio conventions into primary and secondary education system, and under the full supervision of the CB3 Project Manager, the national consultant will provide the following deliverables.

III. Package Components: the following components should be covered:

- Extracting and drafting between 15 to 18 messages derived from the environmental sustainability principals, goals and their relationship to the Rio conventions (e.g., Millennium Development Goals (Goal 7); i) atmospheric issues; (ii) land, water and biodiversity issues; and (iii) drinking water, sanitation, and slums).
- One to three pages of background information, knowledge, and linkage to Rio Conventions in a smooth manner directed to teachers;
- One page including links to various illustrations related to the concerned message (videos, papers, press releases, case studies, extracts from books, …etc.)
- One to three pages outlining extra curriculum activities, which may include a field Ecology, Economy, Culture, and Politics, an experiment, a demonstration illustration, …etc.;
- One page to explain examples of how to change student behavior in the field of message
- An annotated PowerPoint file (inclusive of an explanation with an audio note) presenting the previous points in a simple and clear manner targeting teachers.

IV. Deliverables

- A total of 15- 18 messages derived from the Environmental Sustainability goals and their relationship to the Rio conventions
- A detailed booklet (90 to 120 pages; six pages' average for each message) containing the above mentioned components, in English and Arabic languages.
- A total of 15-18 Power Point files explaining and displaying the information for each message along with an audio explanation as per each slide.

Table of Contents contains:

Test training for educational packages on climate change, biodiversity and environmental sustainability

Date: Sunday and Wednesday and September - : AM to : PM

Location: At the headquarters of the Curriculum and Educational Materials Development Center

Attendees:

Representatives of the Ministry of Education

- Dr. Nawal Shalaby, Head of Curriculum Development Programs
- Dr. Thanaa Jumaa Department of Social Studies, Curriculum Preparation Program
- Dr. Sahar Ibrahim, Curriculum Expert - Science
- Dr. Amany Al-Awady, Curriculum Expert - Science
- Dr. Fayez Fawzy, Curriculum Expert - Science
- Dr. Wasfi Hakim, Curriculum Expert - Geography
- Dr. Mervat Abdel Nabi, Curriculum Expert - Geography

Representatives of the Ministry of Environment, Third Capacity Building Project CB

- Dr. Ahmed Wagdy, Project Executive Director
- Eng. Samah Saleh, the national project manager
- Dr. Karim Omar, Project Technical Director
- Dr. Amr Osama is a consultant to the Climate Change Package
- Dr. Khaled Allam, consultant for the biodiversity Package
- Dr. Yomna Al-Awamry, Environmental Sustainability Package consultant

The main themes

Review previous meetings

- Both Prof. Nawal Shalaby and Prof. Ahmed Wagdy welcomed and introduced the attendees and referred to the ministerial meeting in the presence of Dr. Tarek Shawky, Minister of Education and Dr. Yasmine Fouad, Minister of Environment, and agreed on the need to integrate environmental concepts, especially what was included in some environmental agreements signed by the Egyptian state, within the new education system .
- Referring to several meetings between the CB project team representing the Ministry of Environment and officials of the Ministry of Education, which ended with the CB

project preparing and submitting a draft of a set of environmental messages that include a summary of the main concepts to be available to school students before they join the stages of university and higher education. Note that a large group of these concepts will already be included in the indicators of the Ministry of Education's curricula, but it is useful to re-check the proposed contents and support methods of communicating concepts for students (and teachers) and its implications for changes in the civilized behavior of students.

- Noting that, in coordination with the Ministry of Education, three educational packages were prepared for teachers on the topics of climate change, biological diversity and environmental sustainability. It was sent to the Curriculum Development Unit for review, making recommendations, and setting a date for holding a test training session for the Curriculum Development Unit leaders so that the project and consultants can identify gaps in preparation for the basic training of teachers.

Training and test presentation of educational Packages

- The training took place over two days. On the first day, Prof. Dr. Ahmed Wagdy presented an introduction to what was accomplished in the three portfolios, emphasizing that the main goal is to change the behavior of students in environmental issues through the development of teachers.
- Then Dr. Amr Osama, the consultant for the climate change portfolio, presented the objectives and methodology of the portfolio. Followed by a detailed explanation of the messages addressed to teachers and the methods of presentation and tools available.
- After that, Dr. Khaled Allam, the consultant for the biodiversity portfolio, presented the objectives and methodology of the portfolio. Followed by a detailed explanation of the messages addressed to teachers and the methods of presentation and tools available.
- During the presentation of the two portfolios, recommendations and comments by the Curriculum Development Unit included the following summary:
- The two packages cover the scientific aspect in an extensive and strong manner that may not be suitable for all students in different years of education.
- Packages contain activities suitable for students and other activities that may be difficult and do not focus too much on group activities.
- There is a difficulty in knowing how these packages will be placed in the different educational materials and for what age.
- The project team and consultants answered these comments and clarified the purpose of the packages that the packages target teachers, not students, and that the project and the Ministry of Environment left the Curriculum Development Unit the freedom to put messages in different educational materials and according to the educational category (primary - preparatory). She also made it clear that a PowerPoint presentation will be presented, accompanied by the consultant's voice, explaining in a simplified manner each message. The teacher must choose the method he uses to explain.

- On the second day of training, Dr. Yomna Al-Awamry, the consultant for the environmental sustainability portfolio, presented the objectives and methodology of the portfolio. It was followed by a detailed explanation of the messages to teachers, presentation methods, and available tools.
- After the presentation was completed, all attendees commended the package, its style, methodology, and the activities used in it, and recommended that the two previous packages be placed in the same educational style.

Next steps:

In the end, the project presented the results of the training to Prof. Nawal Shalaby It was suggested that teacher training should be done before the beginning of the school year next October. The Ministry of Environment will make a memorandum of presentation of the training objectives, place and duration and send it to the Minister of Education and Technical Education to express his opinion and take the necessary action.

Frist Training (Training of Trainer)

Training for teachers on the use of Educational Packages on climate change, biodiversity and environmental sustainability

– October

Sofitel Cairo Nile El Gezirah

Introduction:

The objective of the project is to “enhance stakeholder participation in the implementation of multilateral environmental agreements in Egypt”. The project will engage a large number of government officials, universities and registered NGOs to build partnerships to ensure mutual knowledge transfer and learning. This partnership approach will help strengthen Egypt's institutional and systemic capacities to improve environmental management in Egypt, including a greater contribution towards global environmental benefits. In general, the project will achieve its goal by strengthening capacities at the systemic, organizational and individual levels, each of which will be targeted to enhance Egypt's efforts to mainstream global environmental priorities in planning and management frameworks for preserving and preserving the environment. Under the first outcome, activities will focus on strengthening the institutional capacity and policy framework of governmental and non-governmental actors to formulate better plans for the implementation of multilateral environmental agreements, and seeking greater stakeholder participation. Under the second outcome, the project will focus on engaging a large number of stakeholders to increase awareness of multilateral environmental agreements, as well as understanding the overall benefits of sound management of the global environment and its link to national environmental challenges. Finally, under the third outcome, the knowledge produced by the project will be properly documented and disseminated through Egypt and the region, encouraging regional cooperation and knowledge sharing.

The project team held a ministerial meeting with His Excellency the Minister of Education in August to discuss the mechanisms for integrating environmental concepts into the various education programs, followed by a series of meetings with the person responsible for developing curricula in pre-university education with the aim of participating in integrating the environmental dimension into pre-university education curricula and activities. Where the project prepared a list of environmental messages related to biodiversity, climate change and combating desertification, which are intended to be integrated into pre-university education programs (about messages). They were discussed with the curriculum development team, where:

- The Ministry of Environment and the Ministry of Education agreed on the importance of including environmental messages in the curricula of the Ministry of Education, in implementation of the strategic objectives of the Egyptian government program and building the capacities of the Egyptian human being.
- The attendees agreed on all the points previously raised.
- Commending the great efforts made by the Ministry of Education within the Education System . and its indicators to integrate environmental messages into the school curricula.
- The Curriculum Department of the Ministry of Education and the CB project team exchange environmental matrices and messages.
- Based on the Ministry's proposal, the CB project team will provide the required support regarding environmental concepts to the Curriculum Review Committee with Ministry of Education experts, giving priority to the fourth-grade matrix
- The CB project team will contribute to preparing several cultural portfolios on climate change, biological diversity, and environmental sustainability.

Moreover, consultants and companies have been appointed to create educational portfolios in the areas of climate change, biodiversity and environmental sustainability. Three educational packages were prepared on the topics of climate change, biological diversity, and environmental sustainability, and they were discussed and tested with the Curriculum Development Department at the Ministry of Education after reviewing the current curriculum matrices for all educational levels, which was followed by the establishment of this training for teachers on how to use those packages.

Training:

Day : Environmental Sustainability

- Dr. Youmna Al-Awamry
- M. Louay Maher

The lecturers welcomed the attendees and introduced themselves, after which they presented a lecture explaining the messages related to environmental sustainability in terms of content, scientific content, information sources, and interactive education. The training provided teachers with an introduction to incorporating environmental development principles into their teaching practices. The training was designed in a flipped classroom style where the teachers were given handbooks before the session to review and comment on. Training included a pre/post survey to indicate teachers' development and feedback. The agenda included active learning teaching methods, meaning that teachers would be better able to analyze, evaluate and synthesize information (e.g., higher skills in Bloom's Taxonomy) and would therefore be able to impart the approach to their students.

After the main lecture, the lecturers relied on educational activities and their implementation with teachers, which concerned learning by doing, stimulating and honing talents, using available technologies, and changing behaviors.


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النمو الاقتصادي والتنمية المستدامة
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شارك
الاسم
التخصص
التوقعات


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UN DP
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National Capacities for
Public Participation for
nting Rio Conventions
Project

Day Two: Climate Change

- Dr. Mohammed Al-Zayat
- Eng. Fatima Adel
- Eng. Ines Gouda

The lecturers welcomed the attendees and introduced themselves, after which they presented a lecture explaining the messages related to climate change in terms of content, scientific content, sources of information, and interactive education. Where the training provided teachers with an introduction to integrating the basics of climate change from the history and origin of the problem and its causes and environmental, social and economic impact in their educational practices. The training was designed in a flipped classroom style where the teachers were given handbooks before the session to review and comment on. Training included a pre/post survey to indicate teachers' development and feedback. The agenda included active learning teaching methods, meaning that teachers are better able to analyze, evaluate and synthesize information and will therefore be able to impart the approach to their students.

After the main lecture, the lecturers relied on educational activities and their implementation with teachers, which concerned learning by doing, stimulating and honing talents, using available technologies, and changing behaviors.


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Day Three: Biological Diversity

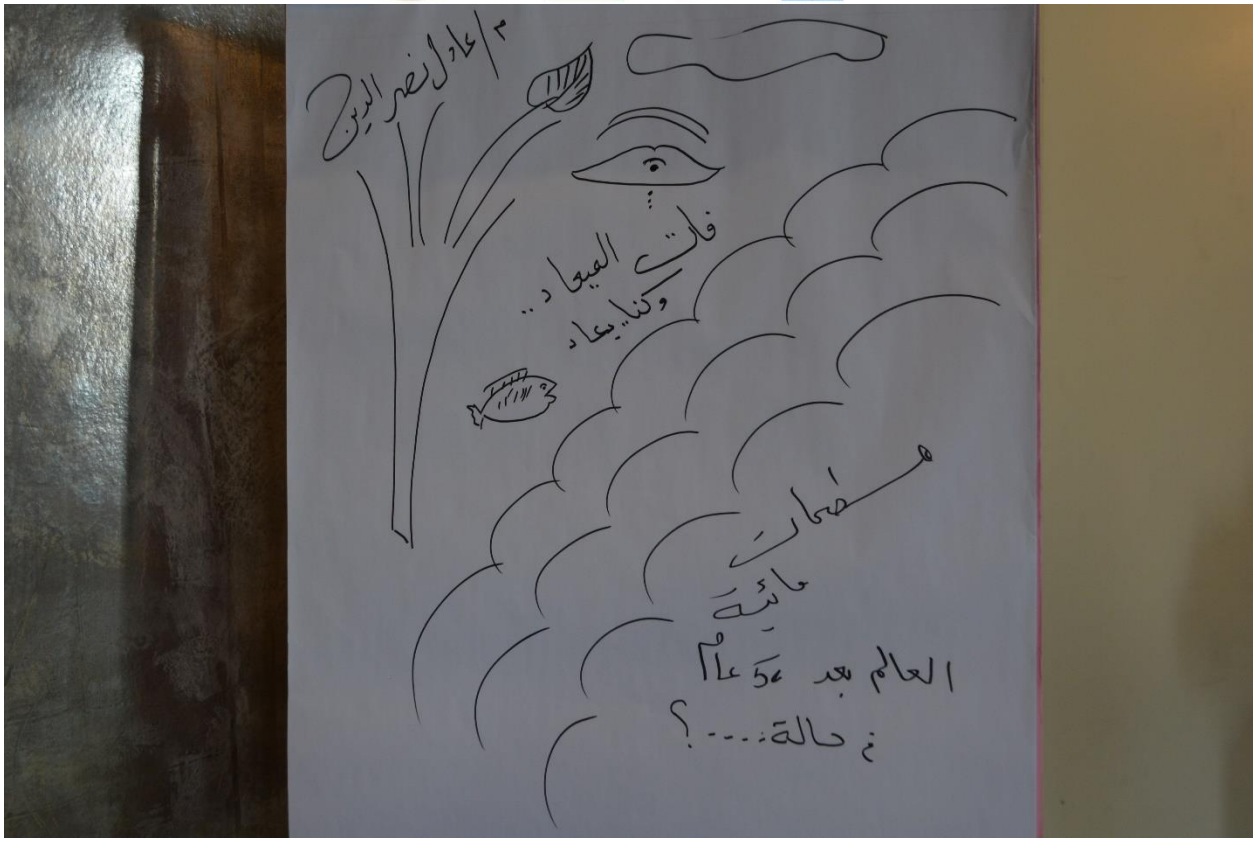
- Dr. Khaled Allam
- Dr. Yusriya Hamed

The lecturers welcomed the attendees and introduced themselves, after which they presented a lecture explaining the messages of biological diversity in terms of content, scientific content, sources of information, and interactive education. The training provided teachers with an introduction to integrating the basics of biodiversity in terms of definition, environmental, social and economic importance, threats, natural reserves and the impact of climate change in their educational practices. The training was designed in a flipped classroom style where the teachers were given handbooks before the session to review and comment on. Training included a pre/post survey to indicate teachers' development and feedback. The agenda included active learning teaching methods, meaning that teachers are better able to analyze, evaluate and synthesize information and will therefore be able to impart the approach to their students.

After the main lecture, the lecturers relied on educational activities and their implementation with teachers, which concerned learning by doing, stimulating and honing talents, using available technologies, and changing behaviors.

Tomorrow, Dr. Ahmed Wagdy, Project Manager and Eng. Samah Saleh, the national director of the project, concluded the training and delivered the certificates to the teachers.


Project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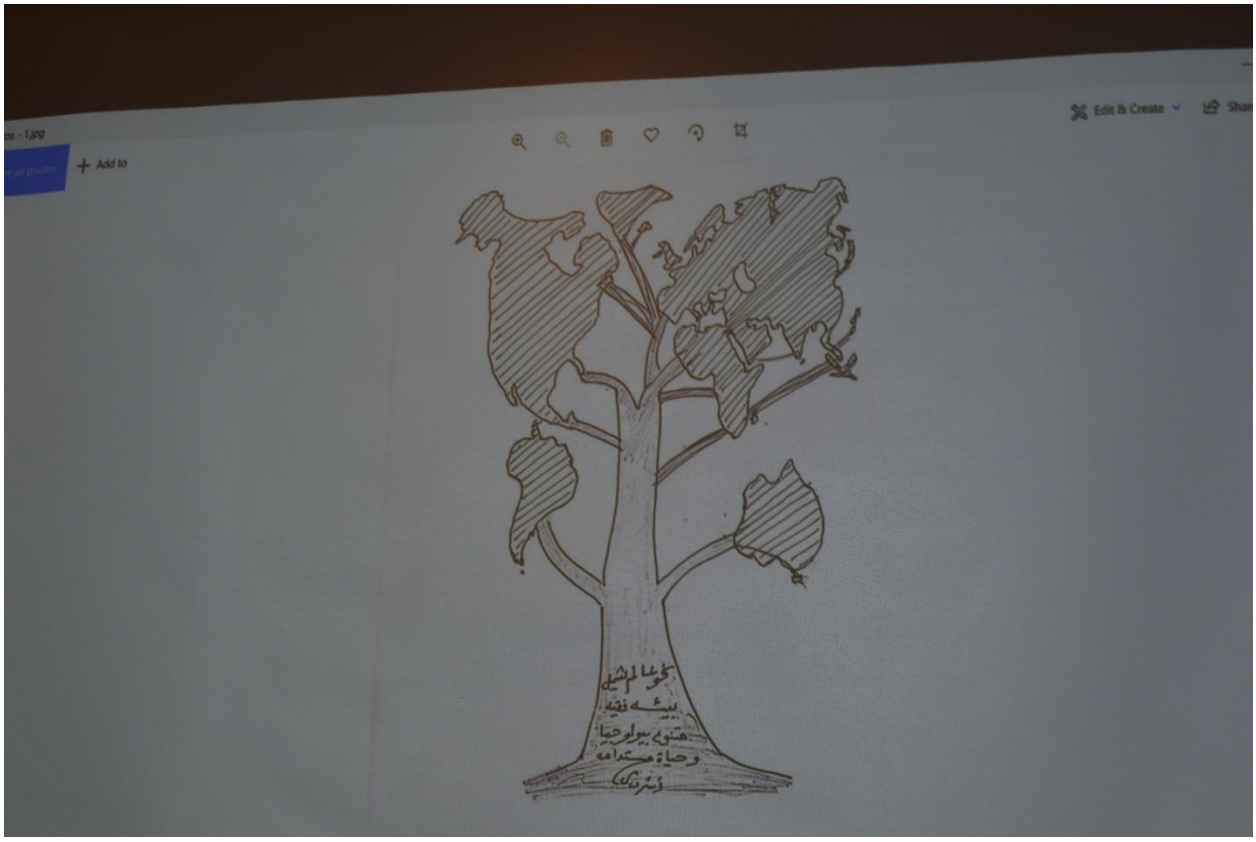
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CB3 Project


CB3 Project
دليل التقييم البيئى عن
التنوع البيولوجى


محتويات دليل التعليم البيئى عن التنوع البيولوجي
القسم الأول: المحتوى الفنى للحقيبة التعليمية
أولاً: مقدمة
ثانياً: تعريف الأنواع (الكائنات) الغريبة والغازية
ثالثاً: كيفية دخول وإنتشار الأنواع (الكائنات) الغريبة والغازية
رابعاً: أنواع ادخال الأنواع/الكائنات الغريبة والغازية
خامساً: أنواع مسارات ادخال الأنواع/الكائنات الغريبة والغازية
سادساً: المخاطر المتعلقة بالأنواع الغريبة والغازية
سابعاً: الأنواع الغريبة والغازية بمصر
القسم الثاني: المراجع والروابط الإلكترونية
أولاً: المراجع العلمية
ثانياً: الروابط الإلكترونية
القسم الثالث: أنشطة تعليمية
النشاط الأول: أبحث عن الأنواع الغريبة والغازية
CB3 Project

In conclusion, Her Excellency the Minister of Environment, Dr. Yasmine Fouad, attended, where she emphasized that the educational system with all its elements is one of the pillars of achieving the transformation of the green economy, given that the formation of personality and awareness are the driving force and capable of bringing about change in patterns of sustainable production and consumption and the creation of cadres in all disciplines enjoying values and foundations Ethical and scientific that qualifies it to protect and efficiently manage the available natural resources through modern techniques and tools that rely on national minds and capabilities.

During the workshop, the Minister of Environment referred to the importance of the partnership between the Ministry of Environment, the Ministry of Education and the Ministry of Higher Education in Egypt, especially in the field of environmental work, which the whole world realized that natural resources and life on planet Earth would not be preserved without paying attention to the role of society, especially young people, so that generations Coming from dealing with the complex and intertwined relationship between human activities and nature.

She indicated d. Yasmine Fouad pointed out that there are many new terms that have appeared on the scene during the past few years, such as the green economy, climate change and biodiversity, all of which refer to achieving the national goals of sustainable development, taking into account the rights of future generations to natural resources, and ensuring the

sustainability of their provision of the same environmental services, which is what It is required to include it in the educational curricula and present it with a simple and easy explanation for students to realize the importance of preserving it.

It also required the Ministry of Education to develop educational curricula and systems to keep pace with global developments and national challenges through a student who understands these issues and their repercussions and impacts on his life and the importance of his role in addressing these issues and the impact of each behavior he follows on the sustainability of life, noting the Ministry's readiness to cooperate with the Ministry of Education to stimulate Distinguished students for innovation and participation in addressing environmental problems.

The Minister of Environment expressed her happiness during the consultative meetings of the Cop Climate Change Conference in Milan, Italy, when the meetings discussed the need to include environmental concepts in educational curricula, which has already been implemented in Egypt a year and a half ago in cooperation with the Ministry of Education. This topic has since been brought up.

The Minister of Environment added that it is necessary to implement an environmental educational activity in schools every month in cooperation with the Ministry of Environment and its regional branches, noting that the Ministry has organized many competitions for environmental artworks carried out by students, which demonstrate their understanding of environmental issues and their ability to address them. Example Two years ago, the Ministry organized a competition in cooperation with the Ministries of Culture and Education to implement artworks from waste, in which students presented innovative ideas by exploiting the waste in their local environment.


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CBI2 Project


الأحد الى الثلاثاء الموافق 3-5 أكتوبر 2021
فندق سوفيتيل الجزيرة


الأحد الى الثلاثاء الموافق 3-5 أكتوبر 2021
فندق سوفيتيل الجزيرة

A preparatory meeting between Ministry of Education and the Ministry of Environment to discuss preparations for the COP climate conference

June

Ministry of Education and Technical Education

The Ministry of Education and Technical Education held a meeting with a delegation from the Ministry of Environment to discuss arrangements and preparations to participate in the activities of the th session of the Climate Change Conference COP for .

Her Excellency Minister of Environment promised in the previous ministerial meeting to arrange for a session at the blue zone during COP entitle " Educational Summit"

The meeting was attended by Dr. Reda Hegazy, Deputy Minister for Teachers' Affairs, Dr. Mohamed Gad, Director of the Professional Academy for Teachers, and a number of directors of training departments in the various governorates, and from the Ministry of Environment, Dr. Ahmed Wagdy, director of the Capacity Building Project (CB), and Engineer Samah Saleh, Director of the Sustainable Development Unit, and a number of leaders Ministry.

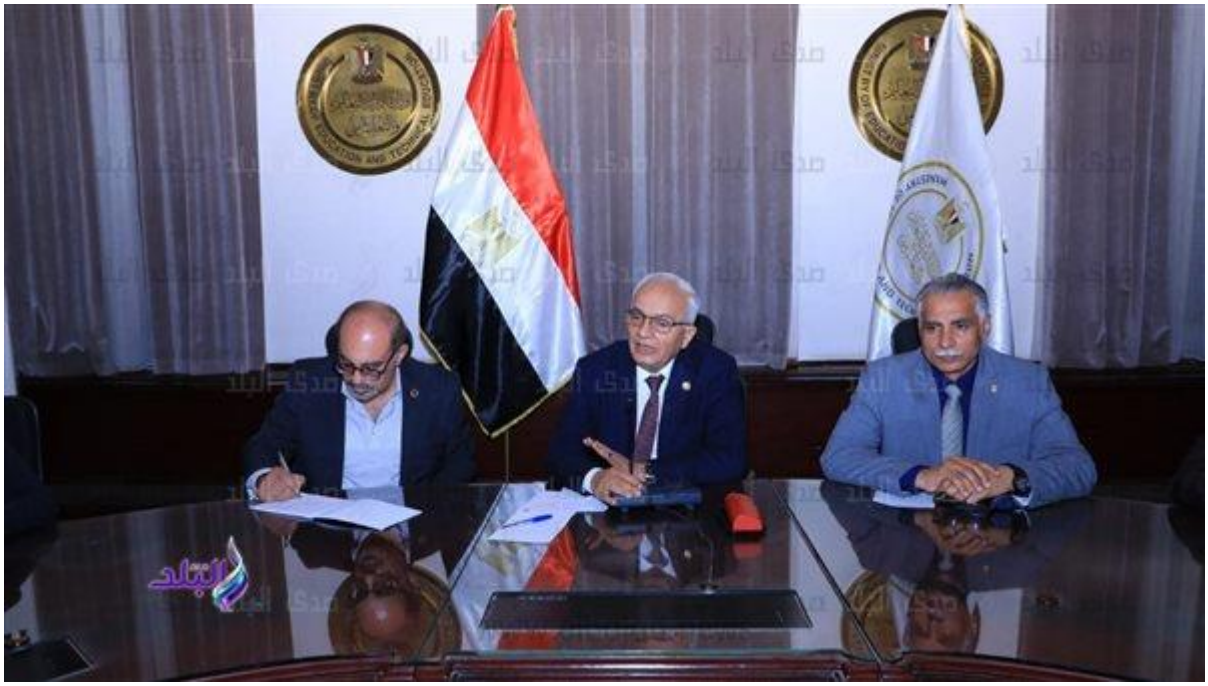
The meeting reviewed ways of cooperation between the two ministries to participate in the "COP " climate conference scheduled to be hosted in Egypt next November, in which Egypt's experience in integrating modern environmental concepts into the Egyptian education system will be discussed.

The meeting also discussed the preparation of training Packages for teachers of all school levels, which include many environmental concepts that have occurred on the scene, including population increase, water problems, desertification, green economy, climate change, biodiversity and others, all of which refer to achieving national goals for sustainable development, taking into account the rights of future generations. in natural resources, and to ensure the sustainability of providing the same environmental services.

Dr. Reda Hijazi reviewed the role of the Ministry of Education in producing a training package that includes a number of environmental concepts that revolve around three main axes (environmental sustainability - climate change - biodiversity) and a number of activities that can be implemented at the school level, in preparation for training a number of trainers

The meeting also discussed the organization of an art competition; It includes the most important environmental issues and topics to display the artworks that will be selected for display in an exhibition on the sidelines of the conference with the students participating in organizing the exhibition with their artworks.

The delegation of the Ministry of Environment stated that the general objective is to provide programs to build the capabilities of all members of society, including school students in the Arab Republic of Egypt, by developing awareness and changing their behavior towards a deeper understanding of environmental issues. Three volumes containing a number of environmental concepts facing society in general were presented. In order to turn it into extracurricular educational activities.



Second Training (Training of Trainers)

Training for teachers on the use of Educational Packages on climate change, biodiversity and environmental sustainability

to August

Dr. Tarek Shawky, Minister of Education and Technical Education, and Dr. Yasmine Fouad, Minister of Environment, witnessed the inaugural session towards launching the largest training and awareness program on the concepts of climate change issues ToT, which will be held from to August , through two training packages, one of which is For teachers, and the other for principals, under the title (Supporting the skills of teachers and principals in developing student awareness of climate changes, in light of the requirements of sustainable development).

Dr. Yasmine Fouad, Minister of Environment, stressed the importance of integrating environmental issues, especially climate change, which has become one of the most important environmental issues on the global scene, noting that work has started to integrate environmental terms into educational curricula three years ago, in cooperation with Dr. Tarek Shawky. Minister of Education and Technical Education.

The Minister of Environment thanked the Minister of Education for his cooperation and belief in the importance of integrating environmental terms into educational curricula to create a

conscious generation capable of facing climate changes that have affected all aspects of life. For their efforts, for UNICEF and the United Nations Development Program.

The Minister of Environment expressed her happiness at launching the awareness campaign, which targets about , male and female teachers in order to integrate the concept of climate change into school subjects, each in its own right, especially before Egypt hosts the th Conference of Parties on Climate Change.

During the campaign launch ceremony, Yasmine Fouad presented a brief and simplified overview of the concept of climate change, explaining that it is an untimely rise and fall in temperatures as a result of human incorrect behavior such as increasing emissions, not rationalizing water, wrongly dealing with waste, and other reasons that cause This leads to a rise in sea levels, heavy rain at untimely times, which puts pressure on the infrastructure of countries that cannot absorb all this amount, which prompted the Egyptian state to implement many projects to confront climate changes.

The minister indicated that every environmental topic will be linked to a study subject, as new and renewable energy projects can be linked to science, and sea level rise can be linked to geography, and the issue of waste can be linked to chemistry.

Dr. Tariq Shawky, Minister of Education and Technical Education, expressed his happiness to participate in this important event on one of the most important issues of concern to humanity, and affect the present and future of this planet, where it originates and life, which is the issue of "climate change", stressing that we are trying together in a framework of cooperation. The common goal is to find ways to survive towards a better future for future generations, to ensure better levels of quality of life within the framework of a healthy, safe, and green sustainable development environment.

Shawky stressed that the bright future for the coming generations will not be achieved unless all efforts in various sectors are combined, bearing in mind that this issue goes beyond local borders, because of its global and historical dimensions, as the practices of previous generations are reflected on it, and the results that future generations will reap on it are built upon. From this standpoint, President Abdel Fattah El-Sisi, President of the Republic, called for the international community to convene the Conference of the Parties to the United Nations Convention on Climate Change (COP) in Sharm El Sheikh in November .

The Minister of Education and Technical Education clarified that it is the commitment of all state agencies to organize this conference to the fullest extent. .

Based on that, we affirm that the Ministry is a major and effective partner with all relevant parties in all community issues, especially the issue of climate change.

He pointed out that the main goal that we seek is to develop students' awareness of this pivotal issue, by developing the awareness of the teacher and the principal, so the portfolio was directed to them as a target group as a step towards achieving the final objectives of the portfolio, which is to build generations working to protect the environment and control changes. Climate change, in order to protect the rights of future generations, and in the belief that raising awareness of climate change issues, increasing knowledge about them, and changing behaviors that preserve the environment and the climate, are not limited to a set of training and awareness programs that we meet today, so they are also included in the education curricula. The New ., in light of Egypt's vision, in the fields of education and sustainable development.

At the conclusion of his speech, Dr. Tarek Shawky thanked all the partners who worked to bring this package to light, and the colleagues who formulated and developed it from the Ministry of Environment, the Ministry of Education and Technical Education, and the Professional Academy for Teachers, which reviewed and approved the training package, in addition to the support The comprehensive plan submitted by UNICEF, within the framework of achieving the National Climate Change Strategy .

For his part, Dr. Reda Hijazi, Deputy Minister for Teachers' Affairs, said that the training package includes discussing environmental concepts and major climate issues, such as (climate changes, biodiversity, and environmental sustainability), and the information and knowledge it contains, as this package includes - an addition to abstract information - developing the skills of teachers and administrators in constructing a range of activities accompanying the curricular topics they teach or supervise; To provide students with positive attitudes towards environmental issues and protection, and to discover innovative ways to achieve this, consistent with their academic stages, abilities, skills, and ages, while applying them on the ground, and spreading awareness among peers, family, and the surrounding community, noting that this package is targeted at its stage The first is the training of about teachers and principals at all levels of study, to qualify them as certified trainers in the "Climate Change Package" so that they, in turn, train , teachers and directors at the level of the Republic; To spread awareness of environmental and climate issues, and prepare a teacher in each school to convert them into schools and centers that adopt this issue and spread awareness of its various fields.

Dr. Reda Hegazy pointed out the importance of teachers identifying topics in their respective specializations that deal with the concepts of climate change, environmental sustainability and biodiversity, and employing them through academic subjects.

Dr. Reda Hegazy added that, in accordance with what President Abdel-Fattah El-Sisi said, that the climate conference that will be held in Sharm El-Sheikh will constitute a milestone in the field of international action, we seek to shape the awareness of future generations, develop

their skills to preserve the environment, and create a green environment that suits their aspirations in a better future.

For his part, Jeremy Hopkins, UNICEF Representative in Egypt, expressed, in his speech, his gratitude for participating in that conference and the distinguished training, congratulating Dr. Tarek Shawky and all the officials in charge of this work.

He explained that we suffer from climatic changes that negatively affect the environment and have serious consequences every day, and Egypt is one of the first countries to make efforts to combat pollution, and giving students and children knowledge of these changes and how to combat them is the way to success in solving this crisis.

He added that climate change and global warming are considered a global crisis that affects the future of children, their development, health, and their lives, as there are more than a billion children globally living in areas that suffer from severe climate change, so it was necessary to think about the participation of children in knowing this crisis, and that By entering that information into the educational system in the curricula and activities.

At the end of his speech, he wished him success and reaching the desired result of that training.

This came in the presence of Dr. Muhammad Gad, President of the Professional Academy for Teachers, Dr. Rabab Imam, Director General of Art Education Development, a number of directors of training departments in the governorates, a number of leaders of the Ministry of Education and the Ministry of Environment, and a number of UNICEF representatives.


تحت رعاية

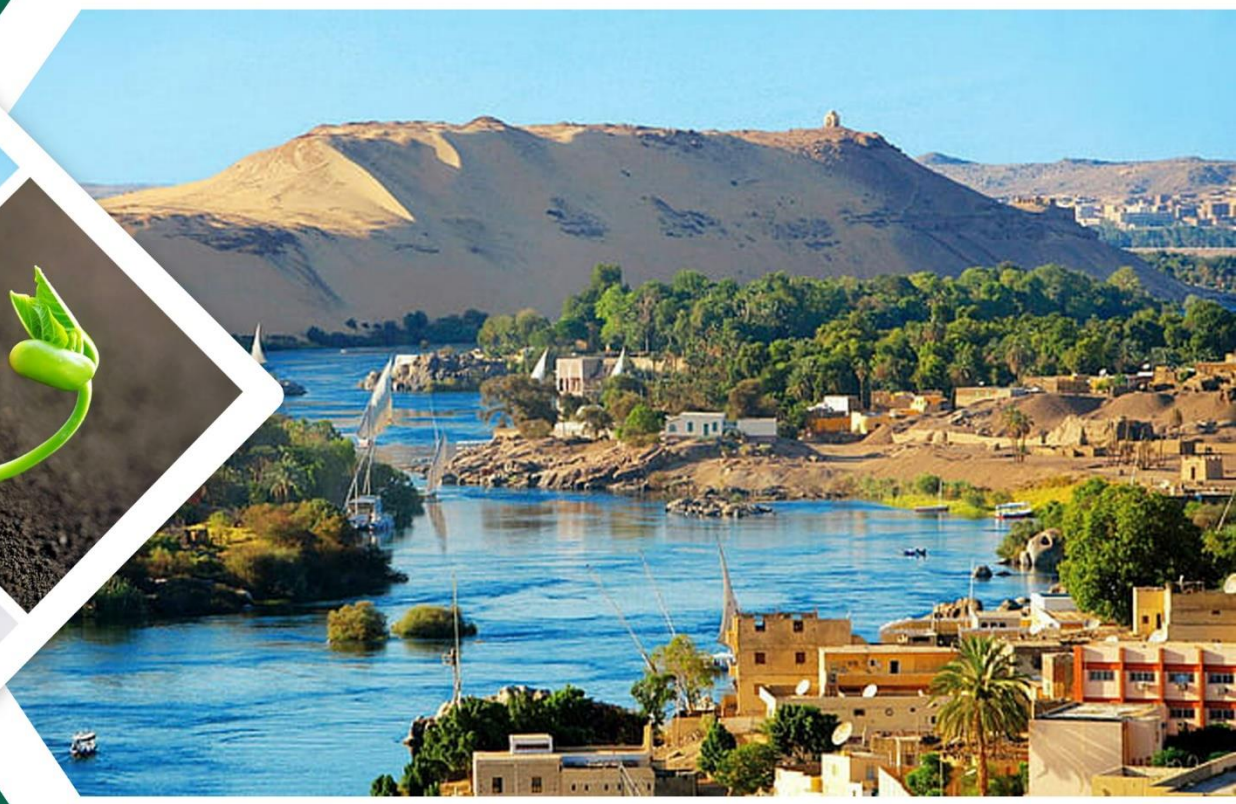
University Education

Universities Program:

- In December 2019, a cooperation protocol was signed between the Ministry of Environment and the Ministry of Higher Education and Scientific Research regarding the generalization of global environmental concepts in education as well as the sustainable management of electronic and medical waste in cooperation with the UNDP-GEF project working on the management of electronic and medical waste.
- Ministers of Higher Education and Environment approved development of a multi-disciplinary post graduate Professional Master's program for Environmental Sustainability and Natural Resources Management
- The project produced a series of courses that can be used to serve curricular development in universities for undergraduate and postgraduate courses (Professional Masters), or as a separate diploma run by the Ministry of Environment.
- The following postgrad courses were produced:
    - Climate Change Adaptation
    - Climate Change Mitigation
    - Biodiversity Conservation
    - Land Degradation
    - Species Conservation Management
    - Natural Resources Management
- Two other courses about Red List, and GIS as a tool for protectorate management will be prepared soon
- Setting environmental standards to select the best environmentally friendly Egyptian university. The project management evaluated the university files and determined the first positions, announced by the Higher Council of Universities later (Sep 2021).

Summary of the mentioned postgrad courses are as follow:

CB3 Report 2021



Post Graduate Course on

Biodiversity Conservation

Course file and lecture notes

Post-graduate Course on Biodiversity Conservation

Prepared By

Prof. Hamdallah Zedan

Former Assistant Secretary General of the United Nations

(Executive Secretary of the Convention on Biological Biodiversity)

For

"Enhancing National Capacities for Improved Public Participation for Implementing Rio Conventions (CB3 Project)"

funded by the Global Environment Facility (GEF) / United Nations Development Program (UNDP) and implemented by Ministry of Environment

Citation: Zedan, H. [1], Wagdy, A.[2.3], Saleh, S.[4], Omar, K.[4], and Sayed, A.[4] (2021). Biodiversity conservation post-graduate course on biodiversity conservation. Enhancing National Capacities for Improved Public Participation for Implementing Rio Conventions Project (CB3)". Global Environment Facility (GEF) / United Nations Development Program (UNDP) and Ministry of Environment. Report 202111EU, 180 pp.

[1] Executive Secretary of the Convention on Biological Biodiversity
[2] Cairo University, Faculty of Engineering
[3] CB3 Project, Ministry of Environment

PROGRAMME OVERVIEW

Biodiversity loss remains one of the key environmental challenges of our time and conservation work requires experts who understand the science underlining practical activities. Today species are becoming extinct at an alarming and unprecedented rate. Unless the trend is reversed, the rate of extinction over the next few decades may increase even more and result in the loss of a quarter or more of all species. Understanding and maintaining biological diversity on earth is essential to mankind's survival and prosperity. An understanding of the basic principles of biodiversity conservation is important in order to address the biodiversity challenges we face in the 21st century.

This course is designed to introduce the students to global environmental challenges and their interconnectedness, get knowledge about the meaning of biodiversity; how is it organized; ecosystems diversity, structure and functions and distribution of ecosystems; species diversity, relationships and interactions between species in ecosystems, importance of species diversity, keystone species; genetic diversity and genetic resources; biodiversity distribution; threats to global biodiversity and mass extinctions. It describes the importance of quantifying biodiversity patterns in the context of human-caused environmental degradation, how is biodiversity measured at various levels and spatial scales, and methods used to record species distribution and richness.

The course provides an overview of the types of biodiversity values and biodiversity contribution to global and national economies (food and agriculture, health, water security, climate change and disaster risk, eco-tourism, business and industry) and sustainable development goals. Assessing costs and benefits of protecting biodiversity provides economic basis for investing in conservation of biological resources.

It also addresses main causes and drivers of biodiversity loss such as land use change, unsustainable production and consumption, invasive species, pollution, climate change, and natural disasters. It outlines direct threats to biodiversity conservation and their impacts on biodiversity and the implications of biodiversity changes on ecosystem services and human well-being.

This course highlights the global and national responses to biodiversity loss. The role of biodiversity-related intergovernmental agreements, global biodiversity strategies and action plans; enhanced synergies between Rio conventions, other related MEAs and international processes is described. Likewise, the course is designed to introduce the students to national responses to the continuing loss of biodiversity such as National Biodiversity Strategy and action Plans (NBSAPs), protected areas networks (in-situ conservation); Ex-situ based conservation; national legislation, institutional

support and capacity building; mainstreaming of biodiversity in national sectoral and cross-sectoral plans; control of invasive alien species, regulating access to genetic resources and traditional knowledge; safe transfer, use and transboundary movement of GMOs; and effective coordination of implementation of Rio and other biodiversity related conventions. Egypt's biodiversity contribution to national economy, biodiversity contribution to Sustainable Development Goals, threats to biodiversity in Egypt, status and trends of Egypt's terrestrial and aquatic ecosystems, status and trends of species diversity, and status and trends of genetic diversity are described.

Finally, the course describes how communication, education and public awareness (CEPA) would enable people to understand the different meanings, interpretations and uses of biodiversity as well as their cultural, spiritual and economic heritage; be aware of and understand the significance of biodiversity in their own environment as well as how they interact with it, and to be able to recognize how our actions have effects on it; and to acknowledge the relationship between diversity and human well-being. It also describes the steps need to be taken in developing a communication strategy, and kinds of publicity activities that can bring broad societal support for the implementation of NBSAPs.

Topics will often be examined through local, regional and global perspectives.

The course satisfies the National Academic Reference Standards (NARS)Environmental and Biological Sciences Education (2009), National Authority for Quality Assurance and Accreditation of Education as reflected in ANNEX I.

Module syllabus

The course is divided into the following:

1) Introduction to global environmental changes

It outlines the global environmental changes including biodiversity loss, and their interconnectedness and as such cannot be addressed in silos. The current decline in biodiversity is largely the result of human activity and represents a serious threat to human development. The importance of biodiversity needs to be understood and acted upon by relevant decision makers. The conservation of biodiversity, can make an indispensable contribution to addressing global environmental changes in particular climate change and land degradation.

2) Biodiversity

It addresses biodiversity knowledge base: What is biodiversity; number of species on Earth; how is it organized: ecosystems diversity, structure and functions and distribution of ecosystems; species diversity, relationships and interactions between

species in ecosystems, importance of species diversity, keystone species; genetic diversity and genetic resources; biodiversity distribution; threats to global biodiversity and mass extinctions.

3) Measuring Biodiversity

It describes the importance of quantifying biodiversity patterns in the context of human-caused environmental degradation, how is biodiversity measured at various levels and spatial scales, and methods used to record species distribution and richness.

4) Socio-economic value of biodiversity

Assessing costs and benefits of protecting biodiversity provides economic basis for investing in conservation of biological resources. This section describes the types of biodiversity values and biodiversity contribution to global and national economies (in food and agriculture, health, water security, climate change and disaster risk, eco-tourism, business and industry, and sustainable development).

5) Threats and underlying causes of biodiversity loss and their impacts

It addresses main causes/ drivers of biodiversity loss: land use change (habitat loss and fragmentation), unsustainable production and consumption (overexploitation), invasive species, pollution, climate change, and natural disasters. It also outlines direct threats to biodiversity conservation and their impacts on biodiversity and the implications of biodiversity changes on ecosystem services and human well-being.

6) Egypt's biodiversity

Egypt is home to a wide variety of ecosystems and terrestrial and aquatic life due to its unique geographic location midway between Africa and Asia. Many plant and animal species in Egypt represent tropical and Mediterranean environments, some of which go back millions of years. The main ecosystems and habitats of Egypt (desert ecosystems, marine ecosystems, wetlands ecosystems, agricultural ecosystems, pasturelands ecosystems and mountain ecosystems), Egypt’s biodiversity contribution to national economy, biodiversity contribution to Sustainable Development Goals, threats to biodiversity in Egypt, status and trends of Egypt’s terrestrial and aquatic ecosystems, status and trends of species diversity, and status and trends of genetic diversity are described.

7) Addressing biodiversity loss at global level

Addressing biodiversity loss requires strong international co-operation. This is achieved by global biodiversity-related intergovernmental agreements, global biodiversity strategies and action plans with defined goals and targets; and enhanced synergies between Rio conventions, other related MEAs and international processes.

8) Addressing biodiversity loss at national level

National responses to the continuing loss of biodiversity include: National Biodiversity Strategy and Action Plan (NBSAP), Protected Areas Network (*in-situ* conservation); *Ex-situ* based conservation (Breeding, Propagation and Rehabilitation); National Legislation, Institutional Support and Capacity Building to Protect Biodiversity; International and Regional Agreements and Strategies for Cooperation; Mainstreaming of biodiversity in national sectoral and cross-sectoral plans (approaches to mainstreaming biodiversity in economic sectors); control of invasive alien species, regulating access to genetic resources and associated traditional knowledge and sharing of benefits from their use; safe transfer, use and transboundary movement of GMOs; effective coordination of implementation of Rio and other biodiversity related conventions.

9) Communication, Education and Public Awareness (CEPA)

It describes how communication strategies should be part of overall strategies for implementing policy and achieving long-term goals on conservation and sustainable use of biodiversity. A communication, education and public awareness (CEPA) would enable people to: understand the different meanings, interpretations and uses of biodiversity as well as their cultural, spiritual and economic heritage; be aware of and understand the significance of biodiversity in their own environment as well as how they interact with it, and to be able to recognize how our actions have effects on it; and to acknowledge the relationship between diversity and human well-being. Only by exploring biodiversity's different meanings, values and uses will people be able to develop the critical thinking skills needed to deal with the issue of biodiversity loss. It also describes the steps need to be taken in developing a communication strategy, and kinds of publicity activities that can bring broad societal support for the implementation of NBSAPs.

10) Research project

Each candidate will develop and execute a research project on a biodiversity related issue and produce a well written report.

Evaluation methods

Course modules will be assessed by written examination and a research project report.

CB3

Report 2021

Post Graduate Course on

Land Degradation

Course file and lecture notes

Post-graduate Course on Land Degradation

Prepared By

Prof. Mohamed Yehia Draz

Professor Emeritus
Desert Research Center

For

"Enhancing National Capacities for Improved Public Participation for Implementing Rio Conventions (CB3 Project)"

funded by the Global Environment Facility (GEF) / United Nations Development Program (UNDP) and implemented by Ministry of Environment

Citation: Deraz, M.Y. [1], Wagdy, A.[2,3], Saleh, S.[3], Omar, K.[3], and Sayed, A.[3] (2021). Land degradation post-graduate course. Enhancing National Capacities for Improved Public Participation for Implementing Rio Conventions Project (CB3)". Global Environment Facility (GEF) / United Nations Development Program (UNDP) and Ministry of Environment. Report 202112EU, 110 pp.

[1] Desert Research Center
[2] Cairo University, Faculty of Engineering
[3] CB3 Project, Ministry of Environment

The course cover the following topics:

Foreword

The formulation of the postgrad course on desertification and Land degradation is conducted as an output of the UNDP-GEF project to enhance national capacities to improve public participation for implementation of Rio Conventions (CB3 project). Such Convention includes United Nations Framework Convention on Climate Change (UNFCCC), Conventions of Biological Diversity (CBD) and United Nations Convention to combat Desertification (UNCCD).

The project aims at to engage a large number of government officials, representatives of line ministers, universities and registered NGOs, to build partnership to ensure mutual knowledge transfer, learning and awareness. The partnership approach will help strengthen the institutional and systematic capacities of Egypt to improve the management of the environment in line with Egypt Sustainable Development Strategy (Vision 2030). In general. The project will achieve its goals by strengthening capacities at the systematic, organizational and individual levels, each of which will be targeted to strengthen Egypt's efforts to mainstream global environmental priorities into national planning and management formworks thus preserving and conserving the environment.

For better utilization of natural resources and linkage to national environmental and socio-economic challenges, it is recommended to include the global environment issues in education Systems.

The postgrad course provides education resources to assist students, adults and youth to learn and teach each other's about topics related to the different environmental issues with special reference to desertification and land degradation. Learning these topics to the above mention categories helping them to engage in activities and actions to address these issues and allows the educated young people to become informed and active citizens.

The course includes environmental education modules which may be further integrated within graduate and postgraduate university system or incorporated within postgraduate professional diploma, or become and building block within a certification program for environmental sustainability and natural resources management jointly within EEAA and reputable education institute. The modules are intended to develop capacity amongst the youth that are projected to participate in an emerging pool of experts capable of confronting current and future environmental challenges with special reference to desertification and land degradation and its socio-economic impacts

Desertification and land Degradation course syllabus

1- Course description

This course is designed to provide an overall view of Desertification and land degradation as regard, definitions drivers (direct and indirect), impact of desertification and land degradation on the environment, socio, economic and human life, the global inteventions to combat desertification and land degradation.

The course includes 10 modules covering different disciplinary items related to Desertification and land Degradation.

2- Student learning objectives

This includes the following:

2-1 To understand Desertification and land Degradation concept, how to deal with and their implication.

2-2 To understand the interrelation between Desertification and land Degradation on one hand and the climate change on the other hand.

2-3 To develop reading tradition.

2-4 To develop communication skills and clarity to present ideas and explain them in public.

In general at the end of the course the student can understand the follow:

- What is Desertification and land Degradation?
- What are the current pressures on land?
- What are the main problems and how to manage land?
- How can land be used (more) sustainably and what is missing to decrease decertification.
- What does achieving neutrality mean?
- What are the objectives and principles for governing LDN?
- How are the processes of implementation of an LDN organized in practice?

3- Learning methodology and strategies

It includes the followings

3-1 Lectures

3-2 Discussion, talks and communications.

3-3 Reading assignments to be discussed in class.

3-4 Analysis of case study samples (working groups).

3-5 Individual work, analysis of free readings.

3-6- Home work.

3-7 audiovisual presentations.

3-8 Field visits to different types of desertified locations and the measures taken to combat desertification.

4- Course out lines

The course includes 10 modules covering the following subjects:

Module 1: Introduction to Desertification and land Degradation includes:

- Definitions .
- Types.
- Dry land.
- Affected areas.
- Impact on environment.
- History of Convention.
- Others.

Module 2: Impact of Desertification and land Degradation on:

- Food security.
- Vegetation pattern.
- Poverty.
- Sand and Dust storms.
- Economy and social changes.

Module 3: Drivers for Desertification and land Degradation (direct and indirect):

- Urban encroachment.
- Soil salinization and pollution.
- Climate change.
- Shifting sand and sand dunes migration.
- Others.

Module 4: sensitivity and resilience

Module5: counter measures including

- LDN.
- Techniques and counter measures to mitigate or reversing the effect of Desertification and Land Degradation.

Module 6: desertification and land Degradation lows and legislations:

- History.
- Definitions articles.
- National Commitments (National and international scale).

Module 7: Community based conservation

- Role of community in planning and soil and plant restoration.
- Required strategies.
- Impact on combating Desertification and Land Degradation.

Module 8: Land degradation Neutrality (LDN), solutions to Desertification, Land Degradation and Drought.

Module 9: Land Degradation and food security

Module10: Rio Convention interaction (UNCCD), CBD and UNFCCC.

The above motioned modules will be presented on a global and national scale as possible.

CB3 Report 2021

Post Graduate Course on

Climate Change Adaptation

Course file and lecture notes

Post Graduate Course on Climate Change Adaptation

Prof. Khaled Abu Zeid

Regional Water Director, Centre for Environment & Development for the Arab Region & Europe (CEDARE)

For

"Enhancing National Capacities for Improved Public Participation for Implementing Rio Conventions (CB3 Project)"

funded by the Global Environment Facility (GEF) / United Nations Development Program (UNDP) and implemented by Ministry of Environment

Citation: Abu-Zeid, K. [1], Wagdy, A.[2.3], Saleh, S.[3], Omar, K.[3], and Sayed, A.[3] (2021). Climate Change Adaptation post-graduate course. Enhancing National Capacities for Improved Public Participation for Implementing Rio Conventions Project (CB3)". Global Environment Facility (GEF) / United Nations Development Program (UNDP) and Ministry of Environment. Report 202113EU, 180 pp.

[1] Centre for Environment & Development for the Arab Region & Europe (CEDARE)
[2] Cairo University, Faculty of Engineering
[3] CB3 Project, Ministry of Environment

Course Objectives

The objectives of the course which consists of 12 lectures is to develop professionals who are educated in Climate Change adaptation and capable of leading the climate change agenda in governmental entities, consulting firms, academic institutions, regional and international organizations. The course objective is to first introduce participants to fundamental concepts of climate change, its causes, effects and relationship between past greenhouse gas concentrations and climate, describing physical drivers associated with atmospheric composition and cloud effects, and understading how Global Circulation Model GCMs work. The course will introduce participants to climate change threats, risks and impacts on the different sectors. It will explain the differences and inter-relationships between adaptation and mitigation. Climate change risks and impacts such as intense drought, storms, heat waves, rising sea levels, and warming oceans will be presented.

The course will critically examine state and market-based approaches in relation to climate change adaptation, introducing the participants to climate change adaption related conventions, adaptation funds, and climate change adaptation national reporting mechanisms. The objective of the course is also to get post graduates acquainted with selected climate change impacts on water resources availability, extreme water-related events, and other direct and indirect impacts such as impacts of sea level rise on coastal groundwater quality. The course will also get them acquainted with potential adaptation measures that could be implemented to cope with the expected climate change impacts on the water sector. The course will examine the major climate change threats, impacts, and adaptation in the agriculture sector including food security. The course also aims to give an overview of the reasoning behind adaption to climate change in the coastal zones, and the measures that can be implemented to adapt to Sea Level Rise and other coastal climate change threats.

The course generates deep understanding of the implications of climate change on ecosystems (including their goods and services), biodiversity and human wellbeing. It Introduces climate change threats and impacts on various economic activities that is based on the marine biodiversity, fauna and flora, with special focus on Egypt and the proposed adaptation measures and solutions including ecosystem-based approaches, biodiversity conservation, sustainable land-use practices and coherent policy frameworks. The course also aims at providing a better understanding of health vulnerabilities to climate change and how to protect human health against climate change impacts and adapt health to that change. The course will also address climate change adaptation in the tourism sector, by providing an understanding of the climate change impacts on tourism and the proposed adaptation measures to protect tourism.

The course will educate the participants on the climate change risks facing urban and rural areas of human settlements and the adaptation responses to climate change through urban and rural development.

The course will educate participants on climate change vulnerability and risks and better understand how to adapt to climate change by learning first how to perform a Climate Risk and Vulnerability Assessment (CRVA), and by learning about Climate Risk Management (CRM), and concepts of costs assessment of climate adaptation measures.

Course Outcomes

Participants successfully completing this course will be able to understand the fundamental concepts of climate change, and understand the relationship between past greenhouse gas concentrations and climate as well as the significance of glacial-interglacial climate variability. The post graduate students takin this course will have improved communication skills, including reading, writing, oral presentations and team work on issues related to Climate Change (CC) adaptation in almost all affected sectors. Participants will be able to understand CC major threats and Impacts including frequent and intense drought, storms, heat waves, rising sea levels, melting glaciers, warming oceans and others. They will be able to understand the difference between climate change mitigation and adaptation.

Participants on successful completion of the course will be able to understand Global Environmental Governance (GEG) and the roles of various UN organizations and international Policy Instruments for GEG. They will know more on climate change agreements, and adaptation financing mechanisms which will in turn reflect on improved capability for adaptation funding in their respective countries.

On the other hand, there will be better understanding of the differences between climate variability and climate change on water resources which is an important sector in Egypt especially within the transboundary water context. Impacts and adaptation in the areas of annual transboundary Nile flows, droughts, increased temperature, flash floods, and sea water intrusion in coastal aquifers.

On successful completion of the course major climate change threats and impacts on the Agriculture Sector will be better comprehended as well as the potential adaptation measures. Climate change impacts and potential adaptation measures for coastal zones, will be known by participants, especially with relation to sea level rise. Participants will be able to implement Integrated Coastal Zone Management (ICZM) principles in adapting to Climate Change impacts in coastal zones.

Participants will be able to assess climate change risks to ecosystems and biodiversity and will develop intellectual skills to interpret relevant data to choose appropriate solutions and adaptation measures to reduce impacts of climate change on biodiversity. They will be able to examine climate change impacts on Human Health and propose possible adaptation measures. The student is also expected to learn the relationship and mutual impacts of tourism and climate change, as well as climate change options for adaptation strategies, and policies in the tourism and related sectors. Participants completing this course will be able to understand climate change risks facing urban and rural areas of human settlements and living areas. They will understand climate change adaptation responses in Urban and rural Areas through urban and rural development and design. By the end of the course, participants should be able to demonstrate knowledge of climate change risks and vulnerability, including how to conduct a Climate Risk and Vulnerability Assessment (CRVA) and know the different tools for Economic assessments of adaptation measures.

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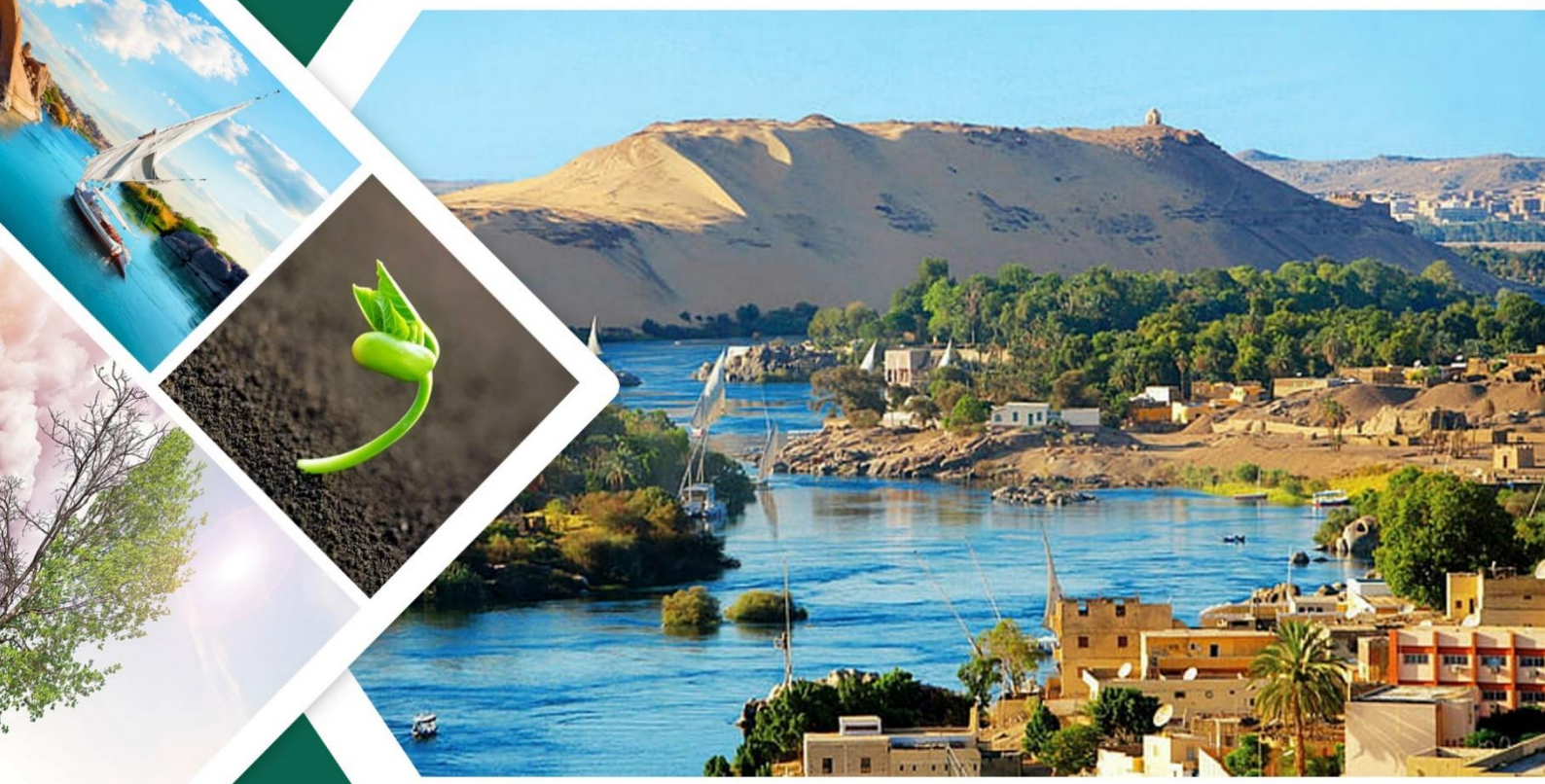

Post Graduate Course on

Climate Change Mitigation

Course file and lecture notes

Postgraduate course on Climate Change Mitigation

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For

"Enhancing National Capacities for Improved Public Participation for Implementing Rio Conventions (CB3 Project)"

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[1] Integral Consult
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Course Syllabus

The following table highlights the main components of the proposed course syllabus. Further elaboration on each component can be found in the following sections.

[Code] – Climate Change Mitigation

Course code: …
Title: Climate Change Mitigation
Course weight: 3-credit hours
Course leader: …
Semester taught: …
Learning Objectives: …
Learning Outcomes: …
Grading Criteria (Total of 100%) ▪ Examination weight: … ▪ Deliverables/Submittals weight (Assignments and Group Research Project) ▪ Attendance Policy (if applicable) weight: ▪ Participation weight (including in-class discussions and quizzes):
Key words: Climate change, Global warming, GHGs, mitigation

Course Description

(Course Code), Climate Change Mitigation, 3 Cr., (Semester, e.g., Spring 2023), Mandatory/Elective

This course is designed to give students an understanding of the different processes that govern the climate system, how it is changing and how this change can be mitigated regarding various fields. The subject includes aspects of the climate science, as well as the international efforts to mitigate climate change and the methodologies and implications of these mitigation measures for the differ sectors.

Useful Textbooks

Jacobson, M.Z. 2005. Fundamentals of Atmospheric Modeling. Cambridge University Press.

Jacob, D.J. 1999. Introduction to Atmospheric Chemistry. Princeton University Press.

Topics

1. Signs of a changing climate and global warming
2. GHG emissions
3. IPCC reporting on climate change mitigation and global environmental governance within UNFCCC and Paris agreement and its recommendations
4. Methodologies for estimation of GHG emissions at the national and facility levels as well as monitoring, reporting and verification (MRV) system

5. Climate change mitigation measures including concepts of energy efficiency and renewable energy technologies
6. Carbon footprint calculations for institutions
7. Energy efficiency applications in buildings - Introduction to green buildings
8. Energy efficiency applications in industries
9. Mitigation measures in waste management and agriculture sectors
10. Energy efficiency applications in transport sector
11. Large scale renewable energy technologies
12. Decentralized small scale renewable energy technologies and applications

Teaching and Learning Methodologies

The course shall rely on the following:

- PowerPoint slide presentations
- White board use
- Interactive class discussions
- Classroom participation in group activities
- Weekly further references for the provided lecture's topic, in order for the students to expand on the knowledge gained during the lecture

Group Research Project and Field Visits

The group research project will be based on the different climate change mitigation measures in the sectors studied throughout the course. The students will be divided into 6 teams, where each team will be responsible for presenting a case study in one of the sectors (i.e., green buildings, industrial energy efficiency, agriculture, waste, transport, renewable energy). The deliverables in this project will be mainly a report and a PowerPoint presentation. Each group will be asked to present their work and they will be assessed based on this, in addition to the report. The applicability of the studied case in Egypt should be covered in the deliverables.

Field Visits

Two field visits are proposed throughout the semester:

1. Benban Solar Park
2. One of the small-scale biogas units applied in the rural areas in Egypt under the initiative of the EEAA. One of these successfully implemented unit is located in Kafr Saqr.

Course Learning Objectives

1. Enable students to develop knowledge and understanding of:
   - Earth's climate system and climate forcing mechanisms
   - Scientists' factors and clues about climate change
   - The role of IPCC towards climate change mitigation
   - GHGs types, sources and global warming potential (GWP)
2. Provide the students with a solid background about Paris Agreement and Egypt's commitments to the global issue of climate change mitigation
3. Enable students of estimating GHG emissions

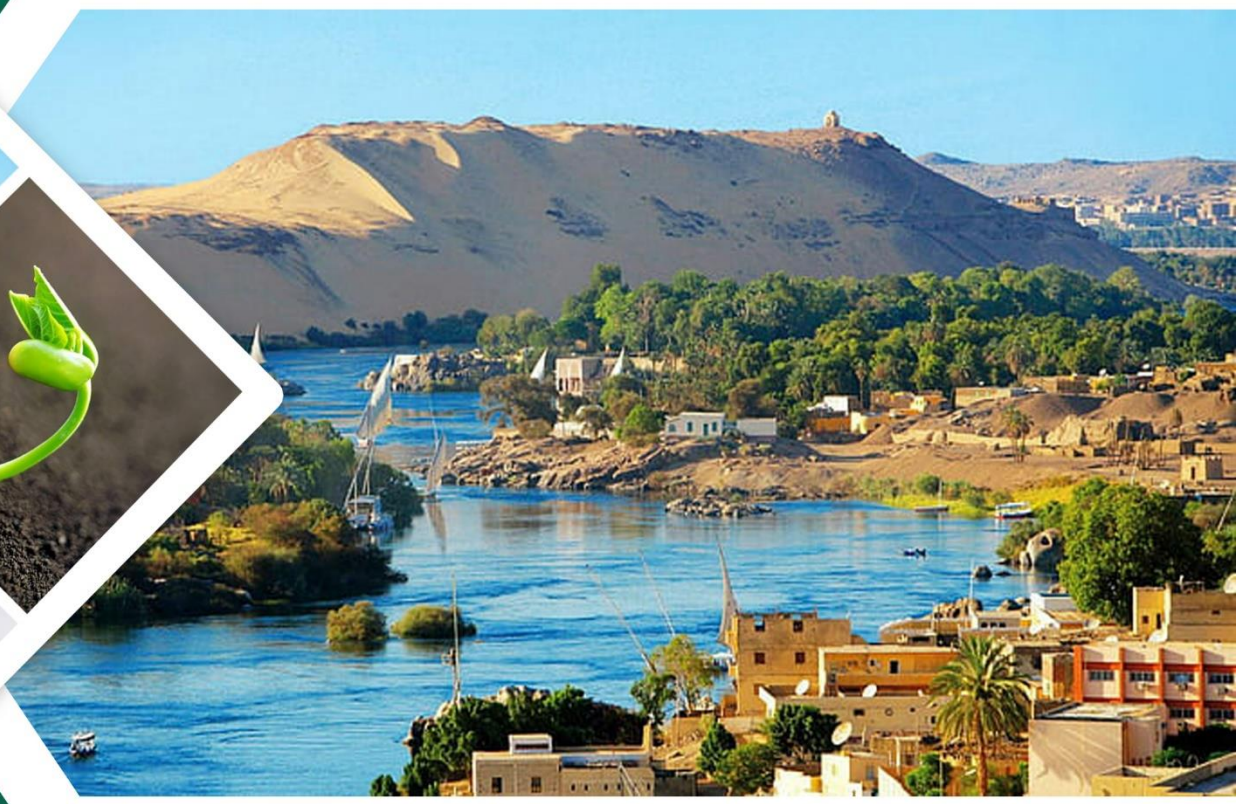
4. Enable students of developing knowledge about different mitigation measures in various sectors
5. Enhance the students' critical thinking about the different mitigation measures

Student Learning Outcomes

Upon successful completion of this course, students should be able to:

1. Describe the primary components of the Earth's system
2. Critically assess the different climate forcing mechanisms, in the context of historical climate change and paleo-climate reconstructions.
3. Explain the different factors and clues of a changing climate
4. Develop comprehensive knowledge on GHG emissions types, sources and their global warming potential (GWP)
5. Estimate GHG emissions
6. Interpret the role of IPCC in climate change mitigation
7. Summarize the goal of Paris Agreement and its main articles related to mitigation actions
8. Describe MRV system and why it is needed
9. Give examples on climate change mitigation measures in different sectors
10. Ways of reporting a mitigation action
11. Mitigation measures
12. Define LEDS, NDC and NAMA and their interlinkage
13. Calculate carbon footprint for institutions
14. Estimate GHG savings resulted from different mitigation measures in different sectors
15. Propose tools for successful implementation of these mitigation measures

CB3 Report 2022



Post Graduate Course on

Natural Resources Management (1)

Course file and lecture notes

Post Graduate Course on Natural Resources Management (1)

Prof. Ahmad Wagdy

For

"Enhancing National Capacities for Improved Public Participation for Implementing Rio Conventions (CB3 Project)"

funded by the Global Environment Facility (GEF) / United Nations Development Program (UNDP) and implemented by Ministry of Environment

Citation: EEAA (2022). Natural Resource Management (1) post-graduate course. Enhancing National Capacities for Improved Public Participation for Implementing Rio Conventions Project (CB3)". Global Environment Facility (GEF) / United Nations Development Program (UNDP) and Ministry of Environment. Report 202115EU, 180 pp.

COURSE FILE

MEC-NAREMAN PROGRAM

ECP 620 - Natural Resources Management (1)

The following table highlights the main components of the proposed course syllabus. Further elaboration on each component can be found in the following sections.

[ECP 620] – Natural Resources Management

Course code:	ECP 620
Title:	Natural Resources Management (1)
Course weight:	3-credit hours
Course leader:	
Semester taught:	Spring 2024
Grading Criteria (Total of 100%) ▪ Class Quizes: 10 ▪ Assignments: 10 ▪ Group Research Project: 18 ▪ Participation discussions: 07 ▪ Mid term exam: 15 ▪ End of Term Exam: 40	
Key words: Water & Land Resources, Resources Productivity, Land Use	

Course Description

(ESP 620), Natural Resources Management (1), 3 Cr., (Fall Semester, 2023), Mandatory for all tracks

Economic growth, as indicated by GDP worldwide, has been powered by a persistent demand for natural resources. Consumption patterns of natural resources have induced devastating impacts on our planet (90% of biodiversity loss and water stress are caused by resource extraction and processing while contributing to about half of global greenhouse gas emissions, with further unequal distribution of the benefits of resource use and its increasingly global and severe impacts on human well-being and ecosystem health). This course is designed to give students a universal understanding and a global prospective of the different processes that govern the level of sustainability of human acts and particularly the interrelationship between environmental sustainability and economic growth, and its dependence on natural resources use. Drivers, Pressures, and Natural Resource Use Trends

will be thoroughly analyzed, projected impacts arising from unsustainable use of natural resources will be then discussed, societal responses and the way forward will be finally debated.

Useful Textbooks

UNEP 2019. "GLOBAL RESOURCES OUTLOOK 2019; Natural Resources for the Future we Want".

Other Useful References

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- Wiedenhofer, D., Smetschka, B., Akenji, L., Jalas, M., & Haberl, H. (2018). Household time use, carbon footprints, and urban form: a review of the potential contributions of everyday living to the 1.5 °C climate target. Current Opinion in Environmental Sustainability, 30, 7–17. https://doi.org/10.1016/j.cosust.2018.02.007
- Wood, R., Stadler, K., Simas, M., Bulavskaya, T., Giljum, S., Lutter, S., & Tukker, A. (2018). Growth in Environmental Footprints and Environmental Impacts Embodied in Trade: Resource Efficiency Indicators from EXIOBASE3. Journal of Industrial Ecology, 22(3), 553–564. https://doi.org/10.1111/jiec.12735

Curriculum and Content

Part I : Introduction

13. People & The Environment;
    1.1. History of Environment; highlights and milestones
    1.2. Sustainable Development; reality or myth?
    1.3. Natural Resources: global demands, societal trends, environmental degradation
    1.4. Management of natural resources: sectoral prospective vz national prospective, beneficial & detrimental management practices

Part II: Natural Resources; Drivers, Pressures, & Use Trends

14. **Natural Resources; Drivers, Pressures, and Use Trends**
    2.1 Main Findings of Ch2
    2.2 Drivers for Material Resources Use
    2.3 Historical Analysis of Material Resources Use
        2.1.1 Biomass
        2.1.2 Fossil Fuels
        2.1.3 Metals
        2.1.4 Non-metallic Material
    2.4 Material EXTRACTION
    2.5 Case Study; EU

15. Natural Resources; Global Trade of Material
    2.6 The Physical Trade Balance (PTB)
    2.7 Domestic Material Consumption
    2.8 Material Footprint of Consumption

16. Natural Resources; Productivity
    2.9 Material Productivity
    2.10 Labor Productivity
    2.11 Energy Productivity
    2.12 GHG Intensity Productivity
    2.13 Material Intensity of Production & Consumption (MI)
    2.14 Drivers of Material Use
17. Natural Resources; Water & Land Resources
    2.15 Historical Analysis of Water:
        2.15.1 Key water issues
        2.15.2 Global water statistics
        2.15.3 Water withdrawals
        2.15.4 Water stress and water scarcity

Teaching and Learning Methodologies

The course shall rely on the following:

- PowerPoint slide presentations
- White board use
- Interactive class discussions
- Considerable self-learning
- Role playing

Course Learning Objectives

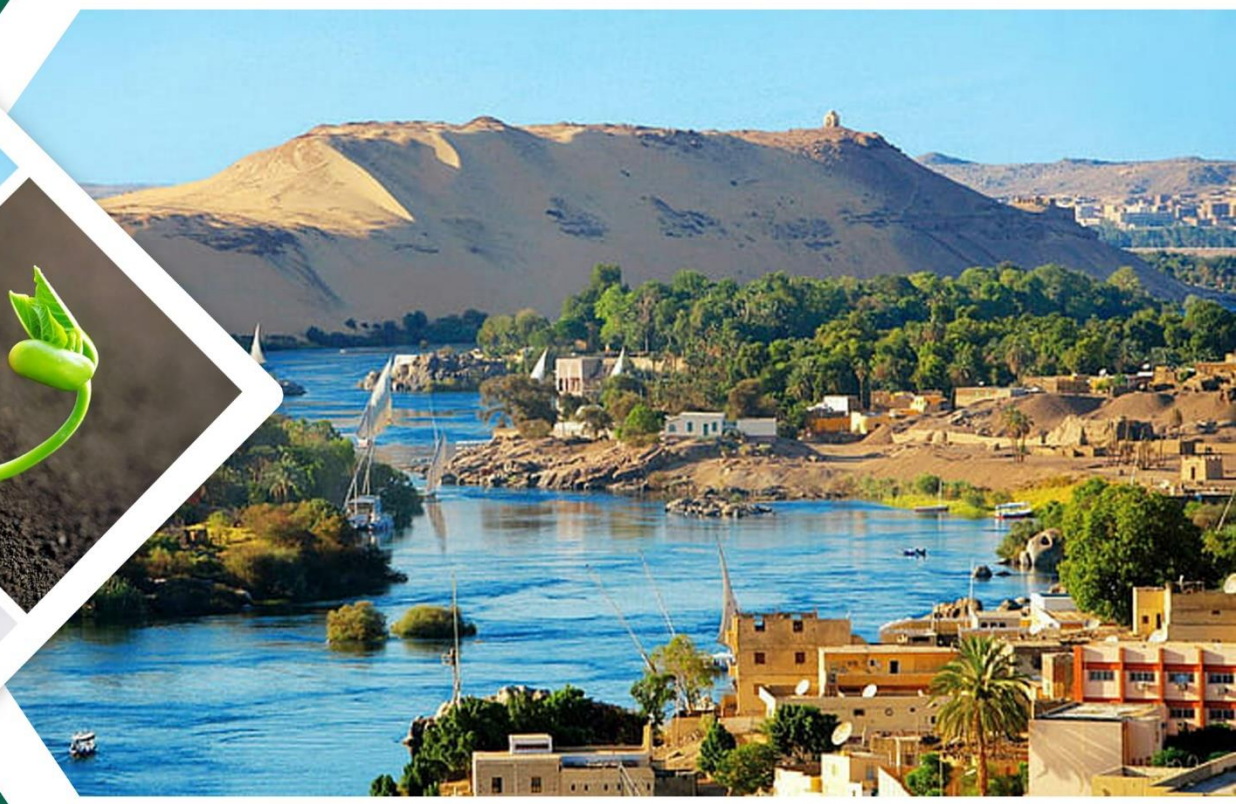
6. Enable students to develop knowledge and understanding of:
   - The difference between economic growth and sustainable development
   - Global drivers for natural resources use
   - The main pressures on natural resources
   - Natural resources use trends
   - The role of Natural Resources Use in shaping the interrelationships between economic development and environmental conservation and ecosystems health.
7. Provide the students with a solid background on material use analysis and trends
8. Broaden the views of students while considering the effects of : International Trade, and natural resources productivity
9. Enable students to estimate the environmental impacts of several categories for natural resources use
10. Enhance the students' critical thinking about the different scenarios for confronting the problems affecting the planet boundaries

Student Learning Outcomes

Upon successful completion of this course, students should be able to:

16. Identify the criteria for achieving, sustainable development and environmental sustainability.
17. Visualize the environmental impacts associated with material use of: Metals, Non Metallic material, fossil fuel, and biomass resources
18. Develop a scrutinized skill in identifying, predicting, and dealing with expected impacts on water resources and Land Use resources
19. Critically analyze material productivity.
20. Develop comprehensive knowledge on the difference between the "B-a-U" scenarios in dealing with natural resources and the "Towards Sustainability Scenario" proposed by the UNEP.
21. Propose future actions for decoupling of economic activities from environmental impacts of natural resources use

CB3 Report 2022



Post Graduate Course on

Species Conservation Management

Course file and lecture notes

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CONTENTS

Preface

The objective of the Enhancing National Capacities for Improved Public Participation for Implementing Rio Conventions" Project (CB3 Project) is "to strengthen the participation of relevant stakeholders in the implementation of Multi-Lateral Environmental Agreements (MEAs) in Egypt". Three agreements, known as Rio Conventions, are of prime concern; (i) UNFCCC, (ii) CBD, and UNCCD. The project aims to engage a large number of government officials, representatives of line ministries', universities and registered NGOs to build partnerships to ensure mutual knowledge transfer, learning, and awareness. This partnership approach will help strengthen the institutional and systemic capacities of Egypt to improve the management of the environment in Egypt in line with Egypt's Sustainable Development Strategy (vision 2030), including a greater contribution toward global environmental benefits. Overall, the project will achieve its objective by strengthening capacities at the systemic, organizational, and individual levels, each of which will be targeted to strengthen Egypt's efforts to mainstream global environmental priorities into the national planning and management frameworks thus seeking preserving and conserving the environment.

Therefore, these Guidelines are very much an evolution based on experience, rather than a fundamental replacement. Drawing from the experiences of the last few years, there are several basic reasons as to why this new guidance is needed.

- First, early species planning efforts were largely focused on terrestrial mammals, and more recently there has been a great increase in attention on other taxa, whether plant, animal or fungal. Many species had been overlooked in the past either because of lack of information on them, or ignorance of their conservation status or needs, or because they occupy environments which are more challenging to work in. Therefore, while there are trade-offs and implications, these Guidelines aim to be equally relevant for any taxon on Earth. Recent experience has shown that no two planning situations are the same. So, while the principles of planning may be constant, the purpose of the planning and the circumstances, the information available and its accuracy, and other factors, all combine to make every situation unique. This then demands a planning process that is both rigorous in analysis but flexible in its application.
- Second, these Guidelines, however, do not cover the setting of priorities for species planning. This is because they are a resource for planning; how bodies responsible for species conservation prioritise their efforts to some species and not others is their responsibility.
- Third, a single planning workshop can include local conservationists and experts, technical advisers or academics, local community members and indigenous communities, possessing between them a huge array of expertise, experiences, values and cultural perspectives. The Guidelines are designed and written to be helpful to any and all of such users.

This has shaped the design of the Guidelines. One benefit of this design is that these Guidelines are not seen as a final, polished product that will stand as a model for a period of years. Rather, as experience accumulates and the tools available for species planning evolve, it is expected that the Guidelines will have regular or annual updates through the next few years.

In these Guidelines, we presented a detailed theoretical part explaining the scientific bases of planning and implementation mechanisms, followed by a detailed practical description of a related case studies, especially on the endemic plant species in St. Catherine's Protected Area.

The case studies are listed in a sequential fashion from planning to implementation, including international assessments of the IUCN Red List.

We hope that these guidelines will be useful to researchers and decision makers and provide them with appropriate methods to produce the best effective and vital program to save endangered species in Egypt.

Workshop on
"Education for Resilient Societies"

Environment and Development Forum (EDF)

InterContinental City Stars Cairo, Egypt, September th ,

Introduction

The Arab Water Council is set to convene the Environment & Development Forum (EDF) under the patronage of Egypt's Presidency of Climate Change (COP). The forum will gather national, regional, and international partners, in preparation for the upcoming COP. The forum brings together thought leaders across different sectors and industries in this unique Event highlighting environment and development climate change impacts and solutions including adaptation and mitigation measures in several sectors.

Pre-COP discussions will have a significant impact in supporting the preparation for the Climate Change COP through forming of relevant visions and initiatives and improving collaboration amongst decision makers and environment and sustainable development experts. The forum will focus on developing recommendations for the Sharm El Sheikh COP, highlighting innovation and advancement in environment protection and identifying key challenges facing climate change and the best sustainable development strategies to overcome them.

The interactive Forum will discuss key eight Main Themes and three Cross-cutting Themes, all addressing climate change challenges on most countries' agendas. Research & Development, Policies & Strategies, Green Finance, Knowledge Sharing, Skills & Human Capital Development, Creativity, and Technology innovations are tools and solutions which will be discussed. A Youth and Innovation Stage will provide an opportunity for a platform to demonstrate youth initiatives. Full program available at : https://ed-forum.org/

CB convenes a session on Sep th , : – : entitled **"Education for Resilient Societies"**, in preparation for activities to be convened during the Sharm ElSheikh COP.

Objectives

1. Demonstrate the crucial role of school education in building up the climate resilience potential for societies, in preparation for COP.
2. Share experiences about raising new generations that will adopt the concepts of rational use of natural resources and conservational of assets of nature in order to achieve sustainable development.

Agenda

	Topic	Presenter	Institute	Time min
Egyptian Experience	Education for Resilient Society, WHY?? ***Educational Packages for Teachers***	Prof. Ahmad Wagdy Eng. Samah Saleh	CB project M o Environment	
	Education for Resilient Society, HOW?? ***. Educational System***	Dr. Nawal Shalaby Dr. Hanem Ahmed	Ministry of Education	
	Environmental awareness for societal resilience	Dr. Marwa ElWakil Dr. Reham Abdelhamid	Bibliotheca Alexandrina	
International Organizations				
	Climate change readiness through education	Ms. Kate Maloney	USAID	
	In support of education and sustainability	Ms. Amira Fouad	UNICEF	
Regional Experience				
	Nile schools experience – Cambridge	Dr. Elaria Atef	M o Education	
	STEM school experience – USA	Dr. Aziza Ragab	M o Education	
	Discussions			

(Technical Session) TS11

Education for Resilient Societies

Date:	Monday Sep. 12th
Time:	15:30 - 17:00
Hall:	(El Hambra 1)


Chair/Moderator: **Prof. Ahmad Wagdy**, CB3 Project Manager, Ministry of Environment - Egypt

Rapporteur: **Eng. Samah Saleh,** Head of Sustainability Department & Women's Unit - EEAA

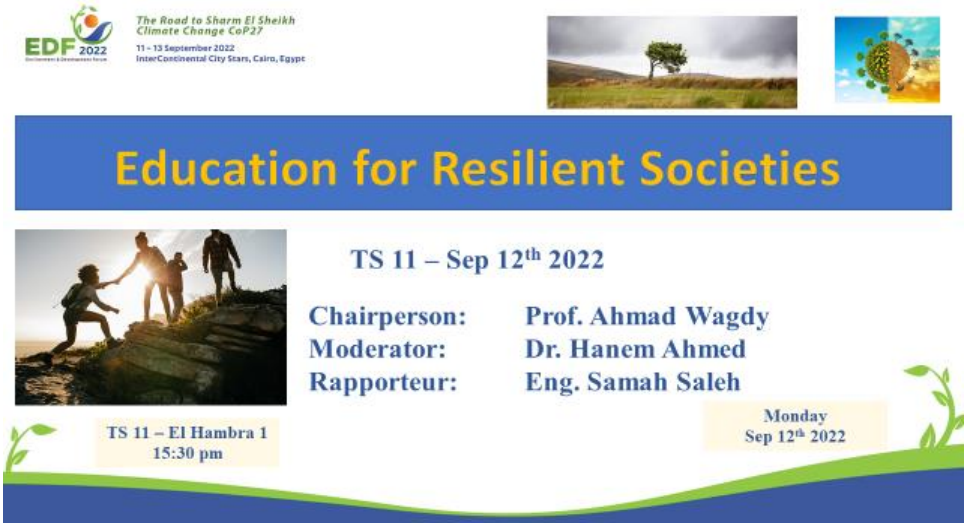
Speakers

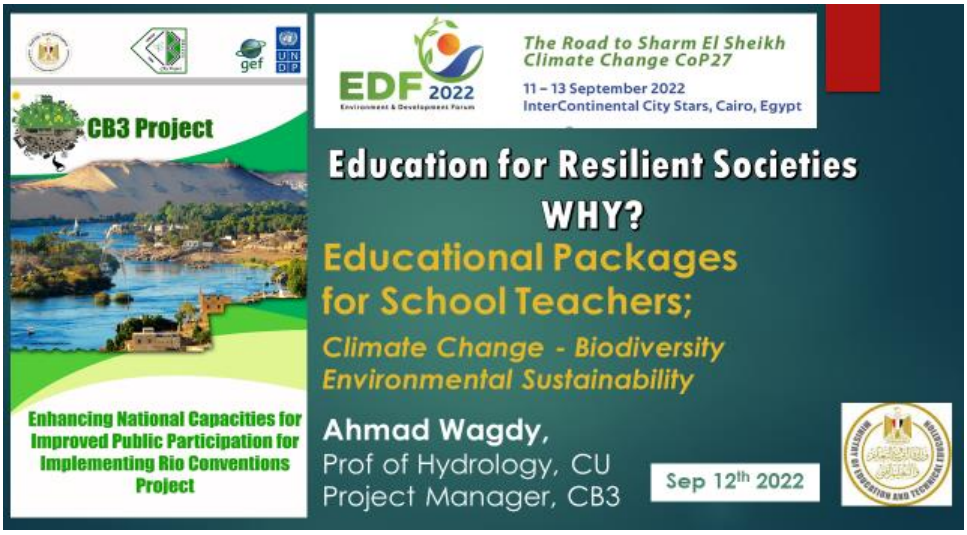
- **Prof. Ahmad Wagdy**, CB3 Project Manager, Ministry of Environment - Egypt
- **Eng. Samah Saleh,** Head of Sustainability Department & Women's Unit - EEAA
- **Dr. Nawal Shalaby,** Director, Carricula Development, Ministry of Education
- **Dr. Hanem Ahmed,** Consultant for Int'l Cooperation, Ministry of Education
- **Dr. Marwa ElWakil,** Bead of Academic Research Sector, Bibliotheca Alexandrina
- **Dr. Reham Abdelhamid,** Head of Academic Research Sector, Bibliotheca Alexandrina
- **Ms. Amira Fouad,** UNICEF
- **Ms. Kate Maloney,** Basic Education Team Leader, USAID
- **Mr. Ahmed Rizkallah,** Senior Education Specialist, USAID
- **Dr. Elaria Atef,** Coordinator, Nile Schools, Ministry of Education
- **Dr. Aziza Ragab,** Coordinator, STEM Schools, Ministry of Education
- **Discussion (Q&A)**

Conclusions, Recommendations and/or Key Messages:

- School teachers are main players / conveyers in the process of raising environmental awareness and climate preparedness within the character of students. Investing in building the environmental capacities of teachers will provide several added values.
- Transfer of climate change basic knowledge and related adaptive and mitigation efforts to students is essential and requires an ***acquired knowhow***. The Ministry of Environment in Egypt, in coordination with the Ministry of Education, are providing significant insight to such knowhow through its late efforts to produce ***educational packages for teachers*** addressing climate change, biodiversity, and environmental sustainability.
- The Egyptian educational systems have been lately significantly improving in providing better environment for better education.
- Attitude change for students towards their environment and societies should be heavily targeted within our educational systems
- International, regional and national educational institutes should join hands to arrive at a unified approach to build climate resilience within our societies. Such approach should be available to everybody

Samples from Presentations





The environment and climate change in the Egyptian curricula

The Role of International Partners and NGOs in Supporting Climate Change National Actions/Efforts

Dr. Hanem Ahmed

Capacity Building Programs

Environmental Awareness & Ecotourism Activates

- Teachers
- Students
- community

EWBF
Environment without Borders Foundation

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Key Areas of Support to MoETE

- Production of a documentary film on MoETE efforts towards raising awareness about environmental issues including climate change to be featured during COP 27

Student's painting/message to the world


USAID
FROM THE AMERICAN PEOPLE
Climate Action through Education
Kate Maloney
September 2022

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OR

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