



Concept Note

Creating Agricultural Carbon Credits for a Sustainable Future in Egypt

by the

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Office of Sponsored Projects

in cooperation with the

Climate & Energy Research Center,

and

SEKEM



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1. Introduction

Egypt's Vision 2030

In February 2016, the Egyptian government launched the “Sustainable Development Strategy (SDS): Egypt’s Vision 2030”; showing commitment towards the implementation of the Sustainable Development Goals (SDGs) in the 2030 Agenda. Egypt’s Vision 2030 reflects the priorities for Egypt in development; aligning with the SDGs in terms of both the content and implementation period.

Agriculture in Egypt

The Egyptian economy relies heavily on the agricultural sector for food (crops, livestock, fish), fiber (i.e., cotton), and other products (i.e., wood). The agricultural sector is a vital pillar of the Egyptian economy, as it contributes up to 14.5% of the GDP. The agricultural sector accounts for an estimated 28% of total jobs, and more than 55% of agriculture-related employment in Upper Egypt.

The agricultural sector in Egypt faces several challenges, one of the most critical challenges being climate change. The risks associated with agriculture and climate change are a result of the strong and complicated relationship between agriculture and the climate system.

According to Egypt’s First Biennial Update Report (BUR), Egypt’s GHG emissions for 2015 totaled **325.6 million Tons of CO₂e**. The Agriculture, Forestry and Other Land Use (AFOLU) sector contributed **14.9%** of national GHG emissions (**48.39 million Tons of CO₂e**) in 2015, where sector emissions resulted from:

- 1) enteric fermentation
- 2) manure management
- 3) field residuals burning
- 4) agriculture soil
- 5) rice cultivation.



The Paris Agreement

On December 12th 2015, 196 parties to the UNFCCC adopted the Paris Agreement, which was considered a major transformation in the trajectory of their economies' development. The agreement set the world on a sustainable development path by establishing a legally binding framework for internationally coordinated efforts between parties to combat climate change threats, aiming at limiting global warming below 2 degrees Celsius above pre-industrial levels; with an ambitious goal to limit the temperature increase to 1.5 degrees above pre-industrial levels (Article 2.1 of Paris Agreement)

The Paris Agreement in Article 4, paragraph 19, states that "All Parties should strive to formulate and communicate long-term low greenhouse gas emission development strategies, mindful of Article 2 taking into account their common but differentiated responsibilities and respective capabilities, in the light of different national circumstances".

The agreement establishes a mechanism to contribute to global GHG emissions mitigation and supports sustainable development for use by parties on a voluntary basis; enabling public and private sector's participation in mitigation of GHG emissions and the use of internationally transferred mitigation outcomes to achieve the NDCs on a voluntary and authorized basis by the participating parties (Article 6 of Paris Agreement).

In 2015, the Paris Agreement was signed by Egypt to show our commitment towards combating climate change, and in 2017, the Paris Agreement has been ratified by the Egyptian Parliament.

In such a context, Egypt's Ministry of Environment (MoE) has announced **Egypt's National Climate Change Strategy 2050**.



2. SEKEM's Contribution to Sustainable Development in Egypt

In 1977, SEKEM started its Initiative on an untouched part of the Egyptian desert (about 170 acres) 60 km northeast of Cairo. Using Biodynamic agricultural methods, desert land was revitalized and a striving agricultural business developed. Over the years, SEKEM became the umbrella of a multifaceted agro-industrial group of companies and NGOs, including different educational institutions and a Medical Center. Today, SEKEM is regarded as a leading social business worldwide.

The 16 **SEKEM Vision Goals for Egypt 2057 (SVGs)** are aligned globally with the Sustainable Development Goals (**SDGs**), and nationally with Egypt's national sustainable development strategy (**Egypt's Vision 2030**). In addition to that, the SVGs align with national development cross-cutting strategies, in particular with **Egypt's National Climate Change Strategy 2050 Goal number 2**: This goal is to build resilience, promote adaptation to climate change and alleviate the negative impact of climate change, and to protect natural resources and ecological systems from climate change, improve adaptation capabilities and promote adaptation methods based on linking efforts **to confront biodiversity loss, climate change, land degradation, deforestation, and developing unusual water resources**. It is also meant to **maintain agricultural lands and improve crop management systems** in addition to protecting fish wealth, maintaining historical and cultural heritage from the negative impact of climate change, and selecting new locations for development communities away from areas most hit by climate change impact.

The main SVGs that are coherent with the Goal number 2 of Egypt's National Climate Change Strategy 2050: SVG 4 (Living Art & Culture), SVG 5 (Biodynamic and Organic Agriculture), SVG 6 (Sustainable Water Management), SVG 8 (Rich & Resilient Biodiversity), SVG 9 (Active Climate Mitigation)



To foster our contribution towards achieving Egypt's development vision towards 2030, SEKEM, in cooperation with the Ministry of Environment (MoE), aims to develop a national framework for emissions reduction and carbon credits from the agricultural sector, aimed to support Egypt to fulfill the commitments of the Paris Agreement on Climate Change and sustainable development.

3. SEKEM's Model for Agricultural Carbon Credits

SEKEM aims to enhance the role of agriculture in facing climate change. The model applies the sustainable agriculture system in Egypt, including all indicators that aim to reduce carbon emissions in agricultural activities, such as sequestering carbon in the soil, the effect of afforestation, the recycling of organic waste for using as a composting and an organic fertilizer, as well as the effect of using renewable energy in irrigation operations.

The model is rooted in SEKEM's pioneering experience in organic farming and combating climate change. Our experience proved that it is possible to reduce 10 to 15 tons of carbon dioxide equivalent (CO₂e) per acre, which were measured in the amounts of carbon sequestered in the soil by the practices of organic agriculture, afforestation, composting and the effect of using solar pumping. This carbon assessment is done according to the Economy of Love Standard.

Economy of Love (EoL) is a certification standard for products that are sustainable, ethical and transparent throughout the supply chain. We believe that through a transparent economic system, responsible consumers and producers can actively protect nature, and ensure that every person across the supply chain is fairly compensated and protected from exploitation. (see Annex)

The validation scope is given as a thorough independent and objective assessment of the EoL including general information (location, year, product, production area, climate), Crop Management (agricultural operations, crop protection, fertilizer use, residue management), Sequestration (land use and management, above ground biomass), Livestock (feed choices, enteric fermentation, N excretion, manure management), Field Energy Use (irrigation, farm machinery, etc), Primary Processing (factory, storage, etc). To ensure that the calculated numbers meet all relevant, applicable Economy of Love criteria, the following key requirements have to be met:



EoL Afforestation & Reforestation Requirements (CDM/CFT)

The EoL Tree Tool is calculating the *Above-ground biomass*, which is the major carbon pool subjected to licensee activity, and the *Below-ground biomass*, which provides for the calculation of trees as follows:

- The methods of CDM will be applied for afforestation activities, for the planting of new trees. [Clean Development Mechanism AR-ACM Afforestation and reforestation](#) of land (IPCC Guidelines) and the [Good Practice Guidance for Land Use, Land-Use Change and Forestry](#) (GPG-LULUCF).
- Already existing trees on licensee farms will be calculated by the assessment of the CFT, The [Cool Farm Tool](#).

EoL Compost Requirements

The Economy of Love Standard is using its EoL Compost Tool to calculate the methane avoidance from the production of biodynamic compost. This tool is built referring to already existing and scientifically proven methods of calculating the avoidance of methane emissions through composting.

- The amount of emission reduction from the composting is calculated with the use of [AMS III.E, version 7. AMS-III.E.](#): "Avoidance of methane production from biomass decay through controlled combustion.
- [AMS-III.F.](#): "Avoidance of methane production from biomass decay through composting".

Cool Farm Tool Assessment

- The Economy of Love Standard is using The [Cool Farm Tool](#) (CFT)
- Farmers cultivating their land according to organic or biodynamic principles are allowed to use the calculated CFT soil results for the first 20 years after their conversion. During this period, soil samples should be collected and analyzed annually, and results should be inserted into the CFT assessment under Soil Organic Matter.



Soil analysis of the licensee's farm

- If the licensee's cultivated land has already reached the conversion of organic agricultural land for over 20 years, the Soil assessment of CFT is not needed. In this case, only soil analysis needs to be submitted in order to determine the carbon sequestration in the soil.

Geospatial Technology Methods for Carbon Stock Assessment

- Geospatial Technology is an emerging field of study that includes the Geographic Information System (GIS), Remote Sensing (RS) and Global Positioning System (GPS).

4. Results of Emission Reduction and Carbon sequestration from Agriculture on the SEKEM Wahat Farm in 2021, as an example

SEKEM's Agricultural Carbon Credits Model has been applied to a large area of land on the SEKEM Wahat Farm in the Bahariya oasis.

- **Land:** 806 acres (\approx 806 feddan)
- **Trees:** 190,000
- **Compost:** 5,770 Ton
- **Carbon Credits:**
 - Achieved Carbon Reductions: **11,930 Ton of CO₂e**
 - Generated Income: **EGP 4,174,690**

Conclusion: Based on the results above, we propose building an integrated mitigation model for reducing GHG emissions from Agriculture in Egypt.

The total irrigated area in Egypt amounts to about **9.4 million acres**, with **280 Thousand acres** of organic farming. We suggest to proceed with implementing the Agricultural Carbon Credits in four different phases:



Phase 1: Organic farms in Egypt- already established (280.000 acres)

Phase 2: Desert Reclamation land (3.3 million acres)

Phase 3: Old Agricultural Land in the Nile delta

Phase 4: Ongoing agricultural reclamation projects (around 3 million acres), including half a million acres in Sinai, 1.5 million acres in the Egyptian countryside, half a million acres (which will rise to 2.2 million acres) in the Dabaa axis project, and 300,000 acres in Toshka.

For Phase 1 we can do the following rough estimation, applying the Agricultural Carbon Credits:

If the concept is applied on the **280,000 acres** of organic farms in Egypt, then:

We achieve a carbon reduction of: **3,180,908 Ton CO₂**

We generate an income of: **EGP 1,325,454,609**



5. The Carbon Market

In order to implement the SEKEM Model of Agricultural Carbon Credits nationally and globally, a carbon market is needed based on international studies and reports. We believe in the high potential in the carbon market globally. We want to build a practical model that could benefit the farmer economically and socially, and help Egypt to achieve its strategic development goals towards 2030.

According to Refinitiv's study published in January 2021: "Carbon Market Year in Review 2020"

- The total value of global carbon markets grew 23 percent in 2020, reaching €238 Billion, based on our assessment of traded volume and carbon prices. This amounts to more than 5 times the volume of the year 2017!
- The European Emissions Trading System (EU ETS) represents nearly 90 percent of the global value and accounts for most of the recorded high global traded volume of 10.7 Gt. In 2020, over 8 billion emission allowances changed hands in the European carbon market, 25 percent more than in 2020.

According to McKinsey's report, the Taskforce on Scaling Voluntary Carbon Markets (TSVCM), sponsored by the Institute of International Finance (IIF) with knowledge support from McKinsey, estimates **that demand for carbon credits could increase by a factor of 15 or more by 2030** and by a **factor of up to 100 by 2050**. Overall, the market for carbon credits could be worth upward of **\$50 billion in 2030**.



Basically, the generated Agricultural Carbon Credits can follow one or more of the following two paths:

- 1) Certified Emission Reductions (CERs)
- 2) Voluntary Emission Reductions (VERs)

1) Certified Emission Reductions (CERs)

CERs can be used for being registered for the Clean Development Mechanism (CDM).

2) Voluntary Emission Reductions (VERs)

Carbon credits being issued as Voluntary Emission Reductions (VERs), could have two different paths to follow:

Governments

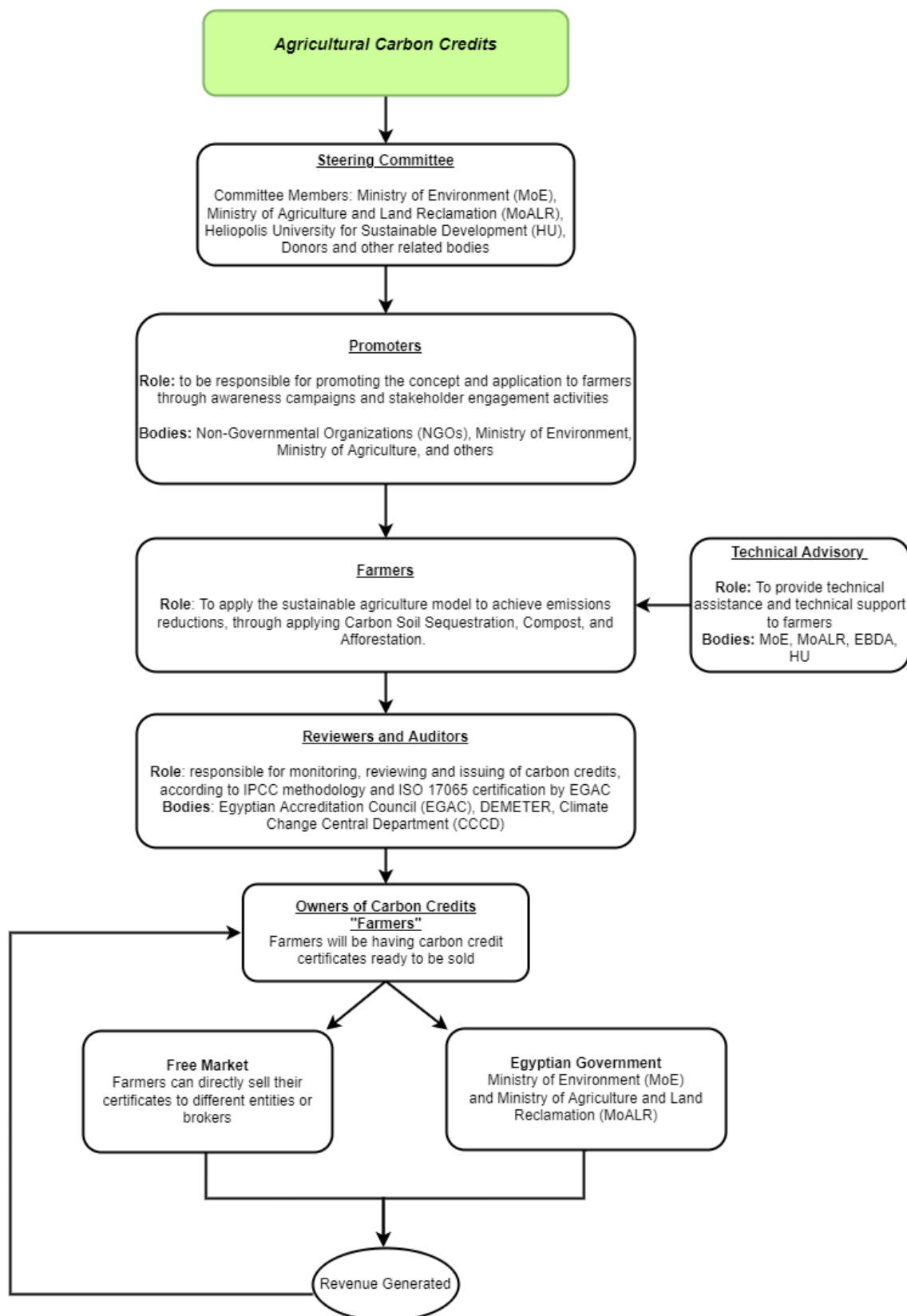
Article 6 in the Paris Agreement covers the ways countries can work together to generate deeper emission reductions and produce more ambitious national climate action plans, called “Nationally Determined Contributions” (NDCs). It includes cross-border compliance carbon markets, described as “ITMOs” (Internationally-Transferred Mitigation Outcomes)

Corporations

There is an increasing need for carbon credits by companies aligning themselves with a Net-Zero agenda: as in less than a year, the number of companies with net-zero pledges doubled, from 500 in 2019 to more than 1,000 in 2020. (According to McKinsey’s 2021 Report) We need a carbon market ready to receive and pay for Agriculture Carbon Credits.

A proposed model for implementing the Agricultural Carbon Credits in Egypt is illustrated on the next page of this concept note.





6. Financing Mechanism for the Proposed Concept:

Financing partners will be responsible for providing funds needed for the planning and implementation of the project activities and capacity building as well.

Green Climate Fund (GCF) and Co-financing partners

Countries interested in investing in mitigation projects for the sake of offsetting their emissions from the reduction achieved to be able to fulfill their commitments like: Switzerland, Germany and Finland.

Other development funding agencies.



7. References

Egypt's First Biennial Update Report (BUR)

<https://unfccc.int/sites/default/files/resource/BUR%20Egypt%20EN.pdf>

Egypt's Vision 2030

https://arabdevelopmentportal.com/sites/default/files/publication/sds_egypt_vision_2030.pdf

Paris Agreement

https://unfccc.int/sites/default/files/english_paris_agreement.pdf

SDGs 2030 Agenda

<https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf>

SEKEM Vision Goals

<https://www.sekem.com/en/index/>

McKinsey's report

<https://www.mckinsey.com/~media/mckinsey/featured%20insights/mckinsey%20global%20surveys/mckinsey-global-surveys-2021-a-year-in-review.pdf>

Refinitiv's study

https://www.refinitiv.com/content/dam/marketing/en_us/documents/reports/data-analytics-in-trading.pdf

The European Emissions Trading System (EU ETS)

https://ec.europa.eu/clima/system/files/2016-12/factsheet_ets_en.pdf

Egypt's National Climate Change Strategy 2050.

<https://www.eea.gov.eg/en-us/mediacenter/newscenter.aspx?articleID=6876>

