الزراعة العضوية وتأثيرها على التغيرات المناخية (إصدار شهادات الكربون)

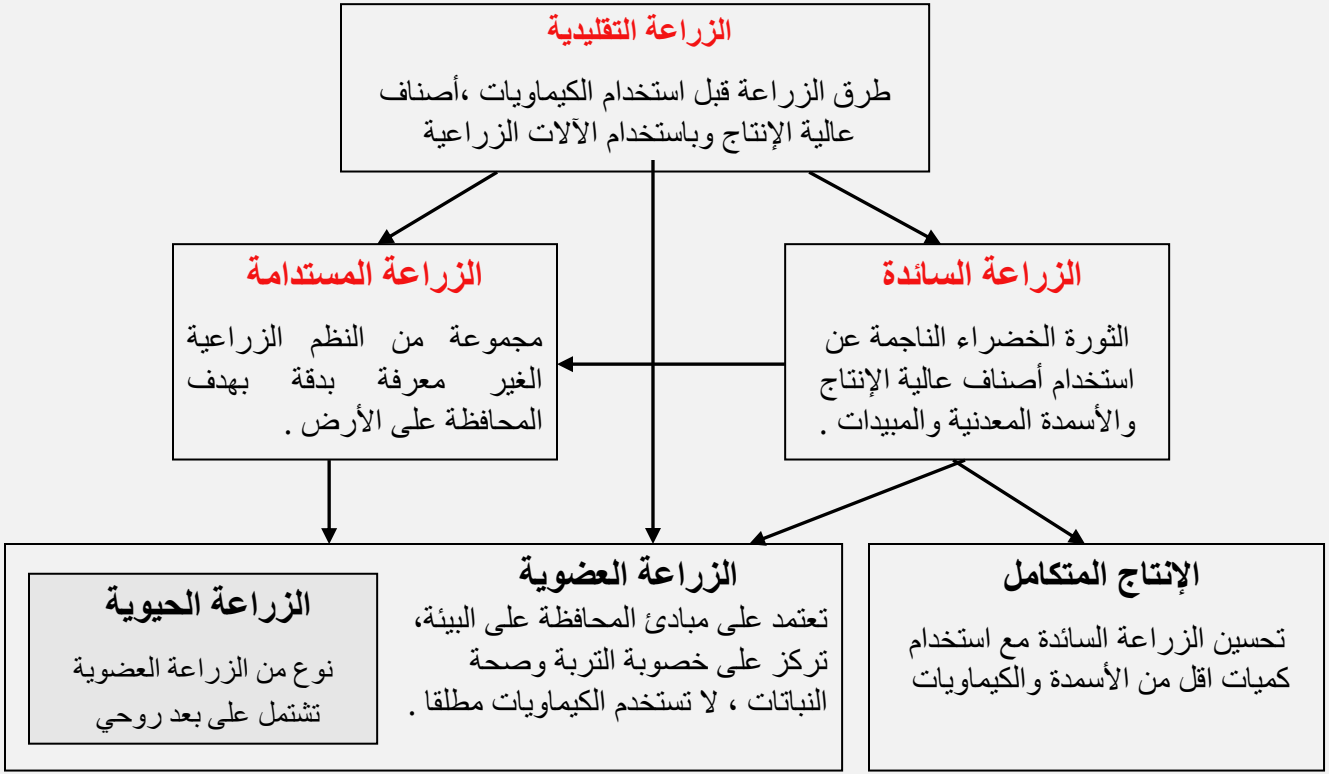
د. رامى محمد رمضان

مدير المركز المصري للزراعة الحيوية **COAE**

COAE
Center of Organic Agriculture in Egypt

demeter

تعريف بعض نظم الزراعة



Masanobu Fukuoka

ماسانبو فوكوكا

•لا حرث ، لا أسمدة ، لا مكافحة للحشائش ، لا للمبيدات

•طريقة لا تفعل شيئا فى الزراعة الطبيعية

•الاستدامة والجدوى الاقتصادية

•استخدام القش ومخلفات المحصول السابق كغطاء للتربة

•استخدام البرسيم الأبيض كغطاء وعلف أخضر .

الكتب: طريقة الزراعة الطبيعية وكتاب ثورة القش

Sir Albert Howard

السير ألبرت هوارد

•العلاقة بين خصوبة التربة وصحة النبات

•أهمية إدارة الدبال

• 25سنة من البحوث فى الهند

•تحسن التقنيات التقليدية

انتاج الكمبوست فى المزرعة

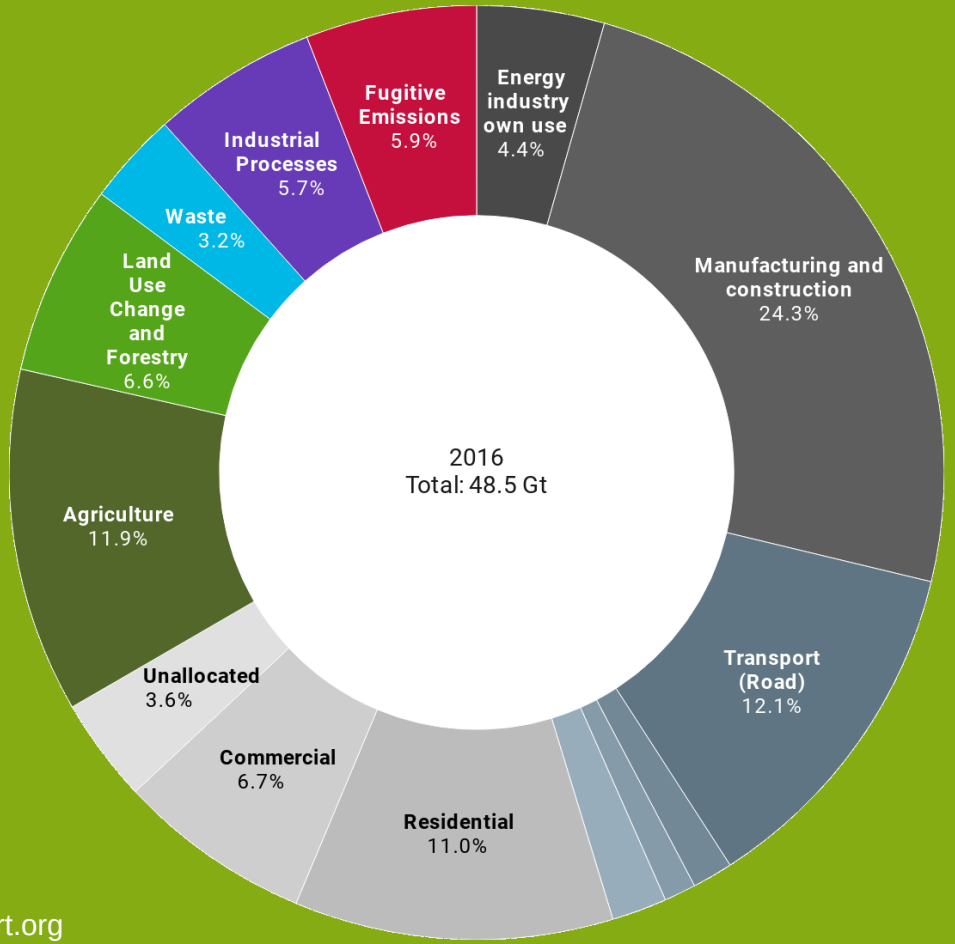
•الآفات والحشائش كمؤشرات

كتب : العهد الجديد للزراعة وكتاب الزراعة والبستنة للصحة أم للمرض

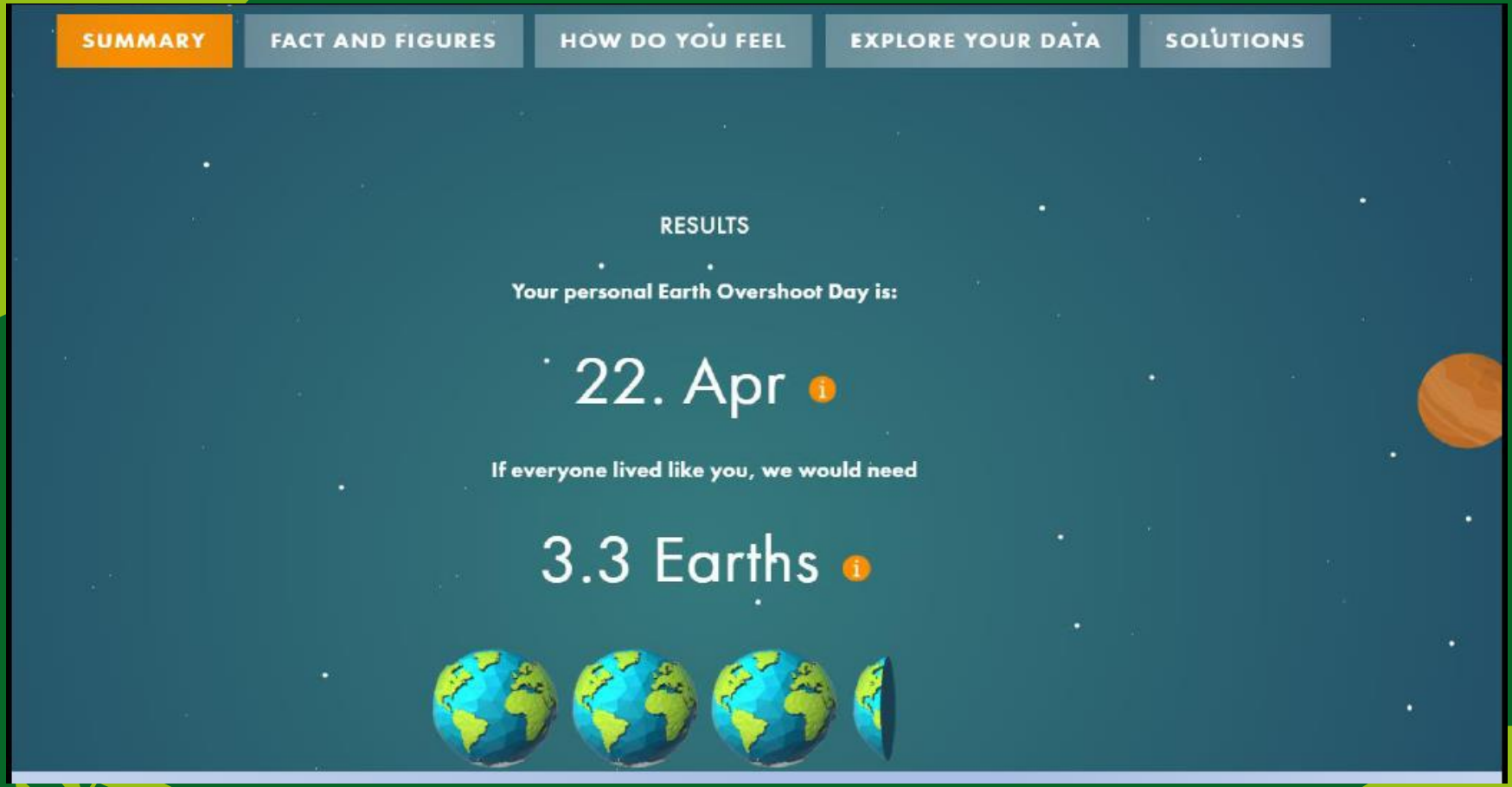

أهداف التنمية المستدامة
١ القضاء على الفقر
٢ القضاء التام على الجوع
٣ الصحة الجيدة والرفاه
٤ التعليم الجيد
٥ المساواة بين الجنسين
٦ المياه النظيفة والنظافة الصحية
٧ طاقة نظيفة وبأسعار معقولة
٨ العمل اللائق ونمو الاقتصاد
٩ الصناعة والابتكار والهياكل الأساسية
١٠ الحدّ من أوجه عدم المساواة
١١ مدن ومجتمعات محلية مستدامة
١٢ الاستهلاك والإنتاج المسؤولان
١٣ العمل المناخي
١٤ الحياة تحت الماء
١٥ الحياة في البرّ
١٦ السلام والعدل والمؤسسات القوية
١٧ عقد الشراكات لتحقيق الأهداف
أهداف التنمية المستدامة

Global Greenhouse Gas Emissions by Sector

- **Energy industry own use** (4.4%)
- **Manufacturing and construction** (24.3%)
- **Transport (Road)** (12.1%)
- **Transport (Int. Shipping)** (1.4%)
- **Transport (Int. Aviation)** (1.1%)
- **Transport (Other)** (1.9%)
- **Residential** (11.0%)
- **Commercial** (6.7%)
- **Unallocated Combustion** (3.6%)
- **Agriculture** (11.9%)
- **Land Use Change and Forestry** (6.6%)
- **Waste** (3.2%)
- **Industrial Processes** (5.7%)
- **Fugitive Emissions** (5.9%)



2016. Global Greenhouse emissions.Chart. Earthchart.org



Source : Ecology Footprint web

- The second biggest category of emissions is the sector that we rely on daily for the food we eat.

Methane from cows and other livestock contribute the most to emissions, at 5.8% total. These foods also have some of the highest carbon footprints, from farm to table.

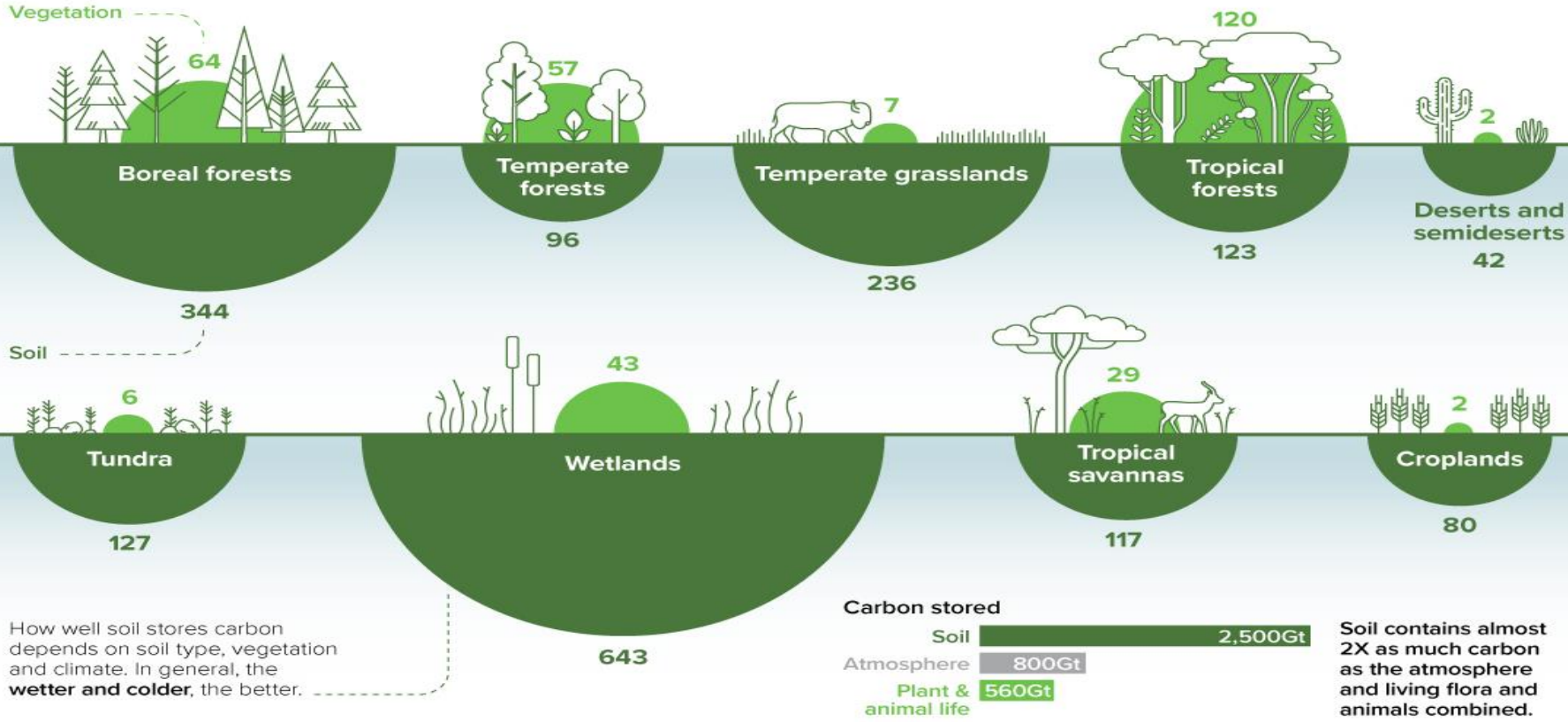
Agriculture, Forestry & Land Use	
Sub-sector	GHG Emissions Share
Livestock & Manure	5.8%
Agricultural Soils	4.1%
Crop Burning	3.5%
Forest Land	2.2%
Cropland	1.4%
Rice Cultivation	1.3%

Carbon Storage

Tonnes of Carbon per Hectare*

The world's forests absorb around **15.6 gigatonnes** of CO_2 each year. That's around 3X the annual CO_2 emissions of the United States.

However, around **8.1 gigatonnes of CO_2 leaks back into the atmosphere** due to deforestation, fires and other disturbances.



How well soil stores carbon depends on soil type, vegetation and climate. In general, the **wetter and colder**, the better.

Carbon stored

Soil	2,500Gt
Atmosphere	800Gt
Plant & animal life	560Gt

Soil contains almost 2X as much carbon as the atmosphere and living flora and animals combined.

*At a ground depth of one meter

Sources: IPCC; NASA

source:
https://www.visualcapitalist.com/

Farm model

The sources of the carbon reduction on farms:
(acc. to IPCC methodology and CDM);

- Trees
- Soil carbon sequestration
- Renewable energy
- Composting

Soil carbon

Soil organic carbon (SOC) stocks through the adoption of improved agricultural practices. Activities can achieve avoidance of emissions as well as sequestration of carbon in the soil

Afforestation

The amount of carbon sequestration depends on the estimated growth rate during the project crediting period.

Composting

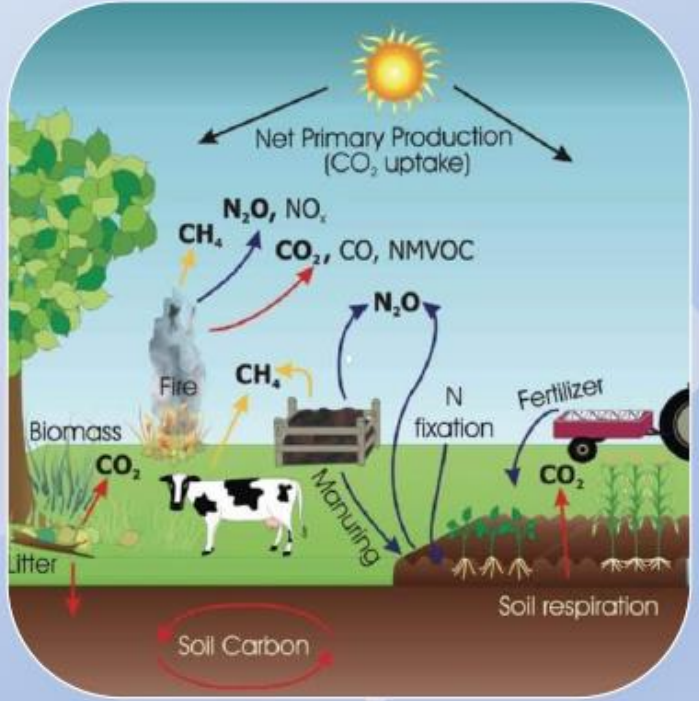
The project activity comprises measures to avoid the production of methane from biomass and other organic matter that would have otherwise been left to decay anaerobically partly in a solid waste disposal site without methane recovery, partly in uncontrolled dumping sites and partly burnt.

Renewable Energy

The baseline emissions are calculated based on the fuel consumption of the technology in use or that would have been used to generate the equivalent quantity of energy in the absence of the project activity

Carbon farming in Egypt

Carbon farming is referring to sequestering and storing carbon and/or reducing greenhouse gas emissions at farm level. It offers significant adaptation and mitigation potential which would deliver co-benefits to farmers and society.



Soil Carbon Sequestration

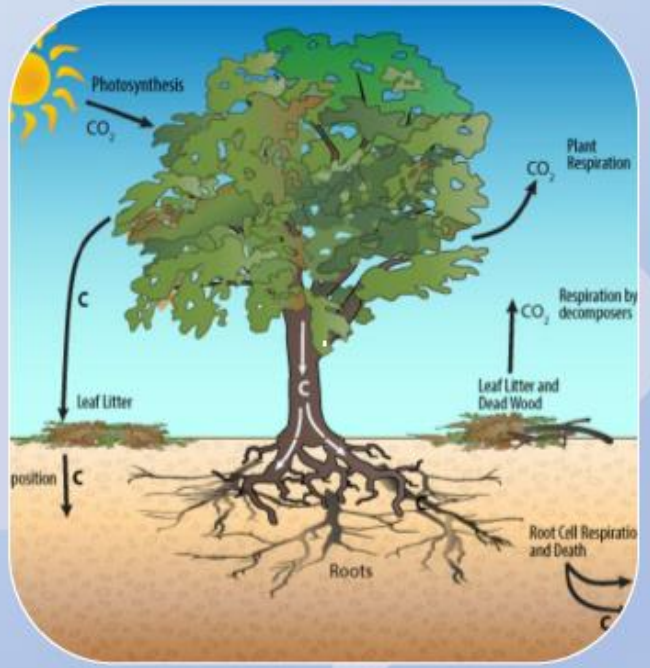
The methodology presents requirements to quantify changes in greenhouse gas (GHG) emissions and soil organic carbon (SOC) stocks through the adoption of improved agricultural practices. Activities can achieve avoidance of emissions as well as sequestration of carbon in the soil, both which result in increased SOC content.

Organic agriculture sequester carbon.(1.6 tco2e/fd)

Carbon Sequestration per tree

Forests sequester carbon by capturing carbon dioxide from the atmosphere and transforming it into biomass through photosynthesis.

Sequestered carbon is then accumulated steam, branches and wood (33kgco2/tree)



Avoidance of methane in composting

The project activity comprises measures to avoid the production of methane from biomass and other organic matter that would have otherwise been left to decay anaerobically partly in a solid waste disposal site without methane recovery, partly in uncontrolled dumping sites and partly burnt.

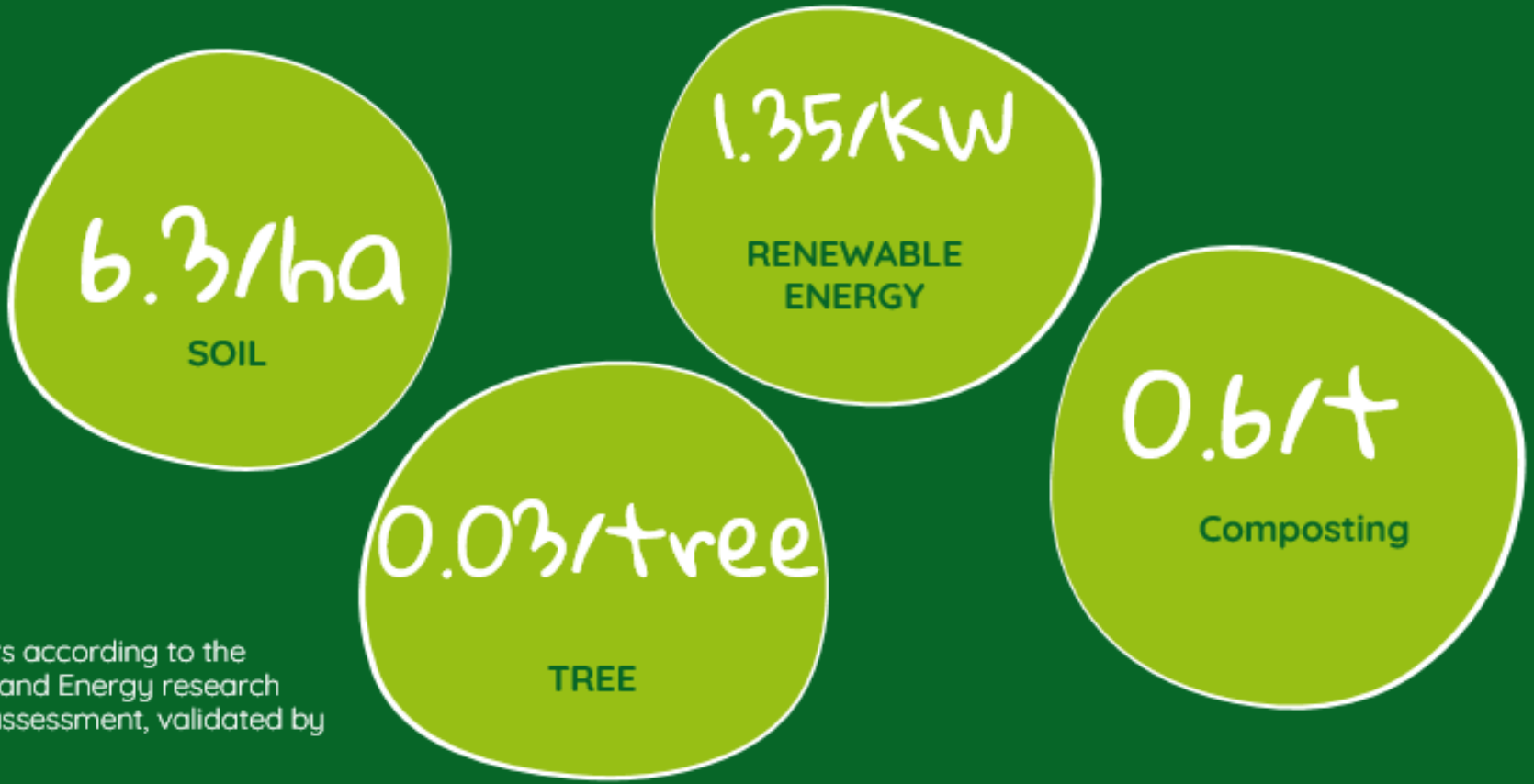
One ton compost saving carbon(0.6 tco2e/fd)

Saving carbon in renewable energy

The baseline emissions are calculated based on the fuel consumption of the technology in use or that would have been used to generate the equivalent quantity of energy in the absence of the project activity.

Carbon saving(1.35 tco2e/kw)

Carbon Saving Tons co2e



*numbers according to the Climate and Energy research Center assessment, validated by COAE

Farm xx 2021

Soil

1200 ha, 336 ha has been reclaimed

trees

190k trees have been planted

Renewable energy

1.3 MW has been installed

composting

5.8k tons compost have been used

	xx Farm Saved carbon 2021	
	Amount	carbon saving (tco2e)
Soils	336 ha	2.14k CC
Trees	190k tree	6.3k CC
Composting	5.8k tons	3.5k CC
RE	1.3 MW	1.7 k CC (Included in Soil)
Total		11.93 k CC

* CC: Carbon Credit: offsetting one tons co2e

Small Farm Model

02

Example for one farm with a total area 2 ha in Egypt.

	Small farm model			
	Amount	carbon saving (tco2e)	Impact of CC (Euro)	Impact of CC (EGP)
Soils	2 ha	8 CC	160 €	2,800 EGP
Trees	600 tree	18 CC	360 €	6,300 EGP
Composting	30 tons	18 CC	360 €	6,300 EGP
RE	5 KW	5 CC (Included in Soil)		
Total		44 CC	880 €	15,400 EGP

* CC: Carbon Credit: offsetting one tons co2e

Implementation Process

01

Investment

Farmers need financial support

02

consulting

Carbon footprint assessment

03

certification

Validation certification body

04

marketing

Developing carbon market

Expected Results

	Farms	Acres	carbon saving (tco2e)	EGP
Phase 1	Organic	280,000	3,180,908	1,325,454,609
Phase 2	Desert	3,300,000	37,488,000	15,632,496,000
Phase 3	Delta	5,800,000	65,888,000	27,455,845,472
Phase 4	Ongoing	3,000,000	34,080,000	14,201,299,382
	Total	9,380,000	106,556,800	44,402,729,402

* total without ongoing farm

Agricultural Carbon Market in Egypt

Steering Committee

Promoters

Role: To be responsible for promoting the concept and applications to farmers through awareness campaigns and stakeholders engagement activities

Farmers

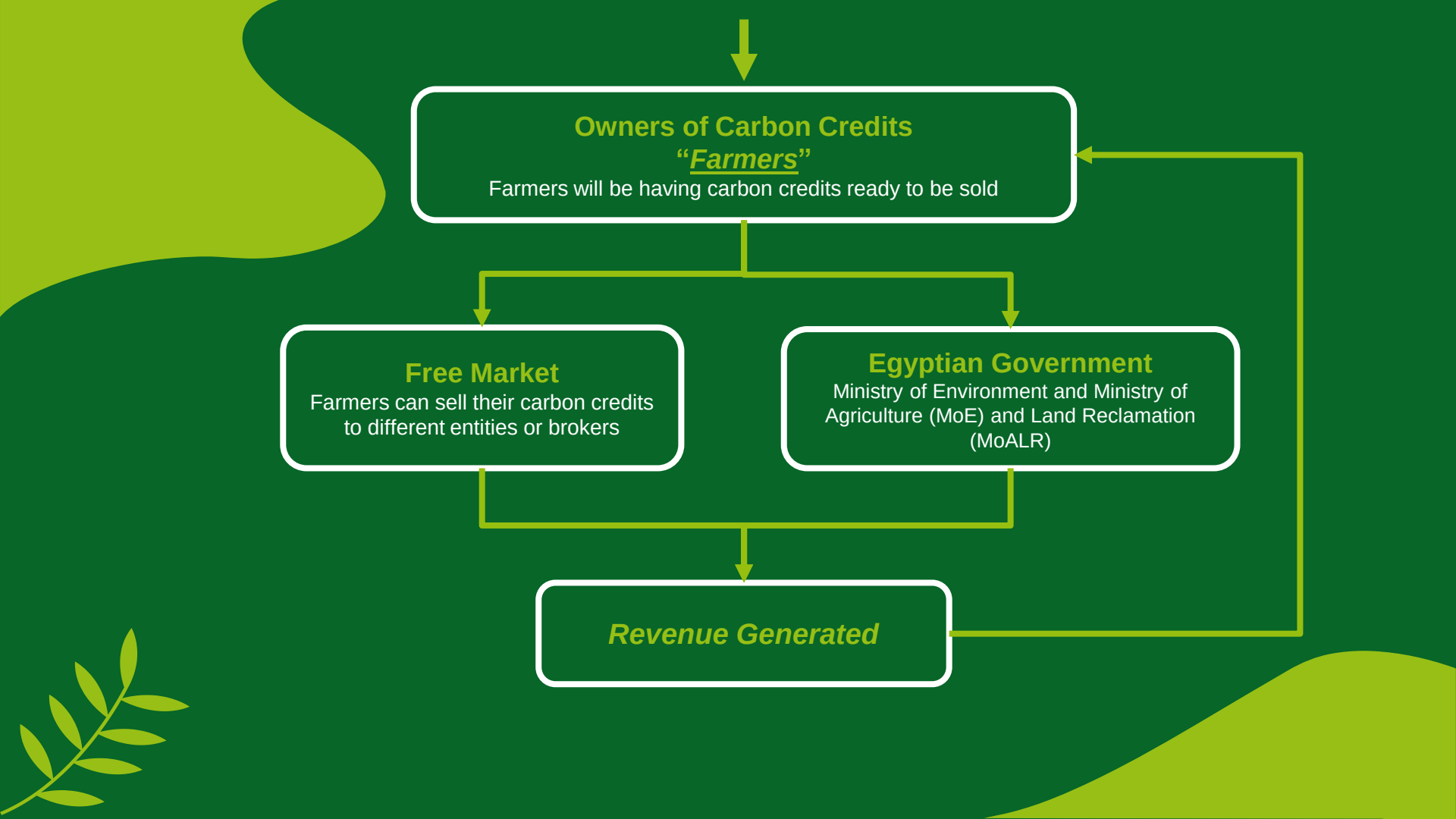
Role: to apply the sustainable agricultural model to achieve emissions reductions, through applying Carbon Soil Sequestrations, Compost and Afforestation

Technical Advisory

Role: to provide technical assistance and technical support to farmers

Reviewers and Auditors

Role: to monitor, review and issue carbon credits, according to IPCC methodology and ISO 17065 certification by EGAC


Owners of Carbon Credits
"Farmers"
Farmers will be having carbon credits ready to be sold
Free Market
Farmers can sell their carbon credits to different entities or brokers
Egyptian Government
Ministry of Environment and Ministry of Agriculture (MoE) and Land Reclamation (MoALR)
Revenue Generated

ECONOMY OF LOVE

CARBON CREDITS

CULTURE SOCIETY ECOLOGY ECONOMY

UNDERLYING METHODOLOGY

IPCC principles and guidelines
Methodology of IPCC and Cool Farm Tool for assessment of the farm crop rotation with the carbon sequestration in soil and trees

PROJECT NAME
Greening the Desert

CERTIFICATE NUMBER

PROJECT REFERENCE NUMBER
GTD 2209

The Carbon Footprint Center certifies that:

Clima4Future GmbH

neutralized

1

tons of CO_2 emissions by supporting the certified COAE project "[redacted] Desert project" in [redacted] Egypt.

Inspected by:

COAE
Center of Organic Agriculture in Egypt

Carbon Footprint Center Director
Tlhoraya Seada

CFC
CARBON FOOTPRINT CENTER

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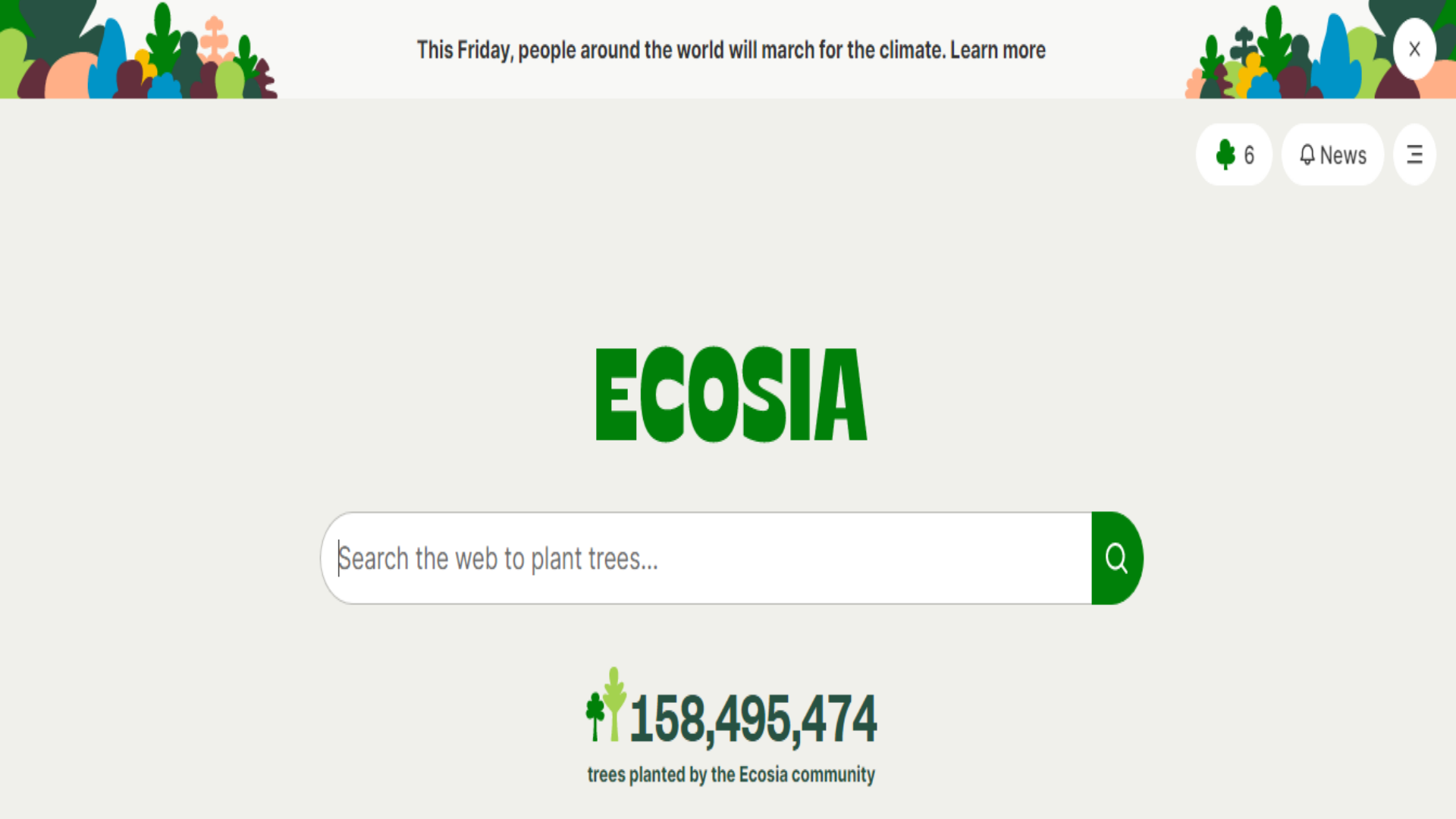
This Friday, people around the world will march for the climate. Learn more
6
News
ECOSIA
Search the web to plant trees...
158,495,474
trees planted by the Ecosia community

Thank You!