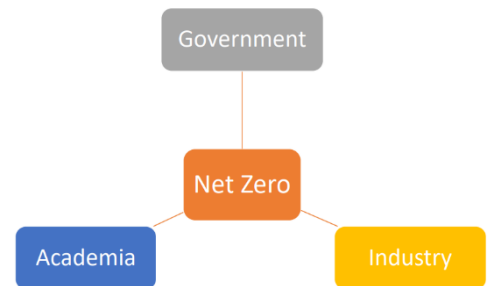




A Road Map

Towards Net Zero Emissions through Synergy Between Academia, Government and Industry

- Roadmap Towards Net Zero Emissions
- Alexandria University Climate Change Strategy Map
- Alexandria University Climate Change Projects
 - Green Hydrogen
 - Electric Vehicles
 - Alexandria Water and Energy Services Company (AWESCO)
 - Suez Canal Impact on Shipping Emissions
 - Egypt as an International Energy Hub and Enhancing its Energy Mix
 - Egypt as a World Hub for Electronics Design and Manufacturing
 - Coastal Protection and Flood Management for Alexandria Governorate
 - Alexandria Sustainable Development Center of Excellence (ASD)
 - Alexandria Center for Greener Blue Economy



ALEXANDRIA UNIVERSITY COP27 STRATEGY MAP



Activity 1 SCOPE2

Alexandria University is working with its partners from Academia and industry to transform Kima Fertilizer company to a green company for the production of Ammonia. The hydro power plant technology

Activity 2

Alexandria University is working with its partners from Academia and government and private sectors to develop a powertrain control system to support group transportation buses.

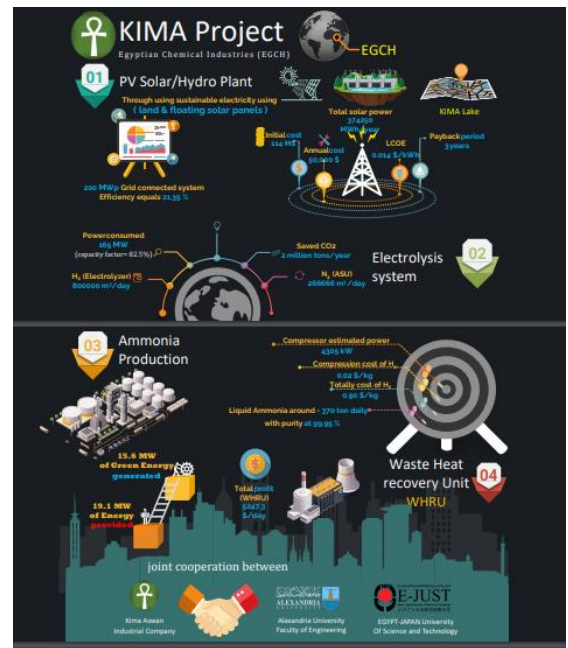
DECARBONIZATION OF THE FERTILIZER INDUSTRY EGYPTIAN CHEMICAL INDUSTRIES - KIMA

- Hybrid renewable energy production from solar power/hydro power.
- Green hydrogen production by water electrolysis.
- Pressurized tank design for green hydrogen storage.
- Green ammonia production from green hydrogen.



Industrial and Academic Partners

Featured In



AN ELECTRIC POWERTRAIN FOR CITY BUS TRANSPORT VEHICLES

- The goal of the project is to develop a configurable powertrain control system that can support different categories of transportation buses.
- The developed powertrain will be used to convert a 12m bus into a fully electric bus.
- The project is sponsored through ITIDA – Ministry of Communications (5 million EGP).
- Project delivery date is February 2023.

Sponsor

Industrial and Academic Partners

Activity 3 SCOPE1

Establishment of an Energy service company owned by Alexandria University to operate in the field of energy and water resources. The company will include members from stakeholders who contribute to the high energy consumption. The main objective of the company is to reduce the carbon footprint and implementing the concept of Energy performance contracting

Mission & Vision

- ✓ To make Egypt's Built Environment & Industry a leading example of Energy Efficiency
- ✓ Help Alexandria to be a Green & Sustainable City
- ✓ Lower the carbon footprint of the Region
- ✓ Introduce and implement the concept of Energy Performance Contracting



Blower Door Model



Combustion Analyzer



Duct Blaster System



Thermal Infrared Camera

Energy Audit Team

Project outlines

Alexandria University is planning to establish an "ESCO" Energy Service Company to operate in the fields of Energy and Water Resources under law 23 y2018

The company will be owned by Alexandria University with members of the board from several reputable stakeholders

Simply define the current energy profile for buildings or industrial activities, propose energy retrofitting techniques with acceptable payback times.


These studies will be used to convince funding agencies to fund the proposed optimization strategies in order to reduce overall energy consumption and carbon footprint and will be paid back by energy savings from utility bills over the time indicated by the study. AWECO will act as the third party for all Energy contracting practices.

Activity 4 SCOPE2



Alexandria University work collaboratively with the Suez Canal Maritime transport to reduce the impact of Suez Canal due to carbon emissions. The main goal of the project is to reduce the emissions nationally and globally.

SUEZ CANAL IMPACT ON THE REDUCTION OF SHIPPING EMISSIONS

- Maritime transport is the backbone of international trade and the global economy.
- Over 80% of the volume of international trade in goods is carried by sea (UNCTAD, 2018).
- Suez Canal is a strategic nexus for global supply chains and among the world's most significant trade chokepoints.
- 18,880 vessels passed via SC in 2019 with a total deadweight of about 1 billion tons.
- That represents about 10% of the world's trade volume passed via SC.
- The distance saved reached about 10,000 miles (18,000 Km) on certain voyages which contributes to immense fuel and emission savings, in addition to the contribution to the global economy.



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Activity 5: Energy Hub SCOPE1

Alexandria University is working nationally to establishing Egypt as an international energy hub to secure energy from multiple sources. The main aim is to reduce emissions and logistics of energy transportation.

EGYPT AS AN INTERNATIONAL ENERGY HUB AND ENHANCING ITS ENERGY MIX

International Energy Hub

- › Establishing Egypt as an international energy hub between the current producers in Asia and the industrialized countries in Europe to reduce the costs, emissions and the logistics of energy transportation.
- › Securing energy for Egypt from multiple sources.
- › Trade income.
- › Increased ship movement with possible addition of services
- › Effective utilization of Egypt LNG resources (2 plants)

Enhancing Egyptian Energy Mix

- The future energy strategy should be based on a balanced energy mix of all sources of energy.
- Innovation and Investment into reducing the harmful emissions from fossil fuels to make them cleaner.
- Efficiency of existing energy systems should be increased by a combination of technological solutions, improvement of building codes and implementation of regulations and effective audits

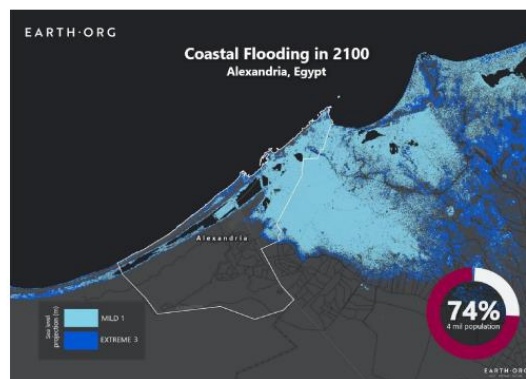
Activity 6 Coastal Hazards SCOPE3

A Road Map for

1)creating a reliable risk assessment map for

Alexandria that involves identifying the study area along the coastline of Alexandria, 2)Providing the local authorities and policy makers with updated data for the vulnerable areas subjected to flooding. 3) Accurate prediction and enabling readiness facing sea-level-rise under extreme events. 4) Increase the public awareness of the sea-level-rise and extreme events. 5) Preparing a hydrodynamic model resulting in selection of the appropriate needed coastal and shoreline protection structures. 6) Use of permeable pavement to reduce the risk of flood in a pilot area in Alexandria

CLIMATE CHANGE AND ITS EFFECT ON ALEXANDRIA DUE TO SEA LEVEL RISE



- Several studies conducted regarding the vulnerability of Alexandria Governorate, indicated that in the event of a rise in sea level of half a meter, it is expected that 30% of the city will be inundated, which will lead to displacement of nearly 1.5 million people or more, 195,000 jobs will be lost, and land and property losses estimated to be \$30 trillion.
- Results of 0.5m SLR scenario in Alexandria predicted losses of 45% of recreational areas, 13% of residential area, 12% of industrial area, 30 % of the services, and 21% of tourism attractions, if no precautionary actions are taken.

Activity 7. SCOPE3 Building Materials, Construction, Infra Structure, Industry, Energy & Resources

Aims to : Provide a hub to cooperate with relevant industry, & research entities to provide access & dissemination

of needed knowledge & practices & adaptation of appropriate technologies.

o Partner with government, industry to help overcome resourcing challenges, towards greener technologies & sustainable strategies.

Stakeholders: Manufacturing companies of cement, concrete, steel, ceramics, bricks, asphalt; petro-chemicals, fertilizers, gases, textiles, paper...etc. o Building & construction sector. o Transportation & energy sectors. o Ministries, government agencies & code development entities

Activity 8 SCOPE3: Alexandria centre for greener blue economy

ALEXANDRIA SUSTAINABLE DEVELOPMENT CENTER OF EXCELLENCE (ASD)
Green Campus – Alexandria University



SOLE
High Energy efficiency for the public stock Buildings in Mediterranean



Project funded by the EUROPEAN UNION

Industrial and Academic Partners







Establishment of a 200 kW solar power plant in the Faculty of Engineering – Alexandria University

ALEXANDRIA CENTER FOR A GREENER BLUE ECONOMY

THE BLUE ECONOMY



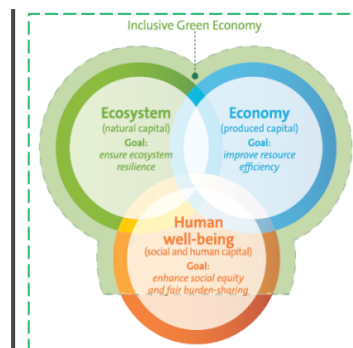
Blue Economy - Definition

Sustainable use of ocean, sea and river resources for:

- o Economic growth.
- o Improved livelihoods.
- o Job creation.
- o Mitigation of the impacts of climate change.
- o Meeting the food needs of a growing global population.

Blue Economy - Challenges

- o Frequent flooding.
- o Marine pollution.
- o Lack of trained personnel.
- o Over-exhaustion of resources.
- o Lack of regional cooperation.



Green Economy - Definition

Low carbon, resource efficient and socially inclusive economy in which growth is driven by investment in:

- o Infrastructure and assets that allow reduced carbon emissions and pollution.
- o Enhanced energy efficiency.
- o Prevention of the loss of biodiversity and ecosystem services.

Blue Economy vs Green Economy

- o Green economy tends to focus on sectors of energy and transport, while blue economy tends to focus on marine and coastal resources.
- o Both incorporate climate change mitigation and adaptation strategies.
- o Regional cooperation in implementation of both types of economies would lead to prosperity growth for all countries involved while preserving their resources.

Vision

Towards a greener blue economy for the benefit of the citizens of all Mediterranean countries

Mission and Goals

- o Conduct studies about the challenges of merging green economy requirements into blue economy applications.
- o Offer solutions to assist in the development and sustainability of resources that comply with standards of efficiency, effectiveness and prosperity.
- o Achieve just distribution of wealth among successive generations of our region.
- o Formulate strategies to mitigate and adapt to the negative effects of climate change and reduce the emission of greenhouse gases.
- o Incorporate cultural, civilizational and social aspects within the sustainable blue economy strategies.

Center Services

Research	Training	Consultation
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- o Ten scholarships offered by Alexandria University to graduate students from the Mediterranean Region.
- o Scholarships to be also offered by partner Euro-Mediterranean Universities.
- o Strategic partnership with ASCAME and scholarship offering with scheduled start date of Spring 2023.

Strategic Partners

