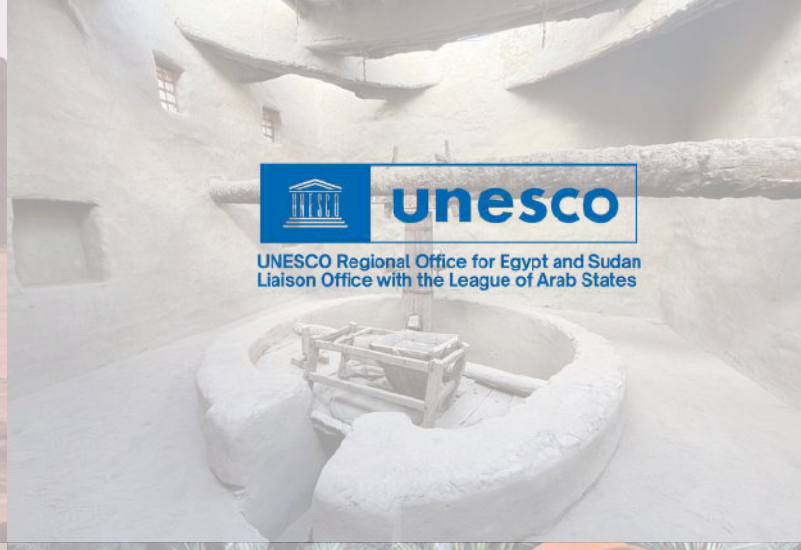

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Liaison Office with the League of Arab States

Water • Energy • Food • Environment • Culture

The WEFEC Trail in Motion Competition Report

Operationalizing Biocultural Heritage through Youth Innovation for Oases in Egypt

Foreword

Egypt's landscapes are not merely passive backdrops for economic activity; they are living archives of human ingenuity. For millennia, communities in the Nile Valley and the Oases have thrived by mastering a delicate equilibrium between water, soil, and society. They developed sophisticated traditional ecological knowledge (TEK) systems—from the manawir water tunnels to cooperative land management—that allowed life to flourish in hyper-arid environments.

Today, however, we face a convergence of crises. Climate change, population growth, and resource scarcity are straining these ancient systems to their breaking point. Yet, a more subtle danger exists: the erosion of the cultural knowledge that once ensured resilience. When we treat agriculture solely as an industrial output, or water management purely as hydraulic engineering, we lose the social and cultural fabric that makes these systems sustainable.

The WEFE Trail in Motion initiative was conceived as a direct response to this challenge. It is an operational experiment in bridging the gap between the sciences and the humanities. We asked a critical question: Can we empower a new generation of digital-native innovators to look back at their heritage not with nostalgia, but with a scientific eye, finding in it the keys to future resilience? We challenged Egypt's youth to adopt the Water-Energy-Food-Ecosystems (WEFE) Nexus, but with a non-negotiable addition: Culture. We demanded solutions that are scientifically rigorous yet deeply rooted in the local context.

The response detailed in these pages is a testament to the untapped potential of Egypt's youth. We witnessed engineers thinking like anthropologists, and scientists designing for social inclusion. This report documents their journey, their innovations, and UNESCO's commitment to nurturing these young custodians of Egypt's sustainable future.

Dr. Nuria Sanz
Director,
UNESCO Regional Office for Egypt and Sudan /
Liaison Office League of Arab States

Contents

Executive Summary

The Initiative at a Glance

The WEFE Trail in Motion initiative successfully fulfilled its mandate to activate Egypt's youth in developing integrated, system-level solutions for the nation's critical sustainability challenges. Organized by the UNESCO Regional Office for Egypt and Sudan, the project transitioned from a broad national call to a rigorous technical incubator.

Strategic Mobilization & Outreach

The initiative launched with a targeted campaign to bridge the gap between academic theory and on-the-ground application. By leveraging the networks of the Supreme Council of Universities and partnering with youth-led platforms like EUJEEL, we achieved national coverage.

- 140 Teams formally applied to the competition.
- 380 Interdisciplinary Innovators participated, representing a diverse mix of engineers, agriculturalists, and social scientists.
- Significant Female Leadership was observed, with women leading a majority of the winning and high-potential teams.

Capacity Building & Knowledge Transfer

Moving beyond a traditional competition model, UNESCO prioritized education. A specialized webinar, "WEFE+C In-Depth," was conducted for over 250 attendees. This session provided critical training on the nexus framework, financial viability for sustainability projects, and the integration of cultural heritage into technical design.

Rigorous Scientific Evaluation

A multi-stage vetting process ensured the highest scientific standards. This culminated in a two-day Final Evaluation Session at the UNESCO Cairo Office on August 28-29, 2025. Nineteen finalist teams defended their proposals before a multidisciplinary expert jury representing the five pillars of the nexus.

Outcomes & The Way Forward

Three winning projects—targeting Siwa, Fayoum, and Kharga—were awarded seed funding and have entered a 6-week intensive mentorship program. This phase is designed to transform their prototypes into fundable Project Documents (ProDocs) for pilot implementation, with the ultimate goal of showcasing mature, field-tested solutions at Cairo Water Week

The Framework (WEFE+C)

Redefining the Nexus: The "C" Factor

Egypt faces a complex web of resource challenges where water scarcity limits food production, desalination demands high energy inputs, and agricultural expansion threatens fragile ecosystems. The Water-Energy-Food-Ecosystems (WEFE) Nexus has long been the scientific standard for managing these trade-offs. However, technical solutions often fail when deployed in local communities because they ignore the human dimension.

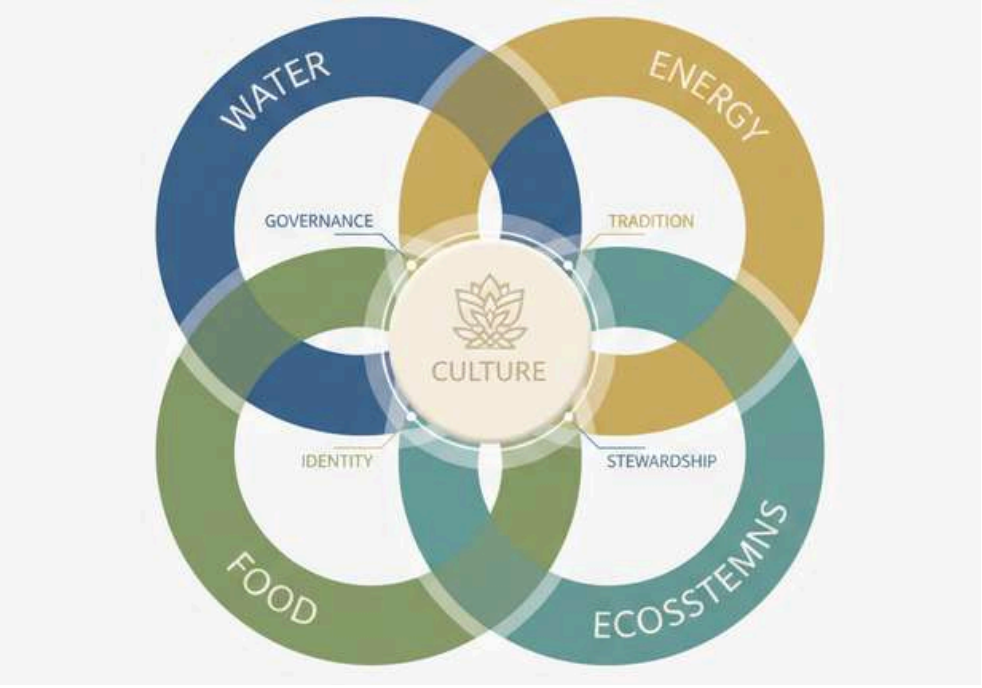
The Paradigm Shift: Adding Culture (+C)

The WEFE Trail in Motion introduced a novel framework by explicitly positioning Culture as the central, integrating pillar of sustainability.

1. **Culture as Knowledge (Heritage):**
We challenged participants to view Egypt's heritage not as a museum artifact, but as a database of adaptation strategies. Traditional practices—such as the khettara irrigation tunnels or passive cooling architecture—offer low-carbon, high-efficiency solutions that have stood the test of time.

2. **Culture as Governance (Society):**
Sustainable resource management requires social acceptance. A technical intervention must align with local land tenure systems, customary laws, and community values. By integrating culture, we ensure that solutions are owned by the community, not imposed upon them.

3. **Culture as Identity (Resilience):**
Linking environmental stewardship to cultural identity fosters a deeper sense of responsibility. When a community views a landscape as part of their heritage, they are more likely to protect it.
In this competition, no project was deemed "innovative" unless it demonstrated this cultural resonance.



The Living Laboratories

Targeting "Living Laboratories": Egypt's Oases

The competition directed youth innovation toward Egypt's iconic oases. These regions were selected as "Living Laboratories" because they function as closed-loop systems where the pressures of the WEFE nexus are most acute and visible.

📍 **Siwa Oasis: The Salinity Crisis**

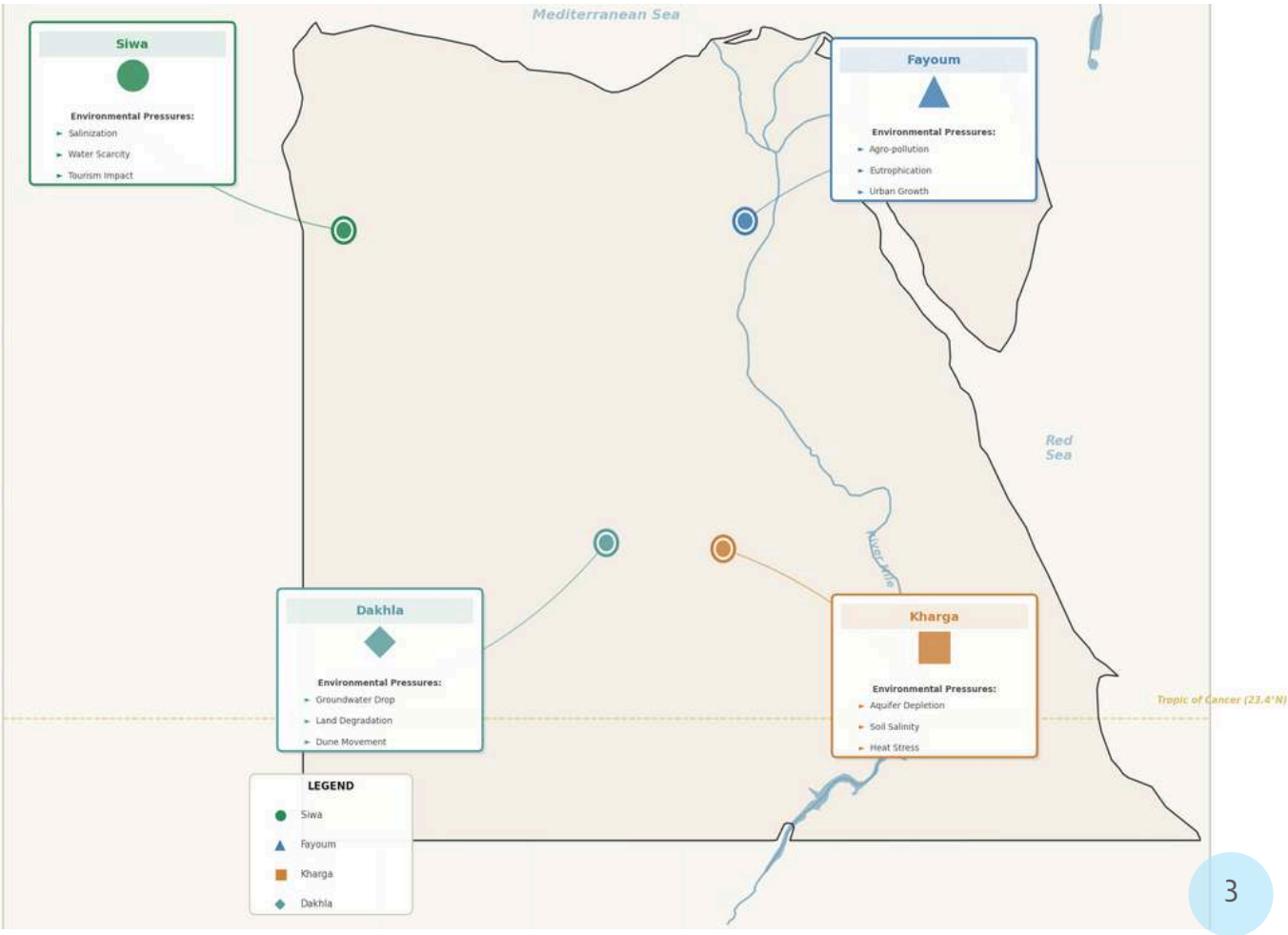
- **The Context:** A depression rich in history but threatened by rising groundwater levels due to uncontrolled drainage.
- **The Nexus Challenge:** Excess agricultural drainage water is increasing soil salinity, threatening the famed olive and date crops (Food), destabilizing ancient mud-brick heritage sites like Shali (Culture), and altering local biodiversity (Ecosystems).

📍 **Fayoum (Lake Qarun): The Pollution Trap**

- **The Context:** A unique agricultural basin that drains into a closed saline lake.
- **The Nexus Challenge:** Agricultural and municipal runoff creates severe pollution in Lake Qarun, destroying historic fisheries (Food/Economy) and degrading a critical bird migration habitat (Ecosystems). The region requires energy-efficient water treatment solutions (Water/Energy).

📍 **Kharga & Dakhla Oases: The Scarcity Frontier**

- **The Context:** Deep desert oases relying on fossil groundwater.
- **The Nexus Challenge:** Heavy reliance on diesel pumps for deep well extraction drives up costs and carbon emissions (Energy). Rapid aquifer depletion threatens the very existence of agriculture (Water/Food), requiring a return to traditional, community-managed rationing systems (Culture).




MADKOUR
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ENROLL IN COMPETITION
WEFE TRAIL IN MOTION
INSPIRING TOMORROW'S LEADERS TO PROTECT EGYPT'S OASES
THE BEST MENTORSHIP TO ACCOMPANY YOUR PILOT PROJECT
THREE AWARDS TOTALING USD 20,000
Join UNESCO & MADKOUR Group to design sustainable solutions connecting Water, Energy, Food, and Ecosystems in Egypt's vital oases. Blend modern tech with cultural heritage to tackle challenges like water scarcity, energy gaps, and food security!
SUBMIT: A 2-MINUTE VIDEO + 1-PAGE PROPOSAL
SUBMISSION DEADLINE: June 15th, 2025
FILL THE APPLICATION FORM

ENROLL IN OUR WEFE COMPETITION

JOIN OUR TRAIL IN MOTION!

WHAT IS WEFE?

WEFE = Water, Energy, Food, Ecosystems.
This competition challenges you to design solutions that connect all four pillars while protecting **Egypt's cultural heritage.** Think solar-powered irrigation, biogas from farm waste, or drought-resistant crops rooted in traditional practices.

THE CHALLENGE

📍 **Focus Locations:**
Siwa, Fayoum, Dakhla, Kharga – Egypt's most vulnerable oases.

🌍 Solve These Issues:

- **Water Scarcity** (Nile dependency, desertification)
- **Energy Gaps** (Solar/biogas solutions for farms)
- **Food Insecurity** (Soil health, post-harvest losses)
- **Ecosystem Collapse** (Biodiversity, wetlands)
- **Cultural Disconnect** (Blend tradition + tech)

WHY JOIN?

Win: $20,000 seed funding + mentorship + pilot your project!

HOW TO APPLY:

SUBMIT: A 2-MINUTE VIDEO 📽️+ 1-PAGE PROPOSAL 📄.
SHOW: HOW YOUR IDEA CONNECTS WATER, ENERGY, FOOD, ECOSYSTEMS, AND CULTURE.
DEADLINE: JUNE, 15TH, 2025

STEP 1: JOIN INFO SESSION APRIL 16, 11 AM

STEP 2: FILL APPLICATION

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SOLVE EGYPT'S MOST PRESSING CHALLENGES

CONTACT, JOIN & APPLY:
A.SAKNA@UNESCO.ORG
INFO SESSION | APPLICATION FORM

Strategic Mobilization

Mobilization: Sparking a National Movement

The success of the WEFE Trail in Motion relied on bridging the gap between high-level institutional policy and grassroots youth action. We didn't just issue a call for proposals; we ignited a national conversation about the role of youth in sustainability.

The Outreach Strategy:

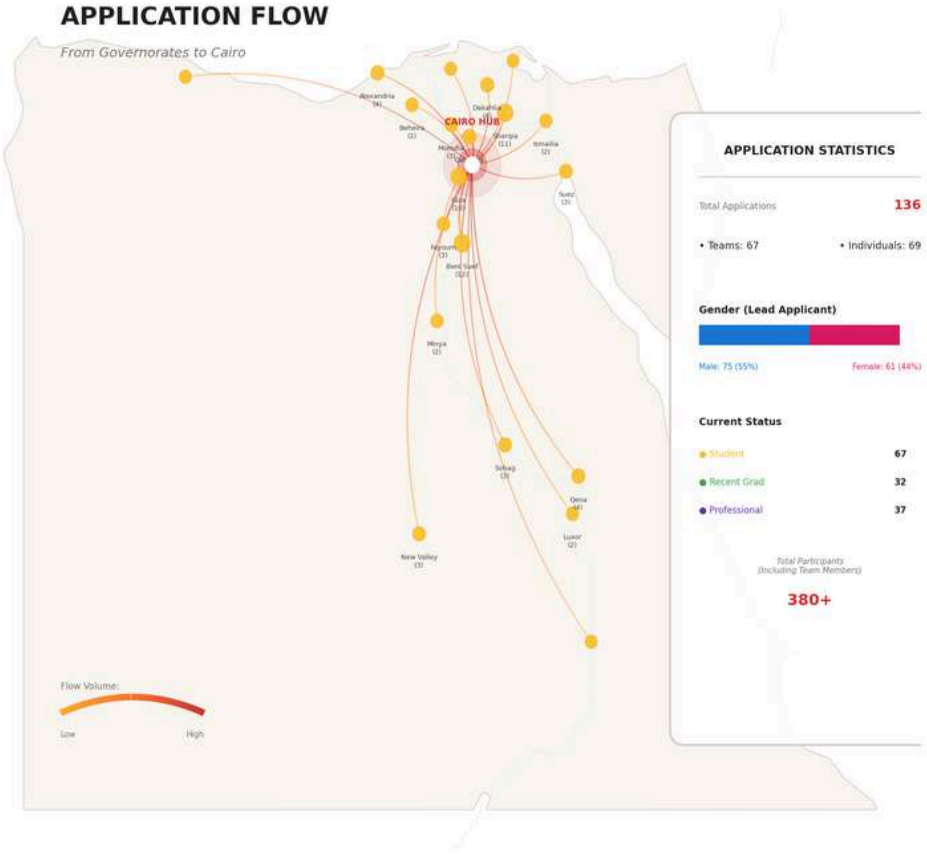
To ensure inclusivity and reach beyond the "usual suspects," UNESCO deployed a dual-track strategy:

- **1. Institutional Alignment:**
- Through a strategic partnerships, the call for participation was disseminated with the Deans' offices of Engineering, Agriculture, and Science faculties across the nation, ensuring academic rigor from the start.
- **2. Digital & Cultural Engagement:**
- Recognizing that today's innovators live online, we partnered with youth-led platforms like EUJEEL and collaborated with prominent science communicators. By translating complex scientific concepts into engaging digital content, we demystified the WEFE Nexus.

The Result: A Surge of Talent

- 140 Teams submitted formal applications.
- 380 Interdisciplinary Innovators stepped forward, creating teams that blended engineering prowess with social science insights.

National Reach: Applications arrived not just from Cairo, but from the Delta, Upper Egypt, and the coastal governorates.



Capacity Building: More Than a Competition

At UNESCO, we believe that assessment must be preceded by empowerment. We did not expect participants to be experts in the WEFE Nexus from day one; instead, we provided the tools to become experts.

The "WEFE+C In-Depth" Webinar

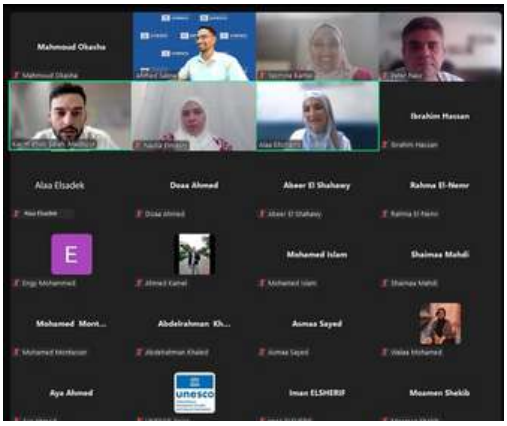
Held on June 12, 2025, this intensive 3.5-hour session served as a masterclass in integrated problem-solving. Over 250 participants attended live, engaging directly with subject-matter experts.

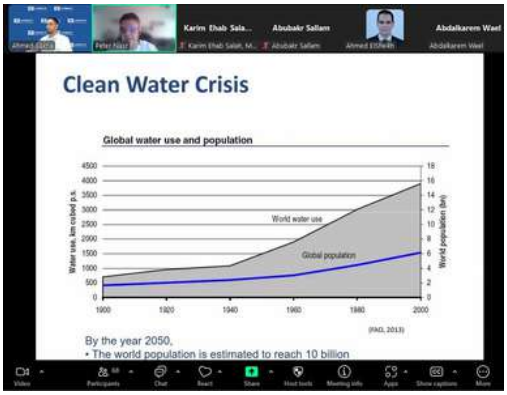
The Curriculum:

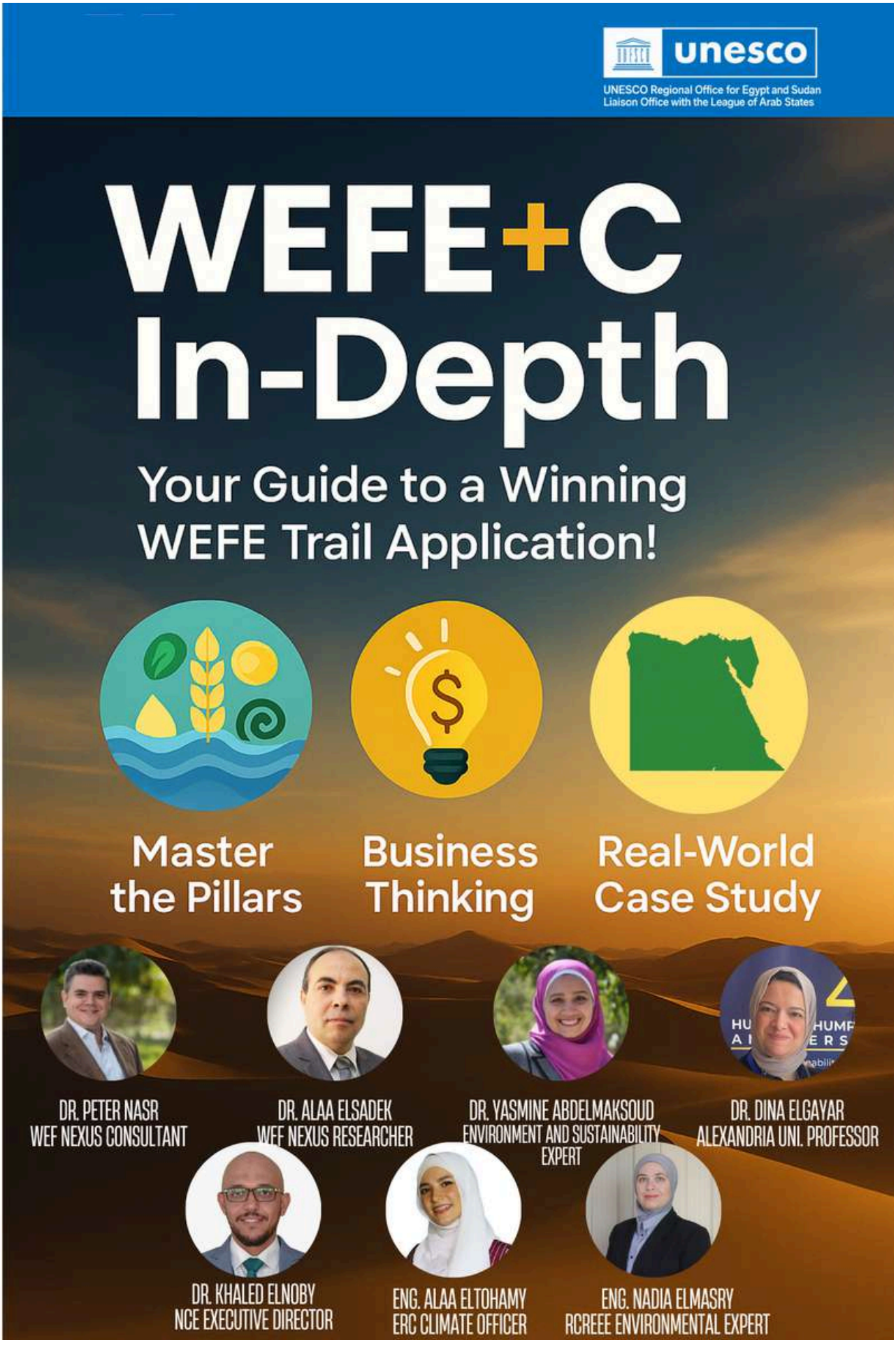
The webinar moved beyond theory to offer practical, actionable guidance:

- **Pillar Deep-Dives:** Expert breakdowns of the specific Water, Energy, Food, and Ecosystem challenges within the Egyptian context.
- **The "C" Factor:** Specific training on how to conduct cultural needs assessments and integrate heritage into technical design.
- **Business Viability:** A dedicated module on financial modeling, teaching scientists how to think like entrepreneurs by building cost-recovery plans.
- **Real-World Case Study:** A detailed analysis of an existing Egyptian intervention, grounding the abstract nexus concepts in on-the-ground reality.

This phase ensured that the final proposals were not just creative ideas, but structured, scientifically grounded projects.



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WEFE+C In-Depth
Your Guide to a Winning WEFE Trail Application!
Master the Pillars
Business Thinking
Real-World Case Study
DR. PETER NASR
WEF NEXUS CONSULTANT
DR. ALAA ELSADEK
WEF NEXUS RESEARCHER
DR. YASMINE ABDELMAKSOUD
ENVIRONMENT AND SUSTAINABILITY EXPERT
DR. DINA ELGAYAR
ALEXANDRIA UNI. PROFESSOR
DR. KHALED ELNOBY
NCE EXECUTIVE DIRECTOR
ENG. ALAA ELTOHAMY
ERC CLIMATE OFFICER
ENG. NADIA ELMASRY
RCREEE ENVIRONMENTAL EXPERT

MOST ENGAGEMENT & OUTREACH IN 2025

18K impressions & 1000+ Reactions

The Science of Selection: A Rigorous Framework

To ensure fairness and scientific integrity, the selection process was designed as a multi-stage funnel. From the initial 140 applications, a series of technical screenings narrowed the field to the top 19 finalists. These finalists were evaluated using a standardized, weighted rubric designed to balance technical excellence with social relevance.

The Scoring Criteria (100 Points):

1. **Technical Innovation & Idea Strength (30%):**

Is the technology sound? Does it effectively address the interconnections of the nexus rather than treating them as separate silos?

2. **Scalability within Egypt (25%):**

Is the solution replicable? Can a model designed for Siwa be adapted for Dakhla? Does it align with national development strategies?

3. **Economic Viability & Business Model (20%):**

Is there a clear path to financial sustainability? Does the team understand the costs of implementation and maintenance?

4. **Ecosystem & Social Impact (15%):**

Does the project restore biodiversity? Does it empower marginalized groups, particularly women and youth?

5. **Pitch Clarity & Persuasiveness (10%):**

The ability to communicate complex scientific ideas to stakeholders effectively.

The "Cultural Bonus" (+10 Points)

A unique tier awarded solely for Authentic Cultural Integration. Points were given to teams that demonstrated co-design with locals, revived traditional practices (like Manawir), or directly supported heritage preservation.

Evaluation Scorecard

Characteristic	Weight
Technical Innovation & Idea Strength	30%
Scalability within Egypt	25%
Economic Viability & Business Model	20%
Ecosystem & Social Impact	15%
Pitch Clarity & Persuasiveness	10%
Cultural Integration (Bonus)	Up to +10%

The Final Evaluation: A Forum for Innovation

On **August 28th and 29th, 2025**, the UNESCO Regional Office for Egypt and Sudan transformed into a hub of youth innovation. The 19 finalist teams were invited to Cairo for a high-intensity, two-day evaluation event.

The Methodology: Dossier Review & Cross-Examination

To ensure substance triumphed over style, we adopted a "Dossier-First" approach.

1. **Pre-Event Review:** Our expert jury reviewed the detailed written proposals and video pitches of every team prior to the event, forming a baseline technical assessment.
2. **The Defense:** Each team was given a strict 15-minute slot. This was not merely a presentation, but a defense. The Q&A session was utilized by the jury to cross-examine claims, test financial assumptions, and verify the depth of the team's understanding.

The Expert Jury

The evaluation was led by a multidisciplinary board of subject-matter experts, ensuring every pillar of the nexus was scrutinized:

- **Dr. Peter Nasr:** Water & Technical Engineering.
- **Dr. Dina Elgayar:** Renewable Energy Systems.
- **Dr. Alaa Elsadek:** Sustainable Agriculture & Food Security.
- **Dr. Yasmine Kamal:** Ecosystems & Environmental Impact.
- **Dr. Khaled Elnoby:** Culture, Socio-Economics & Business Strategy.

This rigorous process ensured that the winners were selected based on evidence, feasibility, and impact






WEFE Trail in Motion
Final Evaluation Synthesis Report


🏆 1st Place: Cultivania (Siwa Nexus Regeneration)

Team: Mayar Haggag, Ghaidaa Nassef Abdelkader, Donia Ibrahim

The Concept: Restoring Balance to Siwa

Cultivania proposes a comprehensive, nature-based engineering strategy to tackle Siwa's twin crises: waterlogging and soil salinity. Moving beyond simple drainage, the project reimagines the landscape as a productive system.

- **The WEFE Integration:**
  - **Water:** Decentralized solar-powered Reverse Osmosis (RO) units treat brackish drainage water.
  - **Food:** Treated water irrigates salt-tolerant crops and supports aquaculture in the Gambi Depression.
  - **Ecosystems:** Reduces the water table level, protecting the soil structure and biodiversity.
  - **Culture:** Co-designed with local farmers to respect traditional land tenure and prevent "over-drainage" of community resources.

Jury Verdict: Maturity & Readiness

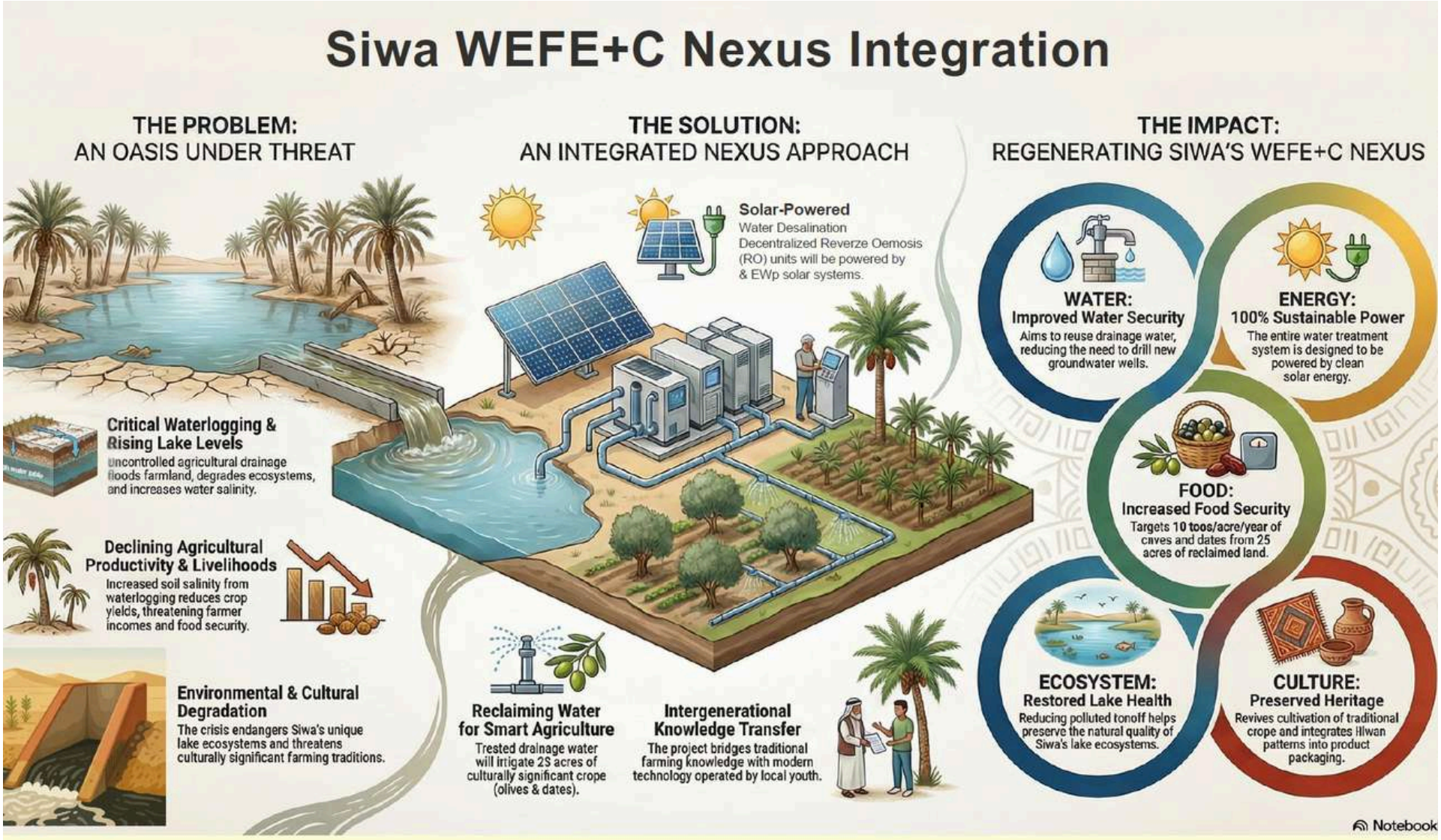
The jury selected Cultivania as the winner for its exceptional maturity. It was deemed the most "ready-to-implement" proposal, offering a holistic blueprint for ecological revitalization.

🔍 Mentor Feedback & Strategic Direction

"This project represents the ideal intersection of engineering and ecology. It treats the oasis not as a problem to be fixed, but as a system to be regenerated."

Critical Mentorship Focus:

While technically robust, the jury identified Brine Management as a critical environmental risk. The mentorship phase focused heavily on developing a zero-liquid discharge plan and refining the financial model to justify the high initial capital expenditure (CAPEX) of solar infrastructure.


Siwa WEFE+C Nexus Integration
THE PROBLEM:
AN OASIS UNDER THREAT
THE SOLUTION:
AN INTEGRATED NEXUS APPROACH
THE IMPACT:
REGENERATING SIWA'S WEFE+C NEXUS
Solar-Powered
Water Desalination
Decentralized Reverze Oemosis (RO) units will be powered by & EWp solar systems.
Critical Waterlogging & Rising Lake Levels
Uncontrolled agricultural drainage floods farmland, degrades ecosystems, and increases water salinity.
Declining Agricultural Productivity & Livelihoods
Increased soil salinity from waterlogging reduces crop yields, threatening farmer incomes and food security.
Environmental & Cultural Degradation
The crisis endangers Siwa's unique lake ecosystems and threatens culturally significant farming traditions.
Reclaiming Water for Smart Agriculture
Trested drainage water will irrigate 2S acres of culturally significant crope (olives & dates).
Intergenerational Knowledge Transfer
The project bridges traditional farming knowledge with modern technology operated by local youth.
WATER:
Improved Water Security
Aims to reuse drainage water, reducing the need to drill new groundwater wells.
ENERGY:
100% Sustainable Power
The entire water treatment system is designed to be powered by clean solar energy.
FOOD:
Increased Food Security
Targets 10 toos/acre/year of olives and dates from 25 acres of reclaimed land.
ECOSYSTEM:
Restored Lake Health
Reducing polluted tonoff helps preserve the natural quality of Siwa's lake ecosystems.
CULTURE:
Preserved Heritage
Revives cultivation of traditional crope and integrates Hlwan patterns into product packaging.
Notebook

2nd Place: Loopet (AI Valorization of Poultry Waste)

Team: Radwa Kamal, Mostafa Hesham, Moaz Mandour

The Concept: Turning Pollution into Protein

Targeting the ecological crisis of **Lake Qarun (Fayoum)**, Loopet introduces a high-tech circular bio-economy model. The project addresses the massive pollutant load from poultry waste by converting it into a valuable resource.

- **The WEFE Integration:**
  - **Technology:** Uses Artificial Intelligence to optimize the bioconversion process, maximizing protein yield.
  - **Ecosystems:** Directly reduces the organic pollutant load entering Lake Qarun, protecting aquatic life and bird migration corridors.
  - **Food:** Produces high-quality, low-cost aquaculture feed, boosting local fisheries.
  - **Energy:** The processing units are powered by self-cleaning solar panels, ensuring a low carbon footprint.

Jury Verdict: Innovation & Economic Viability

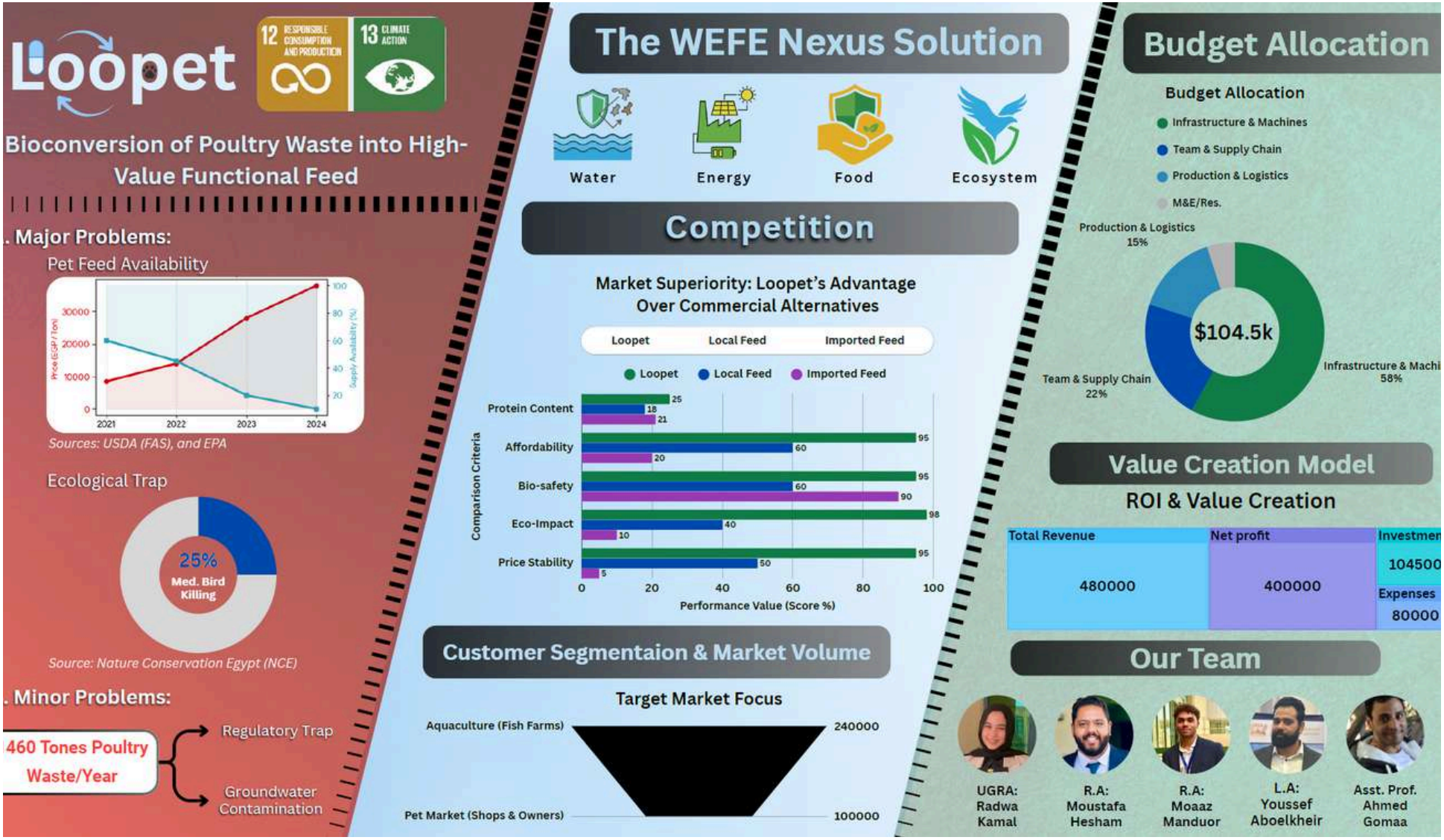
This project was celebrated for its high innovation potential and its strong business case. It transforms an environmental hazard into a marketable commodity.

🔍 Mentor Feedback & Strategic Direction

"A powerhouse of innovation. It solves three problems at once: waste, water quality, and food security. The economic logic is sound and highly replicable."

Critical Mentorship Focus:

The primary challenge identified was the Regulatory Pathway. The mentorship phase was dedicated to mapping the legal requirements for feed approval in Egypt and designing a logistical plan for waste collection at scale to ensure the "5-kirat model" can be replicated across the governorate.


Loopet
12 RESPONSIBLE CONSUMPTION AND PRODUCTION
13 CLIMATE ACTION
Bioconversion of Poultry Waste into High-Value Functional Feed
. Major Problems:
Pet Feed Availability
Price (EGP / Ton)
Supply Availability (%)
2021
2022
2023
2024
Sources: USDA (FAS), and EPA
Ecological Trap
25%
Med. Bird Killing
Source: Nature Conservation Egypt (NCE)
. Minor Problems:
460 Tones Poultry Waste/Year
Regulatory Trap
Groundwater Contamination
The WEFE Nexus Solution
Water
Energy
Food
Ecosystem
Competition
Market Superiority: Loopet's Advantage Over Commercial Alternatives
Loopet
Local Feed
Imported Feed
Protein Content
Affordability
Bio-safety
Eco-Impact
Price Stability
Comparison Criteria
Performance Value (Score %)
Customer Segmentaion & Market Volume
Target Market Focus
Aquaculture (Fish Farms)
240000
Pet Market (Shops & Owners)
100000
Budget Allocation
Budget Allocation
Infrastructure & Machines
Team & Supply Chain
Production & Logistics
M&E/Res.
Production & Logistics 15%
$104.5k
Team & Supply Chain 22%
Infrastructure & Machi 58%
Value Creation Model
ROI & Value Creation
Total Revenue
480000
Net profit
400000
Investmen
104500
Expenses
80000
Our Team
UGRA: Radwa Kamal
R.A: Moustafa Hesham
R.A: Moaaz Manduor
L.A: Youssef Aboelkheir
Asst. Prof. Ahmed Gomaa

3rd Place: Smart Hydroponic System

Team: Youssef Edward, Ali Abdellhady

The Concept: Democratizing Agritech in Kharga

Targeting the Kharga Oasis, this project shifts the focus from large-scale infrastructure to the household unit. It delivers a low-cost, self-regulating hydroponic solution designed to empower families to grow their own food with minimal water.

- **The WEFE Integration:**
  - **Water:** Achieves up to 90% water savings compared to traditional soil farming through a closed-loop recirculation system.
  - **Energy:** Fully solar-powered, operating off-grid to reduce reliance on fossil fuels.
  - **Food:** Enhances household food security by providing a consistent supply of fresh produce.
  - **Culture:** Revives the traditional oasis value of "resourcefulness" by using modern, accessible tools (IoT sensors & Mobile App) to manage scarce resources.

Jury Verdict: Scalability & Social Impact

This project was the unanimous consensus choice for its community impact. The jury recognized its potential to democratize technology, making high-efficiency farming accessible to low-income households and youth entrepreneurs.

🔍 **Mentor Feedback & Strategic Direction**

"A brilliant example of appropriate technology. It takes high-tech concepts and makes them affordable and usable for the average family."

Critical Mentorship Focus:

The initial proposal lacked a robust business framework. The mentorship phase functioned as a "Business Bootcamp," helping the team develop a clear cost-recovery model, supply chain plan for local components, and a strategy to scale from single units to community adoption.

Home Based Hydroponics System

Scalable – low cost – Accessible.

- ***Empowering women & Youth.***
- ***People with disabilities can work safely from home.***
- ***Ensuring food security Along with 90% savings in water.***
- ***Increasing productivity using vertical farming.***

Food security starts at home

WEFE Trail in Motion

Strategic Incubation: High-Potential Tracks

The rigorous evaluation process identified projects that, while not selected for immediate piloting, possessed exceptional intrinsic value. UNESCO established specific strategic tracks to nurture these innovations.

🧪 The Research Track: Biocement

- **The Concept:** A novel, non-thermal bio-cement created from a synergistic combination of Mollusca waste, Diatoms, and Fungi to reduce seepage in agricultural drains.
- **Strategic Value:** This project offers a brilliant, high-impact scientific core with massive potential for carbon reduction in construction.
- **The Path Forward:** Recognizing its early **Technology Readiness Level (TRL),** the jury recommended a research-focused mentorship. The goal is to connect the team with materials science laboratories to validate mechanical properties and secure academic research grants.

🧬 The Integration Track: GillVeil

- **The Concept:** A kinetic, biomimetic facade system inspired by the parrotfish's gills, designed to revive Egypt's heritage of passive cooling (mashrabiya).
- **Strategic Value:** An outstanding piece of design innovation that addresses the Energy and Culture pillars.
- **The Path Forward:** Rather than standing alone, the strategy is to facilitate the integration of this technology into broader infrastructure projects —potentially cooling the structures for the Cultivania or Smart Hydroponic pilots—creating powerful, synergistic solutions.

From Concept to Blueprint: The 6-Week Intensive Mentorship

Selection was not the finish line; it was the entry point into a rigorous incubator. The winning teams entered a structured 6-Week Mentorship Bootcamp designed to transform their initial proposals into fundable, execution-ready Project Documents (ProDocs).

The Curriculum:

Week 1: Context & Foundation

- **Focus:** Grounding the project.
- **Activity:** Teams worked with Dr. Khaled Elnoby to conduct deep stakeholder mapping and cultural needs assessments, ensuring the "Why" of the project was robust.

Weeks 2-3: The Technical Deep-Dive

- **Focus:** Validating the solution.
- **Activity:** Led by Dr. Peter Nasr and Dr. Alaa Elsadek, teams faced technical cross-examination. They refined their engineering schematics, calculated precise energy loads, and verified water balance models.
- **Key Outcome:** A validated Technical Methodology and Results Framework.

Week 4: Business Viability & Risk

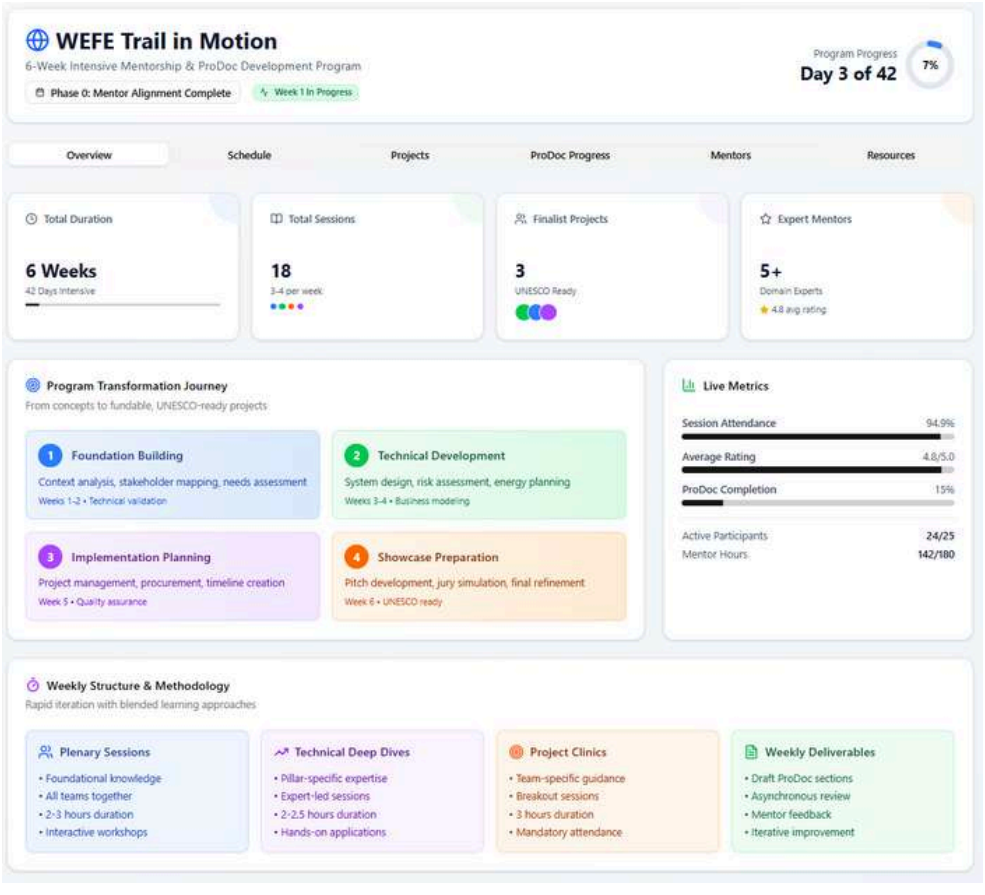
- **Focus:** Sustainability beyond funding.
- **Activity:** A "Financial Clinic" where scientists learned to think like entrepreneurs. Teams developed Business Model Canvases, cost-benefit analyses, and risk mitigation matrices.

Week 5: Implementation & Peer Review

- **Focus:** The operational plan.
- **Activity:** Developing detailed Gantt charts, procurement plans, and vendor lists. A unique "Peer Review" session allowed teams to critique and improve each other's work, fostering a community of practice.

Week 6: Synthesis & The Final Pitch

- **Focus:** Communication.
- **Activity:** Distilling the 30-page ProDoc into a compelling narrative. The phase concluded with a "Mock Jury Panel" to prepare for high-level stakeholder engagement.



The Road Ahead: Scaling Impact

The WEFE Trail in Motion is not a one-off event; it is a pipeline for continuous innovation. The investments made today are designed to yield tangible results in the near future.

📍 **Destination: Cairo Water Week 2026**

The seed funding awarded to the winners is strictly allocated for a 9-10 month piloting phase.

- **The Goal:** To shift the narrative from "potential" to "proven capability."
- **The Showcase:** At Cairo Water Week 2026, the three winning teams will not present concepts; they will present data from operational pilots.
  - Cultivania will share salinity reduction data from Siwa.
  - Loopet will display feed prototypes and waste metrics from Fayoum.
  - Smart Hydroponic will demonstrate user adoption rates from Kharga.

Sustaining the Ecosystem

To ensure the momentum of the 380 participants is not lost, UNESCO is launching two permanent engagement structures:

1. Platform for Women in Science

Leveraging the exceptional female leadership observed in the competition (with women leading the 1st and 2nd place teams), we are launching a dedicated network to connect these innovators with established women mentors in STEM, fostering career development and role modeling.

2. The WEFE Ambassador Program

High-potential participants from the Top 19 who were not finalists have been invited to become WEFE Trail Ambassadors. They will represent the initiative at their universities, support future calls, and receive priority access to capacity building, ensuring the talent pipeline remains active and engaged.

A Legacy of Resilience

By connecting youth, science, and culture, the WEFE Trail in Motion has laid the groundwork for a new approach to sustainability in Egypt. We have moved beyond identifying problems to cultivating the generation that will solve them.

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Report Preparation

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The WEFE Trail in Motion initiative and the evaluation framework utilized in this competition were grounded in the following national strategies and scientific literature:

1. National Strategic Frameworks

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2. The WEFE Nexus & Biocultural Heritage

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