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WEATHER MAKERS
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2025
Algemeen Nut
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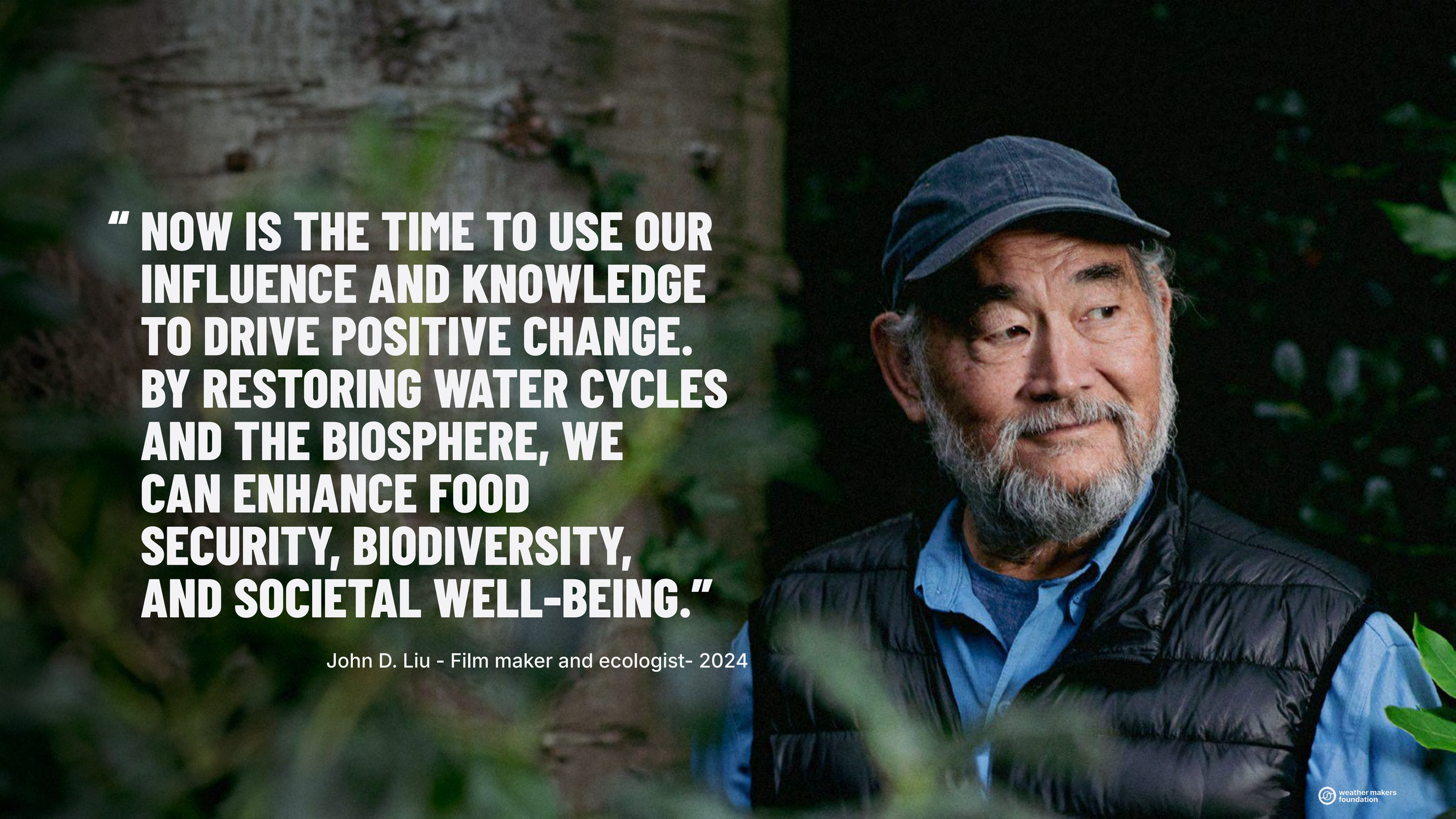

“ NOW IS THE TIME TO USE OUR INFLUENCE AND KNOWLEDGE TO DRIVE POSITIVE CHANGE. BY RESTORING WATER CYCLES AND THE BIOSPHERE, WE CAN ENHANCE FOOD SECURITY, BIODIVERSITY, AND SOCIETAL WELL-BEING.”
John D. Liu - Film maker and ecologist- 2024
weather makers foundation

PIONEERING NATURE-BASED SOLUTIONS FOR CLIMATE RESILIENCE AND PROSPERITY

The Bardawil & Sinai Initiative (BSI) is a unique large-scale nature-based project providing unprecedented climate change mitigation and adaptation potential through a holistic and inclusive approach with the local population of Northern Sinai, Egypt.

The Weather Makers initiative has developed a pioneering approach to regreening the Sinai Desert, beginning with the restoration of the coastal lagoon; Lake Bardawil. Lake Bardawil is a shallow lagoon on the northern coast of the Sinai Peninsula in Egypt and is connected to the Mediterranean Sea. The aquatic ecosystem forms the source of income for the communities around Bardawil. Preservation of the fragile habitats is at risk due to morphological changes (sedimentation of the inlets) and human activities impacting the lake's habitats and fish population.

This initial phase of the BSI focuses on enhancing tidal flushing to improve water quality of the lagoon and to create new tidal wetlands. The objective is to restore the aquatic ecosystem of Lake Bardawil and its adjacent areas in a sustainable and holistic way, allowing the fish population to grow, whilst reinforcing the existing biodiversity and significantly contribute to the socio-economic development of the region. These measures strengthen the aquatic ecosystem, boost biodiversity, and support local food security. Additionally, the cooling and increased humidity provided by the lagoons improve living conditions for coastal communities.

The next phase involves regenerating the biosphere on land. Marine sediments are introduced to enrich soils, while sustainable freshwater sources support vegetation recovery. Native plants are gradually reintroduced to stabilize soils and enhance the desert's ecological resilience. Recognizing water scarcity as a key driver of stable livelihoods, the project prioritizes rainfall generation, aiming to secure sustainable freshwater supplies as the foundation for ecological restoration. Innovative sustainable methods to induce rain enable groundwater recharge, support vegetation growth, and create stable ecosystems.

To advance this vision, we aim to integrate science and engineering to design a methodology that predicts and stimulates future rainfall. Landscape-scale rain production and ecological regeneration will serve as initial building blocks to align environmental, safety, and social policies, creating a unified framework for sustainable planning and development.

The underlying concept is that regreening has a transformative effect on landscapes by harnessing the weather-making process. Ecosystem regeneration cools the surface through increased evaporation, which in turn lowers temperatures and reduces thermal updrafts and wind speeds. This reduction in wind, combined with enhanced evaporation, creates favorable conditions for cloud formation.

Over time, strategic evaporation can restore water cycles on a local scale, with the potential to expand and regenerate water systems regionally.

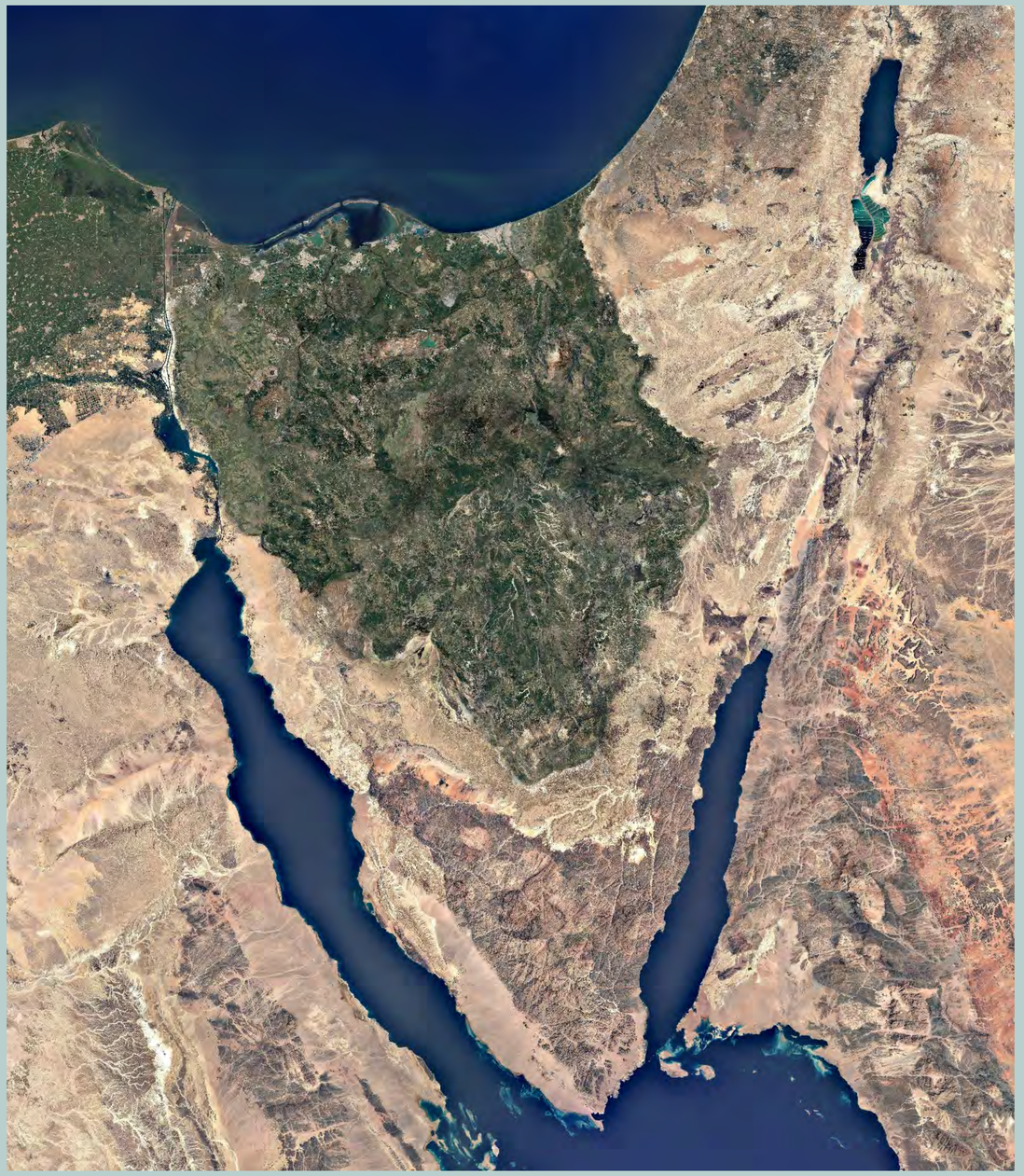
Once established, the restoration process in Sinai is expected to be primarily self-sustaining.
As the landscape of the Sinai regreens and retains more moisture, a stable hydrological cycle is predicted to return, thus improving conditions for further regreening and agriculture, and, by extension, economic and political stability in the face of anticipated population pressure.

We would like to use the current grant proposal to contribute to the Multiple Value Case for the BSI. This Multiple Value Case is considered to become the blueprint solution for landscape-scale regeneration. The first step required is to gather all research and concepts prepared till date for the BSI and similar initiatives and create one integrated Biosphere Regeneration Strategy.

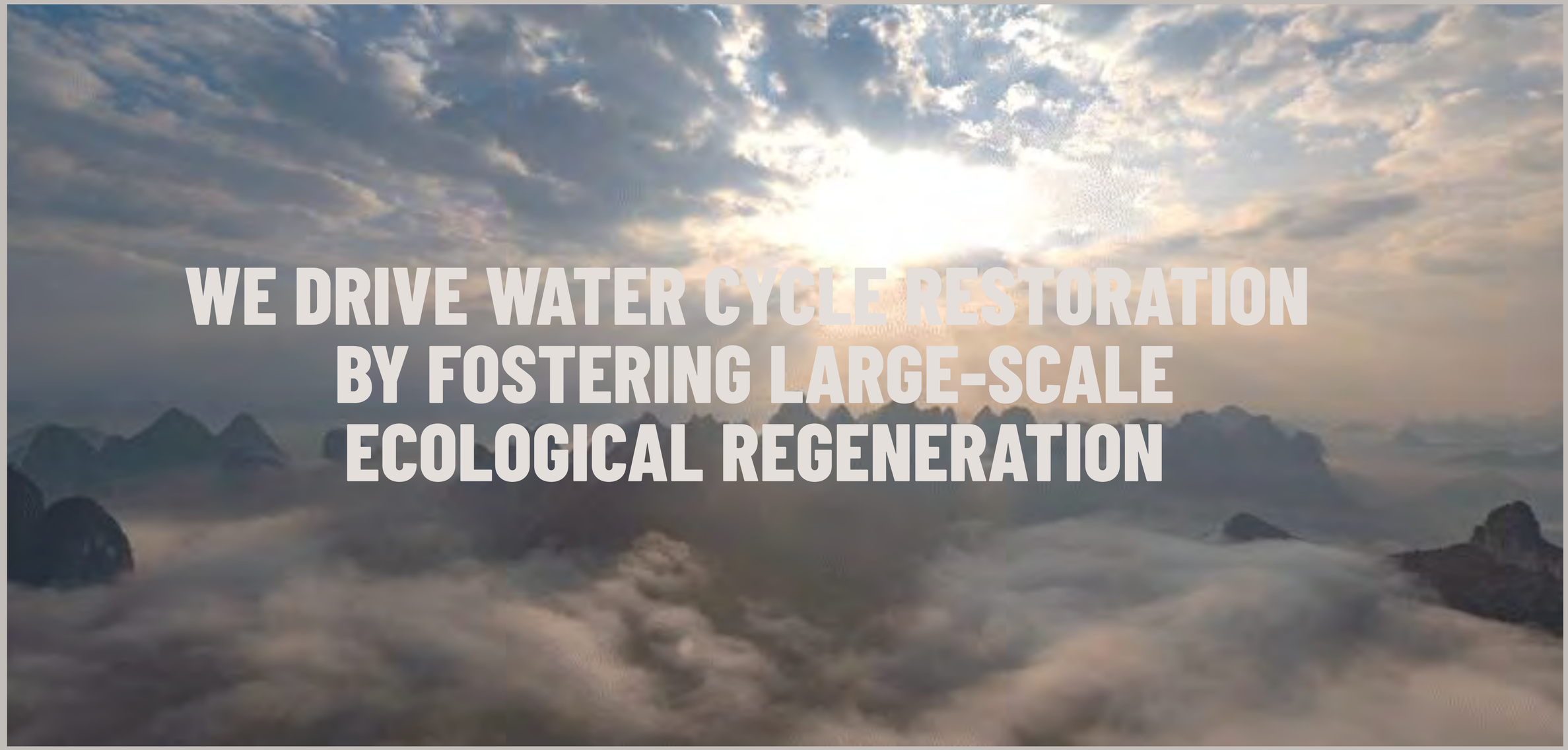
The following solutions will be part of the integrated strategy:

1. **Coastal Intervention Plan:** Establish wetlands and aquatic systems to enhance biodiversity and improve tidal flushing.
2. **Strategic Evaporation:** Explore the opportunity of the Katabatic Tower to support localized evaporation processes.
3. **Man Made River Concept:** Design water infrastructure for effective freshwater distribution.
4. **Soil-Building Methodology:** Address salt intrusion and create fertile soils for vegetation recovery. Soils should be able to retain and infiltrate the future rains, we need to create a natural system which can absorb and hold the freshwater.
5. **Integrated Concept Plan:** Develop a comprehensive framework to model water cycle restoration. Include local partners and authorities. And develop jointly a communications plan, emphasizing Storytelling & Advocacy.
6. **Rainfall Prediction Models:** Conduct data-driven analyses to forecast water security and rainfall scenarios.

This is plan that will become the baseline to create the multiple value case with our partners. The deliverable is a comprehensive design report, supported by technical drawings and inspiring visualizations.



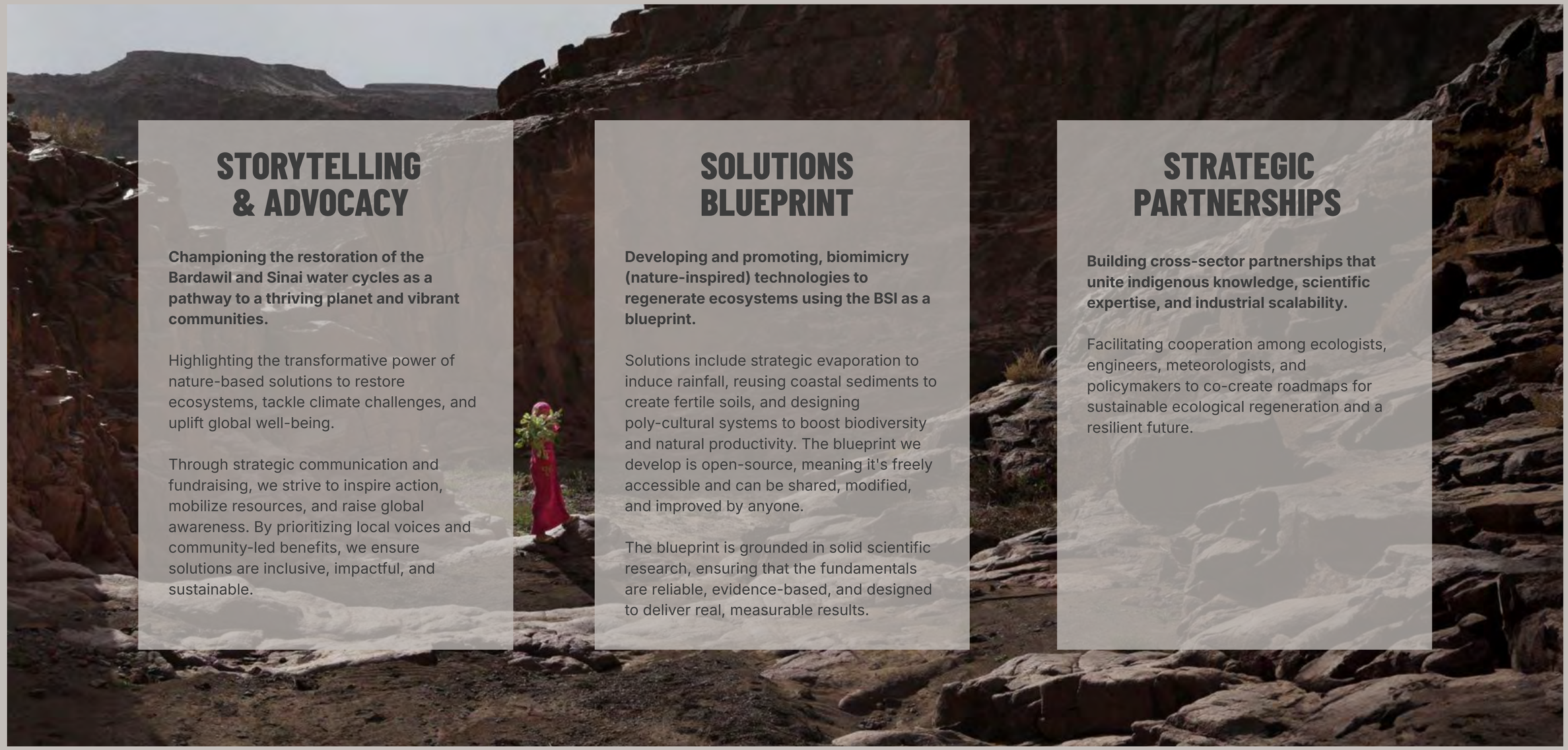
OUR MISSION


WE DRIVE WATER CYCLE RESTORATION
BY FOSTERING LARGE-SCALE
ECOLOGICAL REGENERATION

OUR VISION

A RESILIENT SINAI WHERE NATURE AND COMMUNITIES FLOURISH, SETTING THE STAGE FOR GLOBAL WATER CYCLE REGENERATION

OUR KEY OBJECTIVES



STORYTELLING & ADVOCACY

Championing the restoration of the Bardawil and Sinai water cycles as a pathway to a thriving planet and vibrant communities.

Highlighting the transformative power of nature-based solutions to restore ecosystems, tackle climate challenges, and uplift global well-being.

Through strategic communication and fundraising, we strive to inspire action, mobilize resources, and raise global awareness. By prioritizing local voices and community-led benefits, we ensure solutions are inclusive, impactful, and sustainable.

SOLUTIONS BLUEPRINT

Developing and promoting, biomimicry (nature-inspired) technologies to regenerate ecosystems using the BSI as a blueprint.

Solutions include strategic evaporation to induce rainfall, reusing coastal sediments to create fertile soils, and designing poly-cultural systems to boost biodiversity and natural productivity. The blueprint we develop is open-source, meaning it's freely accessible and can be shared, modified, and improved by anyone.

The blueprint is grounded in solid scientific research, ensuring that the fundamentals are reliable, evidence-based, and designed to deliver real, measurable results.

STRATEGIC PARTNERSHIPS

Building cross-sector partnerships that unite indigenous knowledge, scientific expertise, and industrial scalability.

Facilitating cooperation among ecologists, engineers, meteorologists, and policymakers to co-create roadmaps for sustainable ecological regeneration and a resilient future.

SINAI REGENERATION BLUEPRINT PROJECT PILLARS

BSI SOLUTIONS BLUEPRINT

Developing and promoting, biomimicry (nature-inspired) technologies to regenerate ecosystems.

PROJECT SUPPORT GRANT

STORYTELLING & ADVOCACY

Championing the restoration of the Bardawil and Sinai water cycles as a pathway to a thriving planet and vibrant communities.

Key Steps:

- Raise awareness through storytelling and campaigns.
- Educate with data and community and expert insights.
- Drive action through donations, brand partnerships, and sharing.
- Build trust with updates and transparent progress.
- Equip ambassadors to spread the mission.

1.A BSI SOLUTIONS BLUEPRINT

BIOSPHERE REGENERATION STRATEGY

We craft a compelling value proposition for large scale regeneration, ensuring measurable outcomes and alignment with stakeholders' priorities.

Key Solutions

- Coastal Intervention Plan
- Strategic Evaporation
- Man Made River Concept
- Soil-Building Methodology
- Integrated Concept Plan
- Rainfall Prediction Models

1.B BSI SOLUTIONS BLUEPRINT

EXECUTION METHODOLOGY

Expertise in execution of large scale infrastructure projects will be implemented into the biosphere regeneration strategy to make it scalable and feasible.

Key Components:

- Hydraulic transport strategy for earth moving
- Biomass process site design
- Integration of green hydrogen Infrastructure
- Specifications & Performance
- Cost estimates

1.C BSI SOLUTIONS BLUEPRINT

IMPACT STRUCTURING

In order to understand the impacts of the BSI we consult our partners like Habiba Farm, Sekem, HCSS and MER to structure potential benefits and build the framework for the multiple value case.

Key Steps:

- Security Assessment Framework
- Strategic Environmental Assessment outline
- Stakeholder assessments with Sekem and Habiba farm

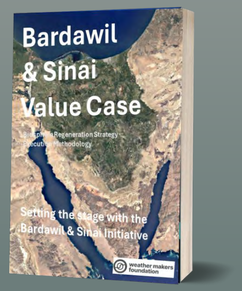
1.D BSI SOLUTIONS BLUEPRINT

MULTIPLE VALUE CASE

Potential benefits are modelled for the Sinai regeneration blueprint to understand the social, ecological and security impacts and build a multiple value case.

Key Steps:

- Social Capital
- Natural Capital
- Multiple Value Case



STRATEGIC PARTNERSHIPS

Building cross-sector partnerships that unite indigenous knowledge, scientific expertise, and industrial scalability.

Key Steps:

- Approach key stakeholders
- Facilitate open dialogue to align values and goals.
- Collaborate on projects
- Secure funding and partnerships to scale solutions.
- Track progress and showcase successes to drive wider adoption.

A BLUEPRINT FOR GLOBAL ECOLOGICAL REGENERATION AND REGIONAL STABILITY

In 2017, The Weather Makers B.V. (TWM B.V.) embarked on an ambitious project to address the existential threat of climate change and the associated issues of ecological degradation, water scarcity, and regional instability. This initiative, known as the Bardawil & Sinai Initiative, seeks to restore the Sinai Peninsula's ecosystems through a holistic, nature-based approach. The project aims to regenerate Lake Bardawil on the Mediterranean coast and expand these efforts to inland areas, ultimately transforming the region's environment and enhancing the quality of life for its inhabitants.

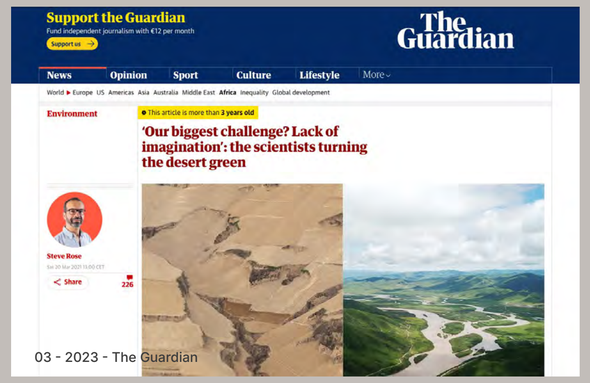
The initiative began in official collaboration with the Egyptian government at COP27 in Sharm El-Sheikh, recognizing the critical need for large-scale ecological restoration in the Sinai. This collaboration attracted significant international interest, including a potential investment of $250 million from the Dutch government (Invest International) to fund the project's first phase. However, the initiative faced considerable challenges due to regional instability. Security concerns made it unsafe to continue work, and the regional instability further put severe pressure on Egypt's economy, further complicated the investment landscape.

Despite these setbacks, the fundamental belief that ecological regeneration can address root causes of instability, such as food and water insecurity, remains strong. This belief drives the ongoing efforts to secure broader support and collaboration, to be able to start this unique initiative and make it a start for a regional peace plan. Therefore, the Weather Makers Foundation (TWMF) was established to continue this crucial work.

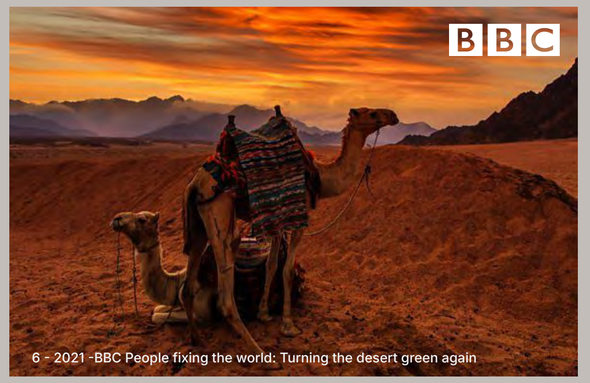
The TWM B.V. and TWMF jointly pursue the mission. The TWMF focuses on linking landscape-scale ecological restoration with enhanced water and food security, promoting stability and peace in the region. By restoring the Sinai Peninsula's ecosystems we aim to create a blueprint model that can be replicated across arid and semi-arid lands globally.

TWMF plans for the year ahead are oriented around the blueprint for a Multiple Value Case for the BSI. As mentioned above we start with a Biosphere Regeneration Strategy. This strategy will be used to determine an execution methodology. In this stage a reference methodology is designed, like a hydraulic sediment transport infrastructure, green hydrogen infrastructure, process sites, etc. All needed to be able to estimate roughly the costs of the works. In the following stage we will establish the structure for impact with our partners, like The Hague Centre for Strategic Studies (HCSS) and the Environmental and Social Impact Agency in the Netherlands (MER committee).

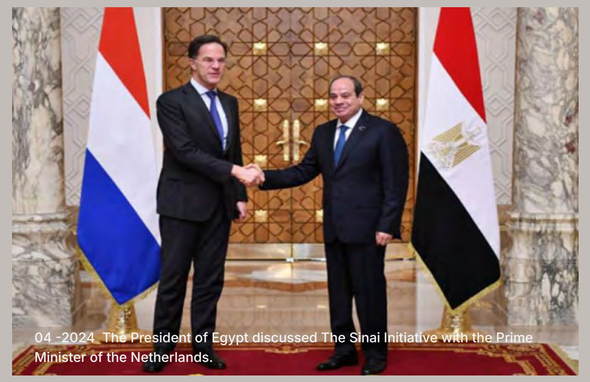
They will provide independent advice on the impact framework which we will then use in the last stage to determine the social capital (e.g. jobs, security, agricultural yields) and natural capital (e.g. biodiversity, carbon, etc.). All will come together in the Multiple Value Case for the BSI, which we will then publish and use for storytelling & advocacy to attract more partners and create momentum globally for strategic water cycle restoration.



03 - 2023 - The Guardian



6 - 2021 -BBC People fixing the world: Turning the desert green again


04 -2024 The President of Egypt discussed The Sinai Initiative with the Prime Minister of the Netherlands.

TEDx 2023 - Ties van der Hoeven - The Weather Makers

03- 2023 - UN Water Week New York, successful side event addressing eco-security for the Sinai

11- 2022 - COP27 in Sinai, cooperation agreement was signed between BSI, and the Suez Canal Authority.

OUR JOURNEY SO FAR...

WHERE WE'VE BEEN

2016

Official request for the Bardawil Sinai Initiative was received at the DEME office.

2017

The Weather Makers Company was established to develop the initiative.

2017

Project conference was held with the Dutch Minister of Infrastructure and the Environment, research institutes, and renowned ecological pioneers.

2019

"Natural Water Production" launched as scientific theme by WETSUS, aiming to create a data-driven software tool to understand the regeneration of the water cycle.

2019

Presidential level meeting was also held but official negotiations were unsuccessful due to a lack of funding.

2023 ACTIVITIES

2022

Egypt requested international funding with the onset of the Ukraine war, several European climate funds showed interest, and Openseas expressed interest in taking fish from the project. At COP27 in Sinai, an official cooperation agreement was signed between the dredging company, TWM, and the Suez Canal Authority.

2023

Invest International visited the Egyptian government to express interest in funding the project's first phase.

12-2023

Official meeting was held with The Weather Makers and the Suez Canal Authority to engage in the final financial stage. However, regional wars and the devaluation of the Egyptian pound due to reduced Suez Canal traffic created insecurity.

WHERE WE'RE GOING

04-2024

The President of Egypt discussed the project with the Prime Minister of the Netherlands.

04-2024

Security and stability are the main reasons why the project cannot be pushed

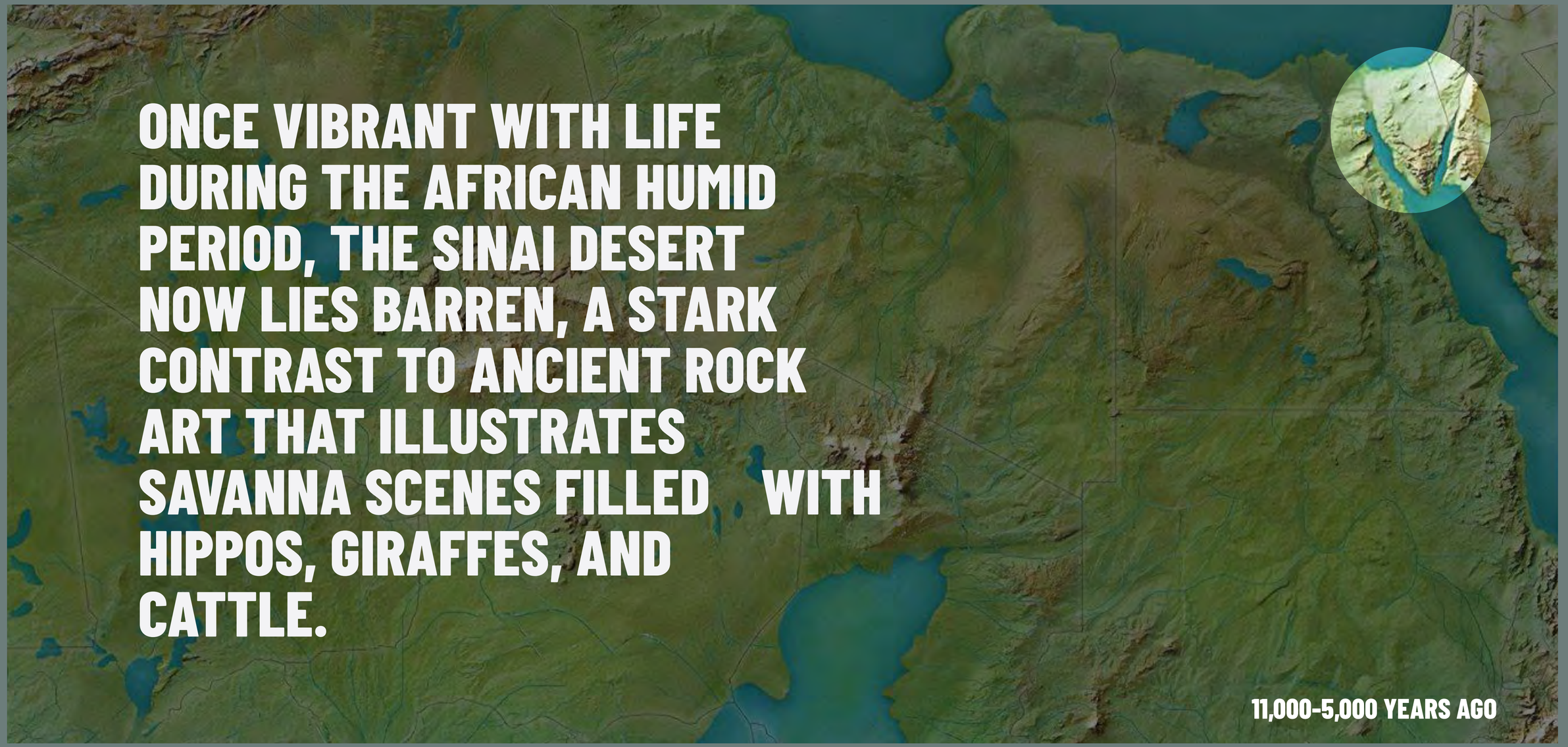
Today

The Weather Makers Foundation becomes active to reignite the initiative and to regenerating a secure future for all through Eco-Security management

weather makers foundation

LAKE BARDAWIL & SINAI INITIATIVE

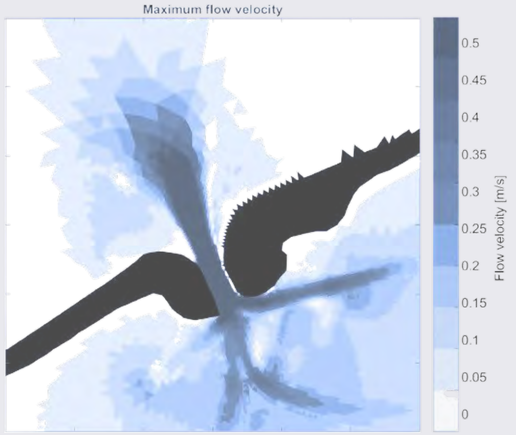
ONCE A VIBRANT LANDSCAPE...



Once teeming with life, the Bardawil lagoon now lies in need of revitalization.

1.

By deepening its inlets and dredging tidal gullies, we can restore the tides that once refreshed its waters.

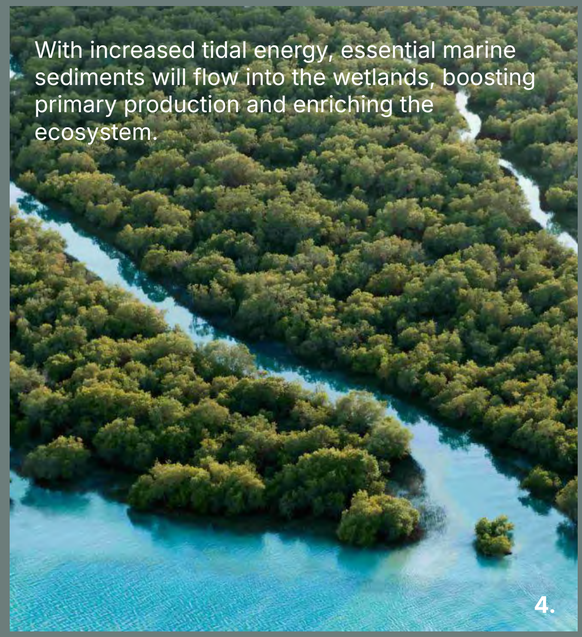


2.

This restoration will reignite tidal energy, lowering salinity levels and stabilizing temperatures setting the stage for fish to migrate back from the sea.

3.

With increased tidal energy, essential marine sediments will flow into the wetlands, boosting primary production and enriching the ecosystem.



4.

Local communities will take charge, adopting regenerative fishing practices that create thousands of jobs and improve livelihoods for many.

5.

These sustainable fishing methods will enhance aquatic ecosystems

6.

Fostering greater biomass and biodiversity while preserving ecological harmony.

7.

This initiative will spark a positive feedback loop—more fish leading to more jobs, enhancing prosperity and security for the local population.

8.

Dredging the lagoon will reveal ancient marine sediments from the sinai watershed.

9.

We've devised a natural method to enhance these sediments by integrating aquatic and terrestrial systems, using plant suction to boost soil growth.

10.

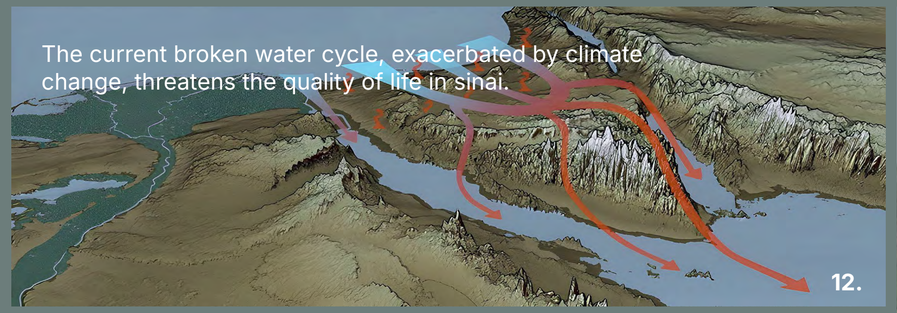
Our comprehensive plan seeks to cultivate diverse food supplies addressing food and water security while greening sinai on a grand scale

11.

And become a beacon of hope and collaboration for the entire region.

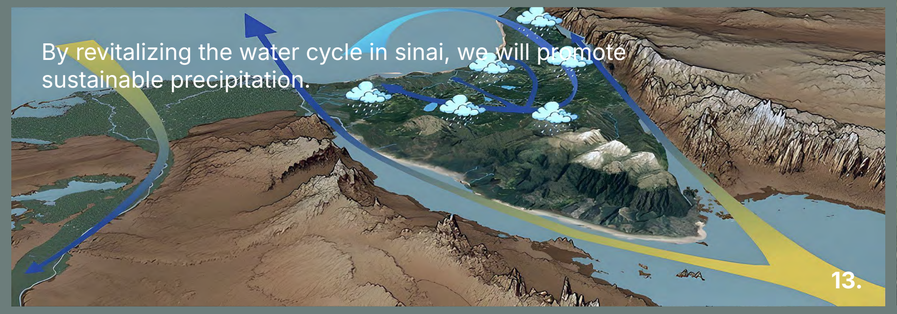
16.

The current broken water cycle, exacerbated by climate change, threatens the quality of life in sinai.



12.

By revitalizing the water cycle in sinai, we will promote sustainable precipitation.

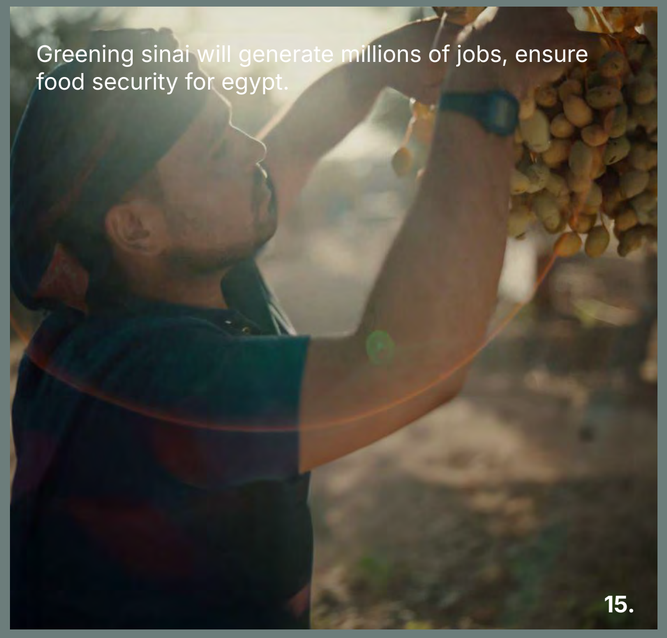


13.

Benefiting local communities and potentially altering regional weather patterns.

14.

Greening sinai will generate millions of jobs, ensure food security for egypt.



15.

SOLUTIONS FOR REGENERATION

Integrating, landscape-scale regreening with resource based dredging, water management works, green hydrogen production and innovative indoor and outdoor agriculture.

Resource Based Dredging
- Fertile sediments are dredged from Lake Bardawil and used in regreening

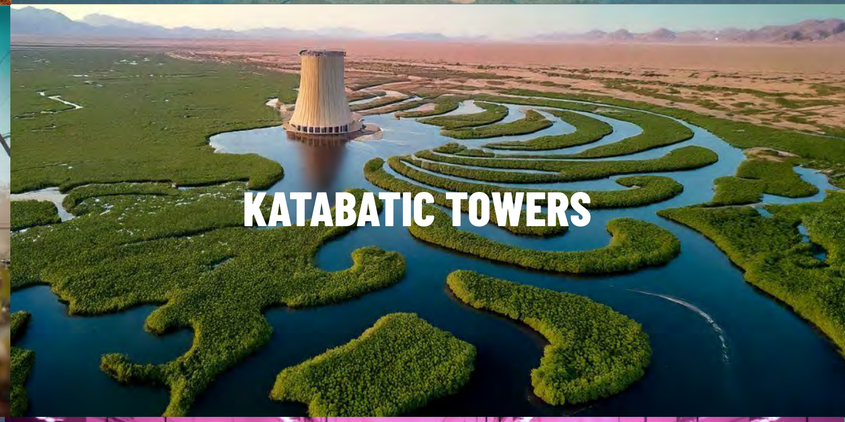
Man Made River
- On low elevations: lakes: used for storage of sediment and evaporation of water
- On high elevations reservoirs: used for hydro power and evaporation
- Pipeline and pumps to control water levels and water quality

Agroforestry
- For regenerative agriculture
- Crops are covered with PV-panels to provide shade and energy

Katabatic Towers
- The tower (~150m high) boosts the local climate (10-15 km2) and accelerate the agroforestry production
- Feed the sea breeze with moist air to enforce rain

Green Hydrogen
- PV panels and water reservoirs to provide 24/7 reliable for green hydrogen production

Indoor Farming
- Reliable and cost-effective method to produce resilient seedlings at scale for agroforestry and regreening



REVIVING ECOSYSTEMS, EMPOWERING COMMUNITIES

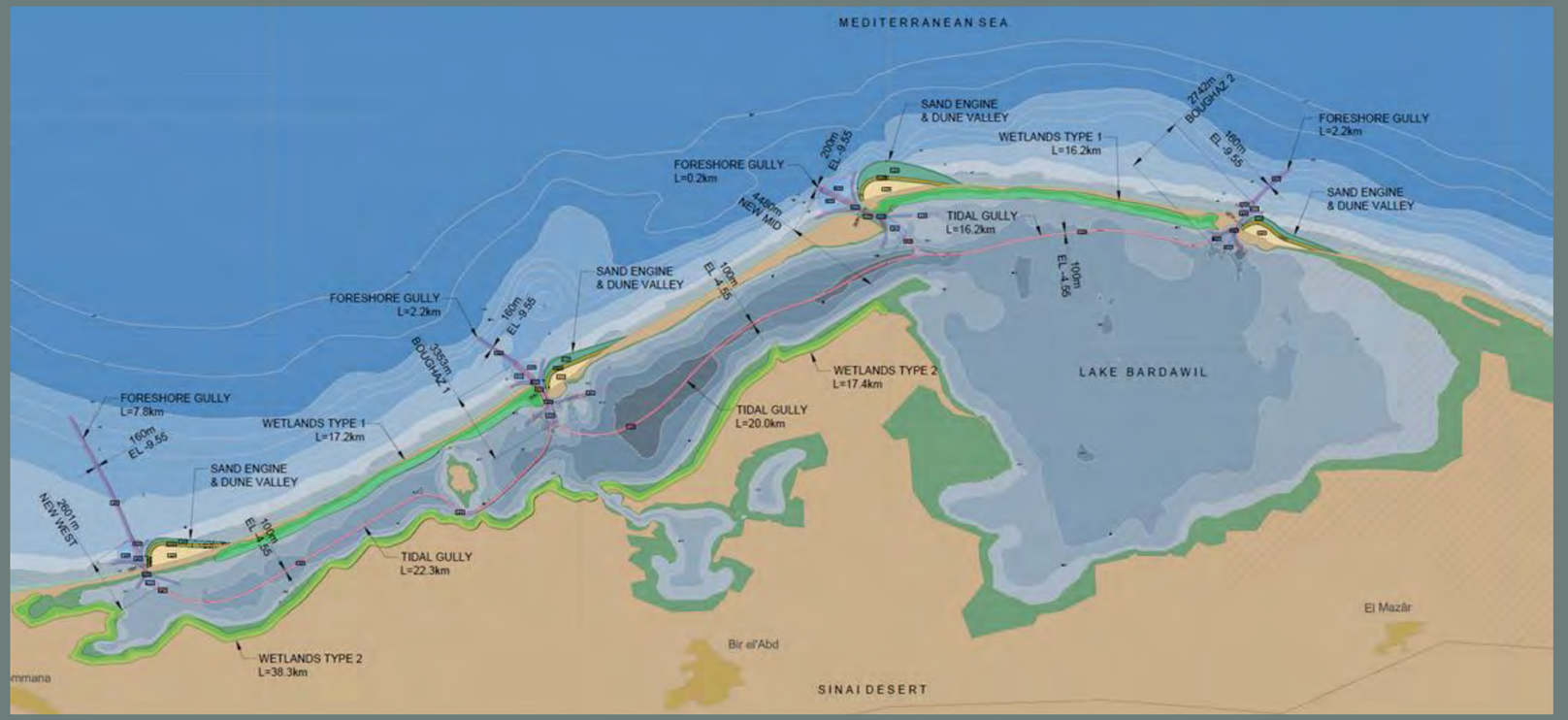
Lake Bardawil is a shallow lagoon on Egypt's Sinai Peninsula, is vital for local communities' livelihoods but faces threats from sedimentation and human activities.

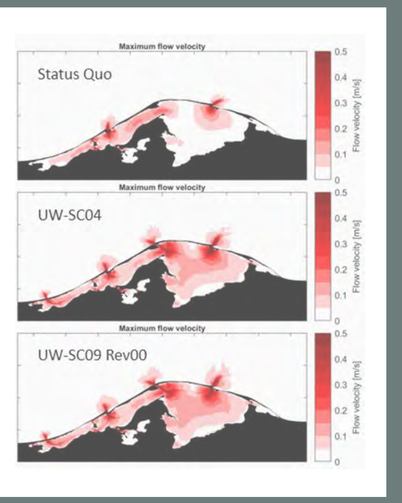
The lake's aquatic ecosystem can be restored to let fish populations and biodiversity flourish while supporting regional socio-economic development.

Interventions include deepening and widening of inlets, create new inlets, restoration of salt marsh wetlands and implementing sustainable fishing practices.

These interventions aim to increase tidal flow from the Mediterranean, improving water quality and nutrient availability, and facilitating fish migration.

Sustainable fish catch yields are modelled to become over 50,000 ton/year, this almost 10 times more than what it is today.



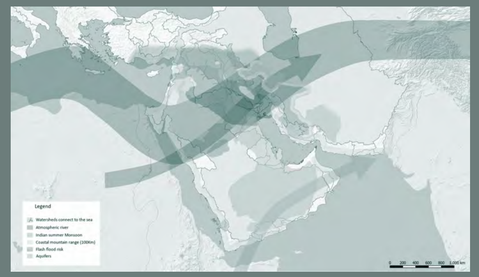


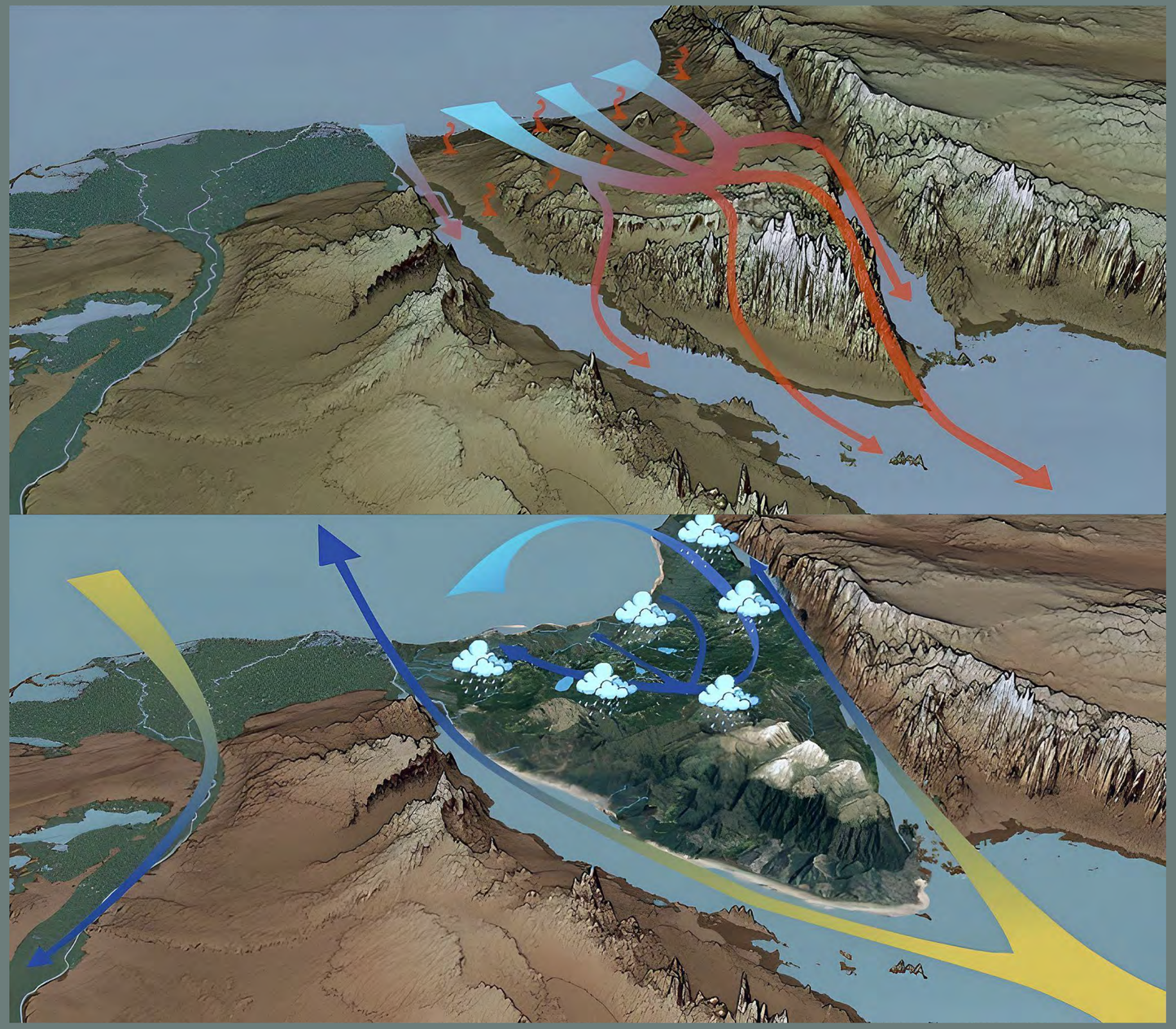
THE SINAI'S POTENTIAL REGIONAL IMPACT

A regreened Sinai Peninsula could significantly alter weather patterns across the wider region. At present, in summer, the hot, dry Sinai draws moisture-laden north-westerly winds from the Mediterranean out into the Indian Ocean, where it fuels extreme weather events.

A cooler, moisture Sinai would reverse the direction of these winds, distributing this moist Mediterranean air more locally. This would result in dramatically increased precipitation to surrounding areas such as eastern Egypt, western Saudi Arabia, Israel, Palestine, Jordan and beyond.

We aim to make our solutions repeatable and scalable to capture opportunities well beyond Sinai.





BENEFITS IN CONTEXT OF THE SOCIAL DEVELOPMENT GOALS

By increasing the standard of living of over 100,000 persons (at short term). Creating about 1,500,000 jobs on the long-term

Sustainable fish stock & agroforestry products, estimated to be 2,4 Mio ton fish & 10,000-15,000 km² agricultural land (30 yr)

By introducing clean water, healthy ecosystems, income, future perspective, good health and well-being will increase.

Intensive training of farmers and fishermen as part of Local Stakeholder Engagement

Increasing education through development of region's infrastructures.

By increasing green vegetation and restoring the hydrological cycle clean water availability and sanitation will improve.

By developing the region's infrastructures through the economic growth of the fish and agroforestry industries.

Strong business case based on direct and indirect returns reducing drastically poverty level in the Sinai region.

Diversified industries.

By reducing poverty and increasing wealth, inequalities will be reduced.

Integrated land management plan leads to smart cities and communities

By implementing a sustainable fishing & agroforestry development.

Cooling of area, reduction of extreme weather. Sequestration of greenhouse gases: 300-1,200 Mio [ton CO2-eq] in 30 yrs

Healthy marine ecosystem with abundance of biomass and fish.

Large-scale regreening of the desert results in cooler areas with less dust and availability of fresh water.

By providing access to knowledge.

Public & Private Partnership with direct and indirect returns model.

TWO ENTITIES, ONE VISION

Two entities operate as one unified organization with a shared mission and vision: A resilient sinai where nature and communities flourish, setting the stage for global water cycle regeneration.

Their primary focus is on restoring water cycles to ensure water security, enhance food security, implement practical scientific solutions, and build strong industry partnerships. This transformative journey begins with the Bardawil & Sinai Initiative.

the WEATHER MAKERS holistic engineering

For-profit

- Spearheaded by Maddie Akkermans
- The company offers engineering services & consultancy on Nature-based Solutions for water engineering projects world-wide.
- Creating value cases for future engineering work, such as the Bardawil & Sinai Initiative

weather makers foundation

Non-profit

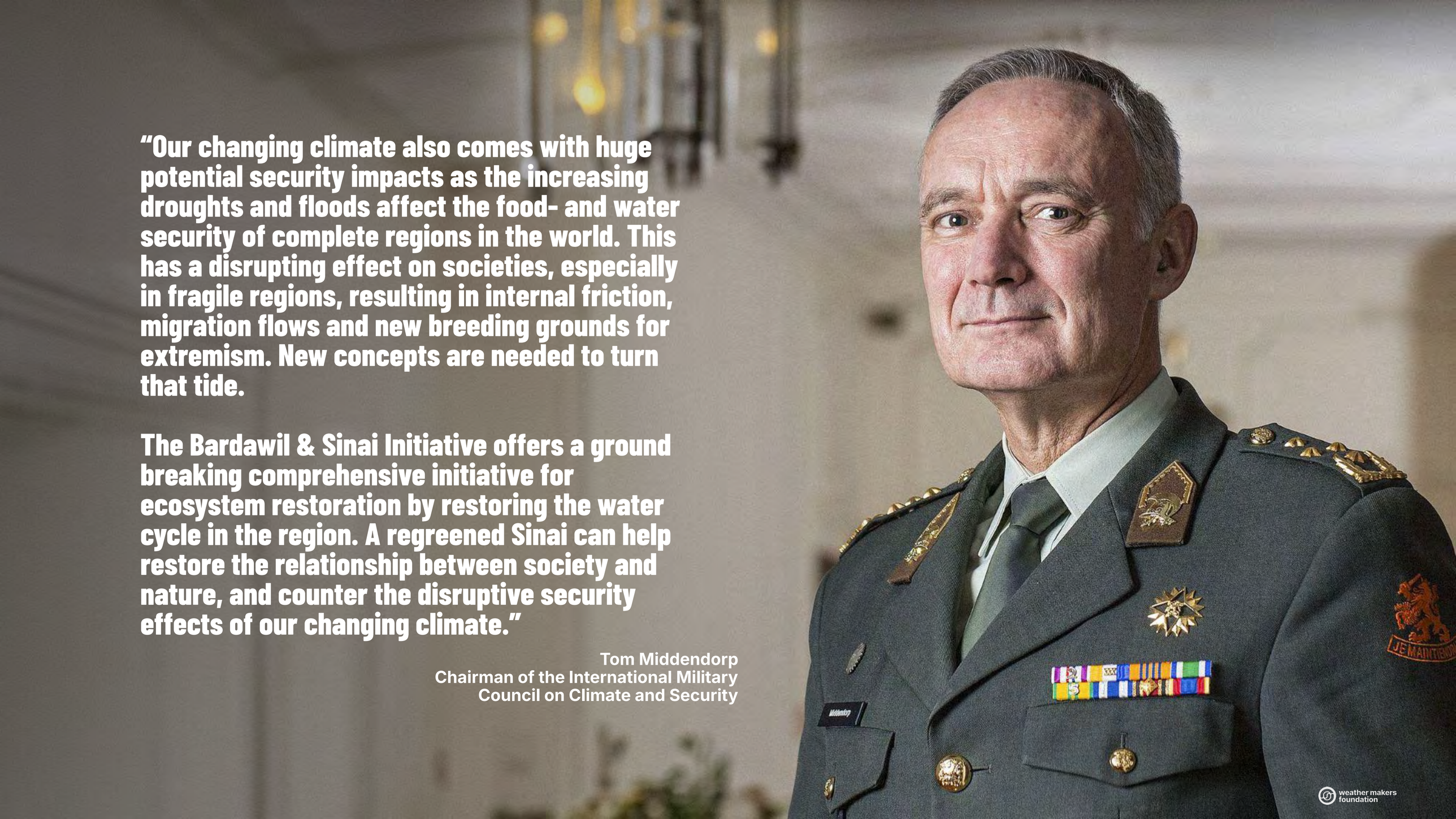
- Spearheaded by Ties van der Hoeven
- Wholly dedicated to the greening of the Bardawil & Sinai Initiative and related geographical areas.
- Creating open-source support to bridge knowledge gaps and overcome barriers.

KEY AFFILIATIONS

Wetsus, European centre of excellence for sustainable water technology is a facilitating intermediary for trendsetting know-how development. Wetsus creates a unique environment and strategic cooperation for development of profitable and sustainable state of the art water treatment technology.

In 1987, the Netherlands Commission for Environmental Assessment (NCEA) was established as an independent advisory body of experts by decree. The NCEA advises governments on the quality of environmental information in environmental assessment reports (EIA or SEA reports).

The Hague Centre for Strategic Studies knowledge institute that conducts independent research. Our goal is to offer fact-based analysis of the challenges that our societies face in order to inform public discourse, public and private strategic decision making and contribute to international and national security in accordance with liberal democratic values.



“Our changing climate also comes with huge potential security impacts as the increasing droughts and floods affect the food- and water security of complete regions in the world. This has a disrupting effect on societies, especially in fragile regions, resulting in internal friction, migration flows and new breeding grounds for extremism. New concepts are needed to turn that tide.

The Bardawil & Sinai Initiative offers a ground breaking comprehensive initiative for ecosystem restoration by restoring the water cycle in the region. A regreened Sinai can help restore the relationship between society and nature, and counter the disruptive security effects of our changing climate.”

Tom Middendorp
Chairman of the International Military Council on Climate and Security

weather makers foundation

WEATHER MAKERS FOUNDATION

Restoring water cycles on a large scale takes teamwork. Contact us today to explore how we can join forces to rejuvenate our ecosystems.

Adres:

Burgemeester Loeffplein 70B

5211 RX 's Hertogenbosch

Email & Website:

Info@weathermakersfoundation.org

www.weathermakersfoundation.org