Lebanon



Organization: Diaries of the Ocean
Location: Kharayeb Village-South Lebanon Region, Mount Lebanon Governorate, Keserwan Qaza, Okaibeh, Lebanon
Solution: Restoring sand dune ecosystems using wooden fences and native plants to enhance climate resilience and protect local livelihoods
Factsheet Period: First round of UNDP AFCIA funding (16 months); Second round of UNDP AFCIA funding (12 months)



In Lebanon, the Diaries of the Ocean team conducts inspections to restore sand dune ecosystems @Diaries of the Ocean

Tourism along Lebanon's 225km coastline is a major contributor to the local economy, contributing around 18-19% of GDP and total employment (Investment Development Authority of Lebanon, 2018). At the same time, Lebanon's coastal fishing communities are highly vulnerable because the sector is small and already under pressure: 3,000 artisanal vessels across 44 landing sites generate only 3,000–3,500 tonnes of catch annually (FAO, 2021). Climate risks are also rising, with Lebanon's National Adaptation Plan warning that up to 20% of exploited marine species could be threatened by 2050 (Lebanon NAP, 2025), which strengthens the case for diversified, value-added and lower-energy livelihood models.

Okaibeh is a small coastal municipality in Keserwan with a 2km coastal front. Its fishing port has been recognised as part of a pilot fisheries region (FAO, 2025), which makes the town a relevant site for testing community-based climate adaptation and sustainable fisheries solutions.

In the southern coastal village of Al Kharayeb, the wellbeing of its 11,000 residents depends on agriculture, beach tourism and their small businesses. Its agricultural plains are currently protected against sea storms with expensive concrete walls that are destructive to the natural environment, and vulnerable to increased wave and erosion.

Phase I:
During the first phase, Diaries of the Ocean aims to reinforce and restore natural sand dunes by constructing wooden fences to protect agricultural plains near the beach, and to slow the degradation of sandy beaches that attract beach tourism. The solution uses sustainable, soft engineering techniques to boost the resilience of vulnerable communities to climate change.

Phase II:
During the second phase, Diaries of the Ocean supports climate adaptation by helping fishers turn low-value and non-indigenous fish species into marketable food products, creating new income, reducing pressure on overfished stocks and strengthening local resilience.

Key achievements

- Conducted scientific studies on flora assessment, seed collection, germination, beach profiling and economic valuation of sand dunes
- Engaged with stakeholders and government officials to obtain official permits and created GIS maps
- Constructed a beach safety watchtower and hired two lifeguards
- Collected and nurtured over 3,000 seedlings for future transplantation, with continuous monitoring of sea turtles to prepare for hatching period
- Installed wooden fences covering 520m of beach
- Conducted two training workshops on conservation of marine biodiversity and sea turtles, involving 35 local people
- Established a functional plant nursery and conducted GIS and mapping training
- Installed key productive assets, including solar power, cold storage and upgraded kitchen facilities
- Generated 9,450 kWh of solar energy, saving the cooperative an estimated US$3,496 in electricity costs
- Completed installation of the wastewater treatment unit, strengthening environmental sustainability
- Delivered four practical food-processing trainings covering five fish-based products and upgraded equipment for production
- Enabled seven cooperative workers to begin processing and marketing value-added fish products
- Established branding and marketing tools, with 109 WhatsApp members and early customer uptake already recorded

Social impact

- Protects communities' livelihoods
- Enhances local resilience to climate change impacts, safeguarding agricultural lands and supporting economic stability
- Builds the capacity of young people and women, promoting their engagement in sustainable activities
- Creates local jobs and skills, with women and men engaged in food processing, marketing and income generation within the cooperative

Adaptation benefits

- Strengthens climate resilience through the reinforcement of sand dunes to slow beach degradation, protect agricultural lands and ensure beach tourism livelihoods
- Provides natural coastal defense through sand dune systems, reducing the impacts of sea storms, flooding and coastal retreat
- Reduces reliance on expensive and unreliable electricity through solar power
- Value addition to low-priced fish improves incomes and reduces pressure on overfished species.
- Increases incomes and reduces pressure on overfished species through value addition to low-priced fish
- Builds local skills and adaptive capacity through training and new equipment

Innovation

- Pioneered a long-term solution in Lebanon that promotes natural processes and ecosystem restoration, serving as a pilot for future initiatives
- Utilizes affordable and sustainable soft engineering techniques, for example upcycling wood to for sand-trapping fences and using native plants to stabilize sand dunes.
- Combines ecosystem restoration with conservation efforts, creating opportunities for small-scale enterprises to promote sustainable beach tourism
- Converts underutilised fish species into ready-made food products with higher market value
- Integrates solar energy, cold storage, processing and marketing in one cooperative model
- Combines production support with branding, menus and digital promotion to drive sales





Replication potential

- Demonstrates a successful, simple methodology that can be applied to similar sites along the Lebanese coastline or other coastlines
- Sand dune techniques are highly effective and easy to implement
- Encourages wider adoption of sustainable coastal management practices by providing a proven model for ecosystem restoration and climate resilience
- The Diaries of the Ocean team is equipped and trained to sustain the solution and replicate them on other sandy beaches
- Easily replicable model combining solar power, food processing, cold storage and local marketing
- Suitable for other coastal communities facing similar energy, income and fisheries pressures

Funding snapshot

- UNDP-AFCIA grant: US$180,000 (initial grant: $120,000; scaling grant: $60,000)

Investability	
Sustaining criteria	The implemented work and assets will be handled by the related local municipalities after the period of the initiative
Financial innovation	Promoted sustainable activities aim to become a direct source of income for locals, who can establish sustainable tourism from the surrounding natural assets



ADAPTATION FUND Climate Innovation Accelerator

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To read their story, visit UNDP-AFCIA

To watch their video, click here

To contact the initiative, visit Diaries of the Ocean