GFCR FULL PROGRAMME DOCUMENT

I. Full Programme Summary Information

Programme Title: Gulf of Aqaba Resilient Reefs Programme	**Recipient Organisation(s):** United Nations Development Programme
Convening Agent: Nedal M. Al Ouran *(Ph.D.)* Programme Specialist Head of Environment, Climate Change & DRR Portfolio United Nations Development Programme – Jordan nedal.alouran@undp.org Office: +962 6 5100420 Ext. 230 **Programme Focal Point Contact**: Nedal M. Al Ouran *(Ph.D.)* Programme Specialist Head of Environment, Climate Change & DRR Portfolio United Nations Development Programme – Jordan nedal.alouran@undp.org Office: +962 6 5100420 Ext. 230	**Programme Location** Country: Jordan Priority Coral Reef Site(s): ○ Aqaba Marine Reserve ○ Aqaba Southern Industrial Site ○ Northern Deep Corals
18-month Programme Cost (USD)[1]: UNDP Jordan: 1,628,754	**Proposed Start Date[2]:** *January 2024* **Proposed End Date:** *December 2030*
Programme Description: The Gulf of Aqaba Resilient Reefs programme will identify and protect coral reef climate refugia, advance science on reef resilience and restoration, and implement finance mechanisms to ensure the sustainable financing of MPAs and OECMs that harbour critical coral reef ecosystems. The programme will also accelerate the development of reef-positive business models, especially in the ecotourism, aquaculture, and waste management sectors, through a newly established Centre for Sustainable Blue Economy Innovation, which will also develop blended finance solutions for businesses and projects in these sectors that support coral reef conservation, community livelihoods, and enhanced community resilience to climate change. With the additional finance for conservation and investment from the private sector, the programme is expected to leverage at least an additional USD 30 million to support coral reef conservation in the Gulf of Aqaba.	

[1] As per GFCR Executive Board decision, disbursements will be determined based on fiduciary assessment, expenditures and GFCR Secretariat's performance review.

[2] Programme start date will be triggered by the initial fund transfer of the GFCR Trustee

Signature of Convening Agent:	**Signature of Co-recipient Organisation (if relevant):**
Print: Organisation United Nations Development Programme Name Randa Aboul-Hosn Title Resident Representative Signature Date 14 December 2023	Print: Organisation _____ Name _____ Title _____ Signature _____ Date _____

Signature of GFCR Executive Board UN Partner:

Print:
Organisation United Nations Environment Programme (UNEP)
Name Leticia Carvalho
Title Head of Marine and Freshwater Branch

Signature _____ Date 11 December 2023

II. Budget Request Summary by UNDG Categories

Total Programme Costs Budget Breakdown	Convening Agent	Co-recipient (if any)	TOTAL
1. Staff and other personnel	$428,400	$0	$428,400
2. Supplies, Commodities, Materials	$5,000	$0	$5,000
3. Equipment, Vehicles, and Furniture (including Depreciation)	$6,000	$0	$6,000
4. Contractual services	$462,000	$0	$462,000
5. Travel	$153,400	$0	$153,400
6. Transfers and Grants to Counterparts	$432,000	$0	$432,000
7. General Operating and other Direct Costs	$35,400	$0	$35,400
Total Direct Costs	**$1,522,200**	**$0**	**$1,522,200**
8. Indirect Support Costs (7%)	$106,554	$0	$106,554
TOTAL Budget	**$1,628,754**	**$0**	**$1,628,754**

III. Acronyms and Definitions

Acronym	Definition
ACT	Aqaba Container Terminal
ADC	Aqaba Development Company
AMA	Aqaba Marine Aquarium
AMP	Aqaba Marine Park
AMR	Aqaba Marine Reserve
ASEZ	Aqaba Special Economic Zone
ASEZA	Aqaba Special Economic Zone Authority
ASTH	Aqaba Science and Technology Hub
CBD	Convention on Biological Diversity
CENMP	Coastal Environment National Monitoring Program
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CORDAP	Coral Research and Development Accelerator Platform
CoT	Crown of Thorns
CSO	Civil Society Organisation
CSR	Corporate Social Responsibility
DIM	Direct Implementation Modality
DO	Dissolved Oxygen
EEAA	Egyptian Environmental Affairs Agency
EIA	Environmental Impact Assessment
FPIC	Free, Prior, and Informed Consent
GEF	Global Environment Facility
GEWE	Gender Equality and Women's Empowerment
GFCR	Global Fund for Coral Reefs
GHG	Greenhouse Gas
GoA	Gulf of Aqaba
GoJ	Government of Jordan
Ha	Hectare
ICZM	Integrated Coastal Zone Management
IMO	International Maritime Organization
IUCN	International Union for the Conservation of Nature
IUCN ROWA	International Union for the Conservation of Nature / West Asia Office
JNPAs	Jordan's Network of Protected Areas
JOHUD	Jordanian Hashemite Fund for Human Development
JREDS	The Royal Marine Conservation Society of Jordan
KAUST-RSRC	King Abdullah University of Science and Technology Red Sea Research Center
KM	Knowledge Management
LMMA	Locally Managed Marine Area
MED4EBM	Mediterranean Forum For Applied Ecosystem-Based Management project
MOE	Ministry of Environment
MOTA	Ministry of Tourism and Antiquities
MoU	Memorandum of Understanding
MPA	Marine Protected Area
MSL	Mean Sea Level
MSME	Micro, Small, and Medium Enterprises
MSS	Marine Science Station

NAP	National Adaptation Plan
NDC	Northern Deep Corals
NGO	Non-Governmental Organisation
NIOF	National Institute of Oceanography and Fisheries
OECM	Other Effective area-based Conservation Measures
PERSGA	Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden
PES	Payment for Ecosystem Services
PMU	Programme Management Unit
RHC	Royal Hashemite Court
RSCN	Royal Society for the Conservation of Nature
SDG	Sustainable Development Goal
SIS	Southern Industrial Site
SRSA	Saudi Red Sea Authority
ToC	Theory of Change
TRSC	Transnational Red Sea Center
UNDG	United Nations Development Group
UNDP	United Nations Development Program
UJA	University of Jordan, Aqaba
WB	World Bank

IV. Executive Summary

The Gulf of Aqaba (GoA) is a semi-enclosed basin approximately 180 km long and 14-26 km wide, stretching from the Straits of Tiran to its terminus where Israel meets Jordan and Egypt. The GoA includes shallow habitats, diverse reef formations and deep-sea areas with intact ecosystems that support high numbers of species and high levels of endemism and interacting biological processes. Coral reef communities in the Gulf of Aqaba are among the northern-most tropical reef systems worldwide, provide habitat for endemic and rare marine species, and sustain critically important ecosystem services that underpin the socio-economic development of the communities that are located along the coastline.

Three priority sites within the GoA have been identified for the programme's implementation: the Aqaba Marine Reserve (AMR); the Northern Deep Corals (NDC); and the Southern Industrial Site (SIS). The AMR is Jordan's only Marine Protected Area (MPA) and includes diverse habitats of coral reefs and seagrass beds. The NDC was the site of Aqaba's main port for more than 60 years until 2015; despite this, the coral reefs at the site have maintained good coral cover, particularly in deeper areas, and have recovered quickly in the decade since the port was relocated. Finally, although the SIS is the site of significant port / industrial operations, coral reefs at the site continue to show extensive cover and ecological functioning, and a better understanding of the ecological performance of these corals would be valuable in increasing understanding of coral resilience to natural and anthropogenic stresses.

The corals of the GoA have demonstrated globally significant resilience to the impacts of climate change. It is believed that this resilience stems from the fact that corals in the northern Red Sea region underwent selection towards thermally resilient genotypes upon entering the Red Sea from the Gulf of Aden, and that the Gulf of Aqaba itself has distinct biogeochemical features that may enhance the resilience of its coral reefs to climate change impacts. The coral species found in the Gulf of Aqaba can serve as an invaluable coral gene bank that can support global efforts to restore coral reef ecosystems in other parts of the world where coral bleaching has devastated local reefs, and as a natural laboratory for the study of climate change impacts on coral communities. By assessing the coral and associated species (i.e. algae) as well as conditions that seem to produce the most resilience to bleaching, and by piloting techniques for cultivating and transplanting resilient corals under similar conditions, the programme will generate globally important data and models for restoring coral reefs in other parts of the world that are gravely impacted by climate change.

While corals in the Gulf of Aqaba (GoA) appear highly resilient to climate change impacts, the impacts of other, mainly anthropogenic, localized stressors on coral reef ecosystems will continue to reduce the resilience of the area's reefs unless effectively addressed. Coral reefs and associated ecosystems in the region are under severe pressure from a variety of anthropogenic impacts, including: land-based pollution such as sewage, industrial pollution, micro-plastics, etc.; impacts from intensive tourism visitation; marine-based pollution (from ships and ports, including solid waste, oil spills, etc.); coastal infrastructure development for tourism, trade and industry; unsustainable fishing and the harvesting of other living marine resources; and coral predators and disease.

The vision for the Gulf of Aqaba Resilient Reefs programme is "Coral reef ecosystems in the Gulf of Aqaba are conserved and restored, conserving biodiversity, supporting sustainable development, and increasing resilience to climate change". The proposed programme will work towards this vision through a suite of inter-connected interventions to achieve four primary outcomes, as described below. Each of the outcomes includes outputs designed to unlock additional financing and catalyse sustainable revenue streams for reef-positive practices, most notably 1.3 (sustainable revenue streams for marine

conservation); 2.2 (incubation and financing of reef-positive businesses and projects); 3.1 (finance / investment opportunities to support coral restoration**;** and 4.1 **(**facilitate connectivity among investors, entrepreneurs, and practitioners internationally, and share bankable reef-friendly solutions incubated by the programme).

Outcome 1: Heightened protection of functioning, resilient coral reefs in the Gulf of Aqaba: Under outcome 1, the programme will generate the following outputs: 1.1: Ecological and socio-economic information related to marine ecosystems effectively gathered and communicated to inform conservation policy, prioritize intervention sites, address drivers of degradation, and assess the impacts of GFCR interventions; 1.2: Regional planning, information sharing, and scientific research collaboration on coral reefs strengthened and contributing to conservation, and enhanced livelihoods for local communities, with a focus on women and youth; and 1.3: Financing mechanisms and related management capacities strengthened for Marine Protected Areas (MPAs) and OECMs.

Outcome 2: Integration of Red Sea coral reefs into the growing sustainability-oriented economy of Aqaba: Under outcome 2, the programme will generate the following outputs: 2.1: Reef-positive investment opportunities identified and supported through a Centre for Sustainable Blue Economy Innovation; 2.2: Reef-positive investment opportunities scaled through finance from the Centre for Sustainable Blue Economy Innovation; 2.3: Sector-specific regulations, management mechanisms and information systems in place to reduce negative impacts on coral reefs and facilitate investments in and operation of reef-friendly businesses; and 2.4: Aquaculture Innovation in Aqaba.

Outcome 3: Coral reefs in the region are regenerated and restored through new technologies and adaptive and science-based approaches: Under outcome 3, the programme will generate the following outputs: 3.1: Develop and up-scale investment opportunities and financing mechanisms to support coral restoration.

Outcome 4: Knowledge management to support upscaling and replication of coral reef finance and business solutions: Under outcome 4, the programme will generate the following outputs: 4.1: Engagement with the regional and global coral reef finance community for impact, scaling and replication.

The programme implementation period is projected to be from early 2024 until the end of 2030, and will consist of three phases of implementation: Inception (18 months), Consolidation (3.5 years), and Growth (1 year). The primary deliverables / milestones for the Inception phase are outlined in Section 7.2. By the end of the programme, the programme will have: reduced the drivers of degradation impacting coral reefs with globally important characteristics of resilience to coral bleaching; spurred regional action across the entire Gulf of Aqaba on effective and coordinated management and information sharing to support coral reef conservation; improved scientific understanding of and piloted techniques for the restoration of resilient coral species; and established the Centre for Sustainable Blue Economy Innovation as the first source of funding for and incubator of reef-positive businesses and projects in the region.

The programme's exit strategy will rely first and foremost on the Centre for Sustainable Blue Economy Innovation, which is designed to establish self-sustaining / profitable reef-friendly business, livelihoods programs, and investment mechanisms and opportunities. These mechanisms will provide ongoing funding flows into projects and businesses that directly support coral reef conservation, or indirectly benefit coral reef ecosystems by removing drivers of reef degradation and destruction. In addition, by programme end priority coral reef sites that harbour the Jordanian GoA's most important coral reef ecosystems will have been strengthened through improved MPA governance and/or the establishment of

new protection regimes (i.e. Other Effective Area-based Conservation Measures - OECMs), and made more viable over the long-term through the establishment of expanded finance mechanisms.

UNDP's vision for the Grant Fund Programme envelope is USD 10 million. UNDP will also work with the GFCR Investment Fund manager to establish a formal collaboration and design an interactive process to identify enabling environment activities and assess potential investment opportunities in the Gulf of Aqaba region. Potential projects in this area will be scoped during the Inception Phase as a way to leverage investments from the GFCR Investment Fund. UNDP envisions that at least USD $93.5 million in investment capital can be leveraged through the programme's interventions.

Although this is a national programme, regional collaboration and partnerships are expected with institutions and organizations in Egypt and Saudi Arabia, as described in Section 6.4 and Annex VI. It is important to note that while Saudi Arabia is not a GFCR recipient country and no partners in Saudi Arabia will receive GFCR grant funding through this programme, it nevertheless is a strategic partner for the proposed GFCR Programme; UNDP Saudi Arabia will provide an important conduit for engaging partners in Saudi Arabia.

UNDP Jordan is the GFCR convening agent for the programme and will provide strategic guidance, engage with recipient partner organisations and governments, source investment opportunities for the programme's pipeline of interventions, ensure environmental and social safeguards are applied in all supported interventions, monitor results, and provide overall programme management. International Union for the Conservation of Nature / West Asia Office (IUCN ROWA) will be a key implementing partner, leading the implementation of Outputs 1.1 and 1.3. The programme will establish a Programme Steering Committee (PSC), a Project Selection and Investment Committee (PSIC) that will evaluate and select projects that have responded to the calls for proposals issued by the CSBEI, and a Technical Advisory Committee (TAC) to provide technical guidance and backstopping; support the programme in its endeavour to strengthen communication, coordination and collaboration among programme stakeholder; and contribute to knowledge generation and dissemination.

V. Full Programme Narrative

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1 Coral Reef Situation Analysis

1.1 National context and global significance

Overview of Gulf of Aqaba and its Coral Reefs

The Gulf of Aqaba (GoA) is one of the two northern extensions of the Red Sea separating the Sinai peninsula from Arabia (see Map 1). The GoA is a semi-enclosed basin approximately 180 km long and 5 - 25 km wide, stretching from the Straits of Tiran to its terminus where the northernmost 50 km host the three cities of Aqaba (Jordan), Eilat (Israel) and Taba (Egypt) (see Maps 2-3). The Gulf of Aqaba is Jordan's only marine territory, and the most significant features of this marine environment are its coral reef ecosystems and their associated marine species. The Jordanian part of the GoA covers 350 sq. km., including 4 sq. km. of coral reef ecosystems, which extend for 14 km along the Jordanian coast and include a discontinuous series of fringing reefs that contain unique marine and coastal ecosystems, habitats and rich biodiversity[3]. The GoA is home to the most northerly hard corals of the Western Indo-Pacific biogeographic region, and is a critically important reservoir or refugia for tropical reef species.

Despite its relatively small overall area, the GoA's coral reefs possess remarkably high marine biodiversity that qualified it to be considered within the Red Sea biogeographic zone, which is designated as a World Wide Fund for Nature (WWF) "Global 200 Eco-Region". The Gulf of Aqaba sustains about 270 species of coral, including 157 identified hard coral species and 120 soft coral species, including 23 known Red Sea endemic coral species in the Gulf of Aqaba alone[4]. The Gulf of Aqaba also harbours more than 510 marine fish species. The rate of endemism is considered high and represents 14.7% of the total fish species recorded, with seven fish species recognized as endemic to the Gulf of Aqaba. The GoA harbours both the endangered Indo-Pacific Humphead Wrasse (*Cheilinus undulates*) and the globally threatened Whale Shark (*Rhincodon typus*). Most of the endemic fish species restricted to the Gulf of Aqaba are closely associated with and dependent upon the coral reef habitat.

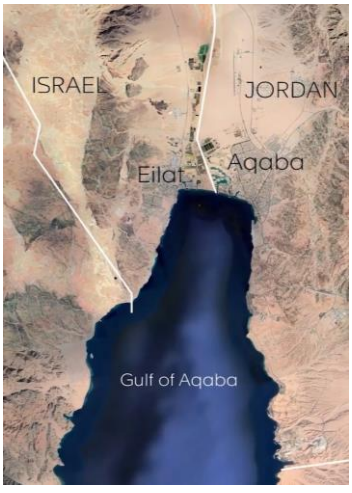
Map 1: Northern Red Sea with Gulf of Suez and Gulf of Aqaba



Map 2: Gulf of Aqaba



Map 3: Northern tip of the Gulf of Aqaba



[3] Aqaba Marine Park Concept Paper, Jan. 2023

[4] Mangrove ecosystems do not occur in the Jordanian part of the Gulf of Aqaba. Seagrass beds are found in this area, but no data exists on the area of seagrass beds or on trends in seagrass bed coverage.

Three sites have been selected as priority implementation sites: 1) Aqaba Marine Reserve (AMR); 2) Northern Deep Corals (NDC); and 3) Southern Industrial Site (SIS). Although these 3 sites do not cover the entirety of the Jordanian coastline, they encompass the vast majority of Jordan's coral reef ecosystems and most of the very limited coastline of 27 km; thus, the GFCR programme will effectively cover all of Jordan's coastal area. The Aqaba Marine Reserve, which is Jordan's only marine protected area[5], represents an outstanding marine ecosystem that includes diverse intact habitats of coral reefs and seagrass beds that require long-term conservation support for their unique diversity and endemism. The Northern Deep Corals site was Jordan's main port area for over 60 years, until port operations were moved further south along the coast during the past decade. Currently, this area is primarily used by fishermen practicing traditional artisanal fishing, but it is the site for the planned establishment of the Aqaba Marine Park, which will include a Science and Technology Hub and Aquarium along with the existing Marine Science Station. The Southern Industrial Site marine habitat is a historically well-developed coral reef habitat on the southern coast of the Jordanian part of the Gulf of Aqaba; about 19km south of the northern edge of the Gulf of Aqaba and about 2km north of the Jordanian border with Saudi Arabia. Intensive industrial and port development has taken place in the area, including the construction of ports, laying of gas pipelines and cooling water intake and outflow for power stations. Despite this level of development, coral reefs at the site continue to show extensive cover and ecological functioning; monitoring of the sites has documented 46 hard coral species at the site belonging to the genera *Acropora sps., Montipora sps*., *Favia sps and Fungia sps.*[6] Additional details on these 3 priority sites, including the budget and budget gap for the AMR, are provided in Section 3 and Annex I.

Reef Resilience to Climate Change

The Gulf of Aqaba, which is the north-eastern deep, narrow and sharply sloping extension of the Red Sea, constitutes a unique and globally important marine refuge where coral reefs are highly resilient in the face of the impacts of climate change. Long term monitoring (NCEMP, 1999-2021) and recent studies[7] have shown that corals in the Gulf of Aqaba demonstrated significantly less bleaching and subsequent die-out as compared to corals elsewhere in the global oceans[8]. Similarly, an assessment by Fine *et al* (2019) applying SWOT Analysis based on data from International Reports (Reef Base, 2018; Wilkinson, 2004) indicated that coral reefs in northern sections of the Red Sea (including the Gulf of Aqaba) are considered a coral reef refugia from global warming and acidification, even as reefs in southern sections of the Red Sea live near or above their maximum temperature tolerance and have recently experienced bleaching. Corals in the region have shown resiliency under temperatures that far exceed the most severe IPCC warming projections for this century under RCP 8.5, and have demonstrated physiological resilience to up to 6 °C above local maximum summer mean temperatures. Unlike corals from other regions, corals

[5] Currently, there are no Other Effective area-based Conservation Measures (OECM) sites in Jordan and they are not yet recognized in Jordan's legal / regulatory framework.

[6] Although the National Monitoring Program for the Gulf of Aqaba has collected some data on the # of coral species and coral reef coverage, the actual data sets are not publicly available.

[7] 1) Kleinhaus, K., Al-Sawalmih, A., Barshis, D. J., Genin, A., Grace, L. N., Hoegh-Guldberg, O., Loya, Y., Meibom, A., Osman, E. O., Ruch, J.-D., Shaked, Y., Voolstra, C. R., Zvuloni, A., & Fine, M. (2020). Science, Diplomacy, and the Red Sea's Unique Coral Reef: It's Time for Action Frontiers in Marine Science, 7, 90. https://doi.org/10.3389/fmars.2020.00090; 2) Fine, M., Cinar, M., Voolstra, C. R., Safa, A., Rinkevich, B., Laffoley, D., et al. (2019). Coral reefs of the Red Sea — challenges and potential solutions. *Reg. Stud Mar. Sci.* 25:100498. doi: 10.1016/j.rsma.2018.100498

[8] Aqaba Marine Park Concept Paper, January 2023

studied here displayed little if any bleaching signs and, in some cases, showed improved performance with increased temperature[9].

It is believed that this resilience stems from the fact that corals in the northern Red Sea region underwent selection towards thermally resilient genotypes upon entering the Red Sea from the Gulf of Aden[10]. In addition, the Gulf of Aqaba itself has distinct biogeochemical features that may enhance the resilience of its coral reefs to climate change impacts[11]. Furthermore, recent studies have shown that the waters of the Red Sea have a high buffering capacity with regard to ocean acidification, and may reach critically low Ω_{arg} levels for reef calcification at a later time point than other tropical coral reef locations. The resilience of coral reefs in the GoA highlights the need for immediate action to secure the area as a coral reef climate change refuge (Fine *et al*., 2013; Osman *et al*., 2018) through the management and removal of local stressors. Equally importantly, the coral species found in the Gulf of Aqaba can serve as an invaluable coral gene bank that can support global efforts to restore coral reef ecosystems in other parts of the world where coral bleaching has devastated local reefs, and as a natural laboratory for the study of climate change impacts on coral communities.

Socio-economic importance of the GoA's coral reefs

Coral reefs of the region provide a variety of critically important ecosystem services that underpin the socio-economic development of the communities in Jordan, Egypt and Saudi Arabia that are located along the coastline. In Jordan, the vast majority of the population along the gulf is located in the city of Aqaba, whose population was around 208,000 at the end of 2019. This population is growing quite quickly, with an annual growth rate between 1994-2018 of 4.62% (i.e. doubling every 15 years) and an expected increase over 300,000 persons by 2030. The area's population growth is associated with a number of impacts on coral reefs including, but not limited to, increased solid waste creation and increased infrastructure along the limited coastline.

In 2016, ASEZA in collaboration with the UNDP-GEF project "Mainstreaming marine biodiversity conservation into coastal zone management in the Aqaba Special Economic Zone", developed a detailed economic valuation of the Jordanian coast of the Gulf of Aqaba, which showed the annual economic value of ecotourism as a service of the Aqaba coral reef ecosystem ranged from JD 17 million – 34 million (USD 24 – 48 million).

Tourism is the main engine of the economy in the Jordanian coastal area. Annual revenues from tourism in the Red Sea region are over US $12 billion (Kleinhaus, *et al.*, 2020). Aqaba is an important tourist destination for both local and foreign tourists, due to its world-renowned coral reefs and diving sites; sandy beaches with favourable climate; rich history and culture; and nearby mountain and desert landscapes. In 2019, the last pre-Covid year, the total number of tourist arrivals was (1,084,595), of which (417,569) (38%) were Jordanians[12]. Some 37 different cruise line companies have visited Aqaba, with an

[9] Ibid

[10] Coral reefs of the Red Sea — Challenges and potential solutions. M. Fine a,b,∗, M. Cinar c, C.R. Voolstra d, A. Safa e, B. Rinkevich f, D. Laffoley g, N. Hilmi h, D. Allemand h. Regional Studies in Marine Science 25 (2019) 100498

[11] Detailed information on the biophysical parameters and conditions that are important for the health and functionality of coral reefs in the Gulf of Aqaba is provided in Annex I, which describes factors such as Red Sea – Gulf of Aqaba Water Exchange; Water Tides; Waves; Currents; Seawater Density; Thermohaline Structure; Nutrients and Chlorophyll a; and Primary Productivity and Phytoplankton, all of which are linked to the reported resilience of corals in the Gulf of Aqaba to climate change as compared to corals in other parts of the Red Sea.

[12] Aqaba Marine Park Concept Paper (June 2022)

average annual growth rate in ship borne visitors of 9.2% between 2007 and 2019. Visitors to Aqaba enjoy water sports activities such as diving, which is considered a major industry at Aqaba with the presence of around 35 diving centres that operate guided dives at about 30 officially recognized sites, 26 of which are within the AMR's boundaries.

In the Red Sea region, fisheries landed value is approximately US $230 million per year (Kleinhaus, *et al.*, 2020). However, there is no monitoring of fish catch in Jordan or publishing of regular fisheries statistics. However, the Royal Marine Conservation Society of Jordan (JREDS) has generated data showing that the migratory tuna catch is probably the largest single fishery, with an annual average catch of about 26,000 kg., while the annual average catch of local fish species is around 33,500 kg. Fishing is prohibited in most of the Jordanian waters of the GoA, and most fishing effort takes place along the northern part of the coast, which is characterized by sandy bottoms and seagrass meadows, where more fish species can be found. Previously, fishing for live bait was permitted within the AMR's boundaries, but this is now also prohibited because of the impact on fish stocks and coral reefs. There are approximately 100 artisanal fishers in the Jordanian part of the GoA, of whom 70-80 rely on fishing as their main sources of income. Fishers in Aqaba are represented by two associations – the Aqaba Fishing Society and the Thaghr el Ordon Fishermen Society; both of these associations will be key partners in the activities under Output 2.3 to increase fishers' knowledge, awareness and capacity to adopt sustainable fishing practices and technologies.

The Gulf of Aqaba is Jordan's only outlet to the sea, and as such constitutes a vitally important area for shipping and port operations. The Aqaba southern ports area consists of 11 terminals stretching over 28 specialized berths. In addition, industrial development has taken place in the southern end of the Jordanian Gulf of Aqaba, including phosphate mining, thermal power production, desalination facilities, etc.

Local Drivers of coral reef degradation in the proposed project area

Coral reefs and associated ecosystems in the region are under severe pressure from anthropogenic and climate change-related impacts. While corals in the northern Red Sea and Gulf of Aqaba appear able to withstand water temperature irregularities that cause severe bleaching or mortality in most hard corals elsewhere, the impacts of local stressors on coral reef ecosystems will continue to reduce the resilience of the reefs to climate change-induced changes to water temperature, acidification levels, etc. unless effectively addressed. Note: additional details on drivers of coral reef degradation are provided in Section 3 (for the priority sites) and Annex I. However it should be noted that there is very little quantified information on drivers of degradation in the Jordanian area of the Gulf of Aqaba.

Coastal Infrastructure Development: Coastal development has substantially increased in the region, with potential impacts on coral reefs through increased pollution, including sewage discharge and garbage, that damages or kills coral, and increased sedimentation from construction and dredging which can kill coral by blocking the light needed for its symbiotic algae to support their coral hosts. Furthermore, while new port construction has slowed in Jordan, the siting of port facilities near to MPAs (such as the AMR) and other priority coral reef areas may create negative environmental effects especially in terms of waste, pollution and sediment flows. Historically, port construction had a significant impact on coral reefs in the GoA; the estimated area of hard corals directly impacted by a port relocation to the southern are of Aqaba

near the Saudi border[13] was 32,509 sq. meters[14]. As of today, however, work on the relocated port is essentially complete.

Marine-based Pollution: In Jordan, shipping and port activities contribute 30% of marine debris and litter. It has been estimated that 19 million items (including garbage and animal carcasses) reach the marine environment each year just from ships operating in the gulf[15]. Fishing is estimated to contribute another 3% of marine debris and litter, including lost or abandoned gear that significantly affects coral health and abundance[16]. Ballast water on container ships, bulk carriers, and tankers visiting ports poses the additional and potentially significant threat of introducing invasive species into the gulf's waters. Oil spills also constitute a serious threat to the region's coral reefs; over 30% of the world's oil tankers pass through the Red Sea, and a large oil spill in the Red Sea could greatly impact coral reefs in the GoA. In addition, the volume of cargo traffic in the GoA generates threats to the reef such as potential oil spills, ship groundings, wastewater/ballast water release, marine litter, noise pollution, and physical disturbance of wildlife.

Land Based Pollution: Land-based contaminant flows are concentrated in areas of urban, tourism and industrial developments, where oil, phosphates, other industrial wastes and sewage are produced and occasionally discharged unintentionally into the sea, resulting in declining marine water quality and the degradation of the coral formations. In addition, brine effluent from desalination plants is a growing issue in the Gulf of Aqaba. The most significant accumulated debris in Aqaba's seas are plastics, including micro-plastics, which threaten scleractinian (reef-building) corals. Municipal dumps are frequently located at unfenced and open desert areas near the coastline (where most development is situated). The marine ecosystems of the GoA also receive significant litter and debris that flows from wadis and small valleys, where occasional but very strong floods are caused by rainstorms common to the region, with impacts such as changes in water salinity, turbidity, temperature and also disruption of microbiological activity and life cycles of flora and fauna.

Rapidly Growing and Poorly Regulated Tourism: Rapid growth in tourism, combined with significant growth in local populations (many of whom have moved to the region to participate in the tourism economy), has put intense demand on the limited resources available and resulted in significant impacts from visitation to coastal and marine ecosystems. Reef-related tourism can impact reefs directly through physical breakage of coral by those walking on the reef, divers and snorkelers using improper techniques, or dive boat captains dropping anchors onto corals. Diving is considered a major industry at Aqaba with the presence of around 35 diving centres; snorkelling and diving are considered the primary cause of damage to marine biodiversity within the Aqaba Marine Reserve[17].

Unsustainable Fishing and Harvesting of other living marine resources: Fishing activities in the Jordanian waters of the Gulf of Aqaba is only allowed during daytime, and for the past four years seasonal closures have been put in place for local fish (the closures do not apply to migratory fish species). Because of Jordan's very limited coastline and competition for other uses of Jordanian waters (e.g. ports; industry; military and sensitive border areas; closed tourism areas, and the Aqaba Marine Reserve), the area allowed for fishing is very limited, with two major results. First, fishers have seen declining catches and reduced incomes over the past few decades. Second, because legal fishing is concentrated in a limited

[13] ADC, 2014
[14] Al Tawaha et al. 2019a
[15] Abu Hilal and Al Najjar 2004
[16] Al Tawaha et al. 2019
[17] Ibid

area, the pressure on fish stocks in those areas is intense, and overall ecosystem functioning is affected by the loss of fish diversity as well as by direct damage to reefs from fishing activities. In addition, substantial harvesting of live corals and fish specimens occurs directly from the sea for exhibition purposes at the marine aquarium[18].

Coral Predators & Disease: Coral predation and diseases are threatening the coral reefs in Jordan[19]. One natural predator that could cause serious effects to reef building corals is *Drupella cornus*, which preys almost exclusively on living coral tissues and is found along the coast[20]. Field observations along the Jordanian coast reveals that this snail mostly infects branching corals such as *Acropora* spp. and *Stylophora* spp. In addition, the Crown of Thorns (CoT) (*Acanthaster planci*[21]) has been found in the gulf, although no actual outbreaks have been recorded to date[22]. Skeleton Eroding Band (SEB) coral disease was studied along the Jordanian coast in the GoA[23]. Although the infection rate was relatively low, this disease was frequently encountered with *Acropora* spp. and *Stylophora* sp.

Barriers to addressing local drivers of degradation

Economic development and resource management planning is not informed by science and data to mitigate impact: The Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden (PERSGA) State of the Marine Environment report (2020) identified important shortfalls in data related to management of the marine environment, including: very limited information and understanding of coral reefs and their drivers of degradation; limited monitoring of regional environmental indicators, including fish stocks, bycatch levels and fish landings; an inability to obtain data in collaboration with dive and other tour operators, etc. In the Jordanian GoA, there is no consistent collection of data on fish stocks, and although data or coral reefs has been collected for several decades, it has never been systematized or used for management decision-making. Furthermore, as highlighted in PERSGA's Red Sea and Gulf of Aden state of the Marine Environment Report (2006), there is an urgent need to establish scientific bodies and institutions that can standardize data collection protocols and support data collection programs and broad scientific research across the entire region. At present, data on corals, fish, and other marine environment components as well as drivers of degradation is almost entirely collected at the national level, with no mechanisms for joint data collection and monitoring or sharing of information across countries, which greatly inhibits understanding of issues across the Gulf of Aqaba environment, such as pollution flows, movements of species / populations, coral coverage at the regional level, etc.

Barriers hindering progress towards sustainable practices, development of financial instruments, and private sector engagement related to coral reef ecosystem health: The need for new sources of financing for conservation and management of coral reef ecosystems in the Red Sea region is now widely recognized, with public-private partnerships needed both nationally and internationally[24]. However, a number of barriers exist that constrain attempts to increase financing for coral reef conservation in the

[18] Al Tawaha et al. 2019
[19] Al-Moghrabi 1996 and 2001; Al-Horani et al. 2006
[20] Johnson and Cumming 1995
[21] Turner 1994a; Black and Johnson 1994; McClanahan 1997
[22] Antonius and Riegl, 1997; Loya and Gur, 1996; AlMoghrabi, 1997
[23] Winkler et al. 2004
[24]The Coral Reef Economy The business case for investment in the protection, preservation and enhancement of coral reef health (2018). UN Environment, ISU, ICRI and Trucost.
https://wedocs.unep.org/bitstream/handle/20.500.11822/26694/Coral_Reef_Economy.pdf?sequence=1&

region, including an insufficient level of “bankable projects” that meet the minimal conditions to qualify as an investment opportunity; the fact that existing business incubators in the region are not focused on blue economy approaches (with the exception of some tourism opportunities) or the marine environment; a lack of information on clear opportunities to generate lasting value and growth; high transaction costs in accessing support and investments; and a lack of experience in the region in linking economic, business and investment opportunities with conservation programs and objectives.

Limited space and lack of alternative development sites: The Jordanian coast on the GoA is almost entirely allocated to various resource users. While there is some level of terrestrial development zoning, an official sea use plan is yet to be adopted. The Southern Industrial Area has well developed coral reefs, and yet this is the only coastal zone where heavy industry can be licenced. Although developers have put substantial effort and financial resources into coral transplantation as a mitigation measure, the technology applied still needs significant improvement in order to prevent net losses in the area of coral reefs and percentage of coral live cover. Enhanced and regular monitoring of both the development site (coral donor) and the recipient site needs to be put in place and be associated with financial mechanisms for restoration of a suitable area to the level of predevelopment in the developed area.

1.2 Policy and Legislative Context

Aqaba Special Economic Zone Law No. 32 of 2000: This law, which established the Aqaba Special Economic Zone Authority (ASEZA), stipulates that the Board shall be responsible for protecting and maintaining the environment in the Zone and for ensuring sustainable development according to the required bases and standards; for this purpose, the Authority shall assume the powers of the Public Corporation for Environmental Protection, and ASEZA’s Chief Commissioner shall assume the powers accorded to the Minister and the Director General stipulated in the Environment Protection Law. This law, as well as subsequent bylaws, give ASEZA the primary authority for protection of environment, management of the Aqaba Marine Reserve, coastal zone management, environmental impact assessment studies, regulating fisheries and sport activities in the marine environment, licencing of coastal enterprises, regulating and streamlining of monitoring and scientific research activities, etc, all of which will provide the framework within which the proposed programme will operate.

Protection of the Environment in Aqaba Special Economic Zone Bylaw No 21 of 2001: Defines the environmental impact assessment process applicable in ASEZA in its Articles 8 to 24. According to Annex 2 of the regulation, industrial estate development projects are subject to a comprehensive EIA. Directives for assessment of compensation for environmental damage in Aqaba Special Economic Zone set specific compensation values for damaged corals and other kinds of incidental damage that may occur in the marine environment like oil spills. According to the directives, accumulated compensations should go in a special trust fund for environmental protection in general and restoration of the impacted sites or developing alternative sites in particular. These provisions will guide the programme’s activities related to management / prevention of pollution spills and of compensation / fine mechanisms that may be developed regarding such spills.

Jordan’s Economic Modernisation Vision Executive Program 2023 – 2025: This program is designed to support economic recovery and growth, create job opportunities, and enhance women's economic empowerment. The programme is aligned with the economic modernisation program through its emphasis on establishing coral reef positive investment and business / project development, including opportunities for women and youth.

National Green Growth Plan (NGGP): Jordan's NGGP targets a multi-sector development approach that is aligned with both the 2030 Sustainable Development Agenda and Jordan's Nationally Determined Contributions (NDC), and creates a roadmap to achieve a green economy transition in Jordan through strategic direction and recommendations. The proposed GFCR programme will contribute to the NGGP through its emphasis on reef-friendly business development as well as improved policy and regulatory frameworks to reorient economic development in the Aqaba region onto a more sustainable, "green growth" trajectory.

Aqaba Marine Reserve Bylaw No. 61 of 2022: The bylaw was developed under Aqaba Special Economic Zone Law No. 32 of 2000, and authorizes the AMR Management Plan as well as detailed regulations and a zoning plan for AMR. The bylaw defines the AMR boundaries, the major elements under its management, its general financial resources and the structure of its advisory Board, and will guide the proposed programme's work to strengthen the AMR and also to assess the feasibility of establishing other forms of protection (e.g. OECMS, etc.).

Environmental Protection Law 6 of 2017: This law is the cornerstone of environmental protection in Jordan. The law designates the Ministry of Environment as the authority responsible for environmental protection, and provides that the Ministry together with related parties shall develop policies and prepare plans and programs, work on forecasting climate change, follow the implementation of international environmental agreements, protect biodiversity, and identify areas that need special attention. Regulations issued by the Ministry include handling of hazardous substances and their final disposal, as well as the need to carry out Environmental Impact Assessments (EIAs) for certain projects prior to their commencement. The provisions of this law will guide the programme's activities related to EIAs for coral restoration activities and measures to improve / prevent marine and land-based pollution. It is important to note that this law, and the overall legal framework in Aqaba, do not place any restrictions on the use of plastics.

Agriculture Law No. 13 of 2015: Developed by the Ministry of Agriculture, this law prohibits the disposal of any type of solid or liquid waste or other harmful substances in the environment. Fisheries and aquaculture development regulations are usually stipulated under Agricultural law. The provisions of this law will guide the programme's activities related to the Solution on aquaculture development, as well as potential revisions to fisheries regulations.

1.3 Institutional Context

Jordanian Institutions

While the Aqaba Special Economic Zone Authority is an autonomous governing body for the Jordanian sector of the Gulf of Aqaba, the proposed program will be coordinated with existing institutions and organizations, including:

Aqaba Special Economic Zone Authority (ASEZA): ASEZA (aseza.jo/default.aspx) is an autonomous governance entity sitting within the Aqaba Governorate. Established in 2000, ASEZA's mandate covers an area of 375 km^2 around the city of Aqaba and includes Jordan's entire marine coastline of 27 km. ASEZA's purpose is to attract and facilitate investment in the Aqaba Special Economic Zone (ASEZ) in the areas of industry, port development, tourism, infrastructure, utilities and services. ASEZA has the authority of a

municipality, as well as being the regulator for permitting investments including environmental permitting. Economic entities wishing to operate in the Zone register with ASEZA. ASEZA has sole jurisdiction over environmental regulation within the ASEZ, including the coastline.

Aqaba Development Corporation (ADC): In 2004, ASEZA and the Jordanian Government launched ADC as the development agency for the ASEZ. ADC is a Government and ASEZA-owned company which was given ownership of all government-held assets in the ASEZ, including the ports and the airport, and mandated to develop the zone through infrastructure development, business support, and management of key assets. One of ADC's main roles is to attract private sector developers and operators in the Zone. ADC also has the responsibility of implementing the ASEZ Master Plan.

Aqaba Marine Reserve: In 2020, the multiple-use Aqaba Marine Park was reclassified as the Aqaba Marine Reserve (AMR) and included in the new Jordan National Protected Areas Network, thereby strengthening its capacity for protection and sustainable management of marine ecosystems. The AMR now operates under a 5-year Management Plan (2022-2026) designed to maintain and improve healthy, resilient, bio-diverse coral reef and seagrass habitats in the Gulf of Aqaba. ASEZA has management responsibility for the AMR, and is implementing several donor-funded projects to strengthen the reserve's management (see Section 4). Details on the AMR's existing budget and budget gap for effective management are provided in Section 3.

Aqaba Marine Park (AMP): The Government of Jordan is in the process of establishing the Aqaba Marine Park (AMP), which will include three main components: the recently established Aqaba Marine Reserve, a new Science & Technology Hub (which will assimilate the existing Marine Science Station), and an Aquarium. The Science & Technology Hub will support research on the resilience of the Red Sea's coral reefs to rising temperatures in order to support the expansion of coral restoration in the Red Sea and globally; facilitate the development of sustainable and restorative marine-based products and industries; establish a coral nursery to support restoration; and provide a logistical centre to support coral reef researchers from other countries within and beyond the Red Sea region. The AMP is intended to be a regional initiative, with participation by scientists and other stakeholders in Egypt, Saudi Arabia and other countries. Construction of the AMP is anticipated to be launched in the 2nd quarter of 2024 and initial operations are expected to start in 2026.

University of Jordan, Aqaba (UJA) / Marine Science Station (MSS): The UJA / MSS has run a national monitoring program for the marine environment in the Gulf of Aqaba for the past quarter century, including monitoring of marine water quality, sediment and pollution levels, and fish/coral reef communities. The MSS also has facilities for training and research on coral reefs and other aspects of the marine environment. MSS is managed by a Board representing the University of Jordan, Yarmouk University, ASEZA, and local stakeholders.

NGOs / CSOs: The proposed programme will endeavour to support communities and productive sectors in transitioning away from activities that degrade reefs and towards reef-positive sustainable activities. Such a focus requires a strong emphasis on private sector and community involvement in the programme. Community representation will include associations of fishers, dive operators and glass bottom boat owners, who are all active in organising their members, raising public awareness, and participating in ecological monitoring (the MED4EBM project is working with such partners in Citizen Science Monitoring Programs). The Jordanian Hashemite Fund for Human Development (JOHUD) is active in Aqaba in the empowerment of women and youth through community projects. Other civil society organizations include various associations for women and youth, such as the Association of Women Committees, Princes Basma

Centre, Jordan River Foundation, etc. The Royal Marine Conservation Society of Jordan (JREDS) promotes sustainable management of natural marine resources, with programs on marine conservation, outreach and advocacy, and sustainable development, including regular beach and underwater clean-up programs, community awareness and public education programs, coral reef monitoring, turtle surveys, water conservation, etc. The Royal Scientific Society is an important stakeholder in developing environmental regulations; and the Royal Society for the Conservation of Nature (RSCN) manages all of the terrestrial PAs in Jordan as well as the Aqaba Bird Observatory**.** Finally, the International Union for the Conservation of Nature / West Asia Office will act as an important Implementing Partner for the programme (see Section 6.1.2 for details on IUCN ROWA).

Private Sector: The Aqaba Development Corporation (ADC) will be a key player in facilitating private sector involvement through public private Partnerships and may host the proposed Centre for Sustainable Blue Economy Innovation. Additional potential partnerships will be explored with the Cities & Villages Development Bank and the Jordan Enterprise Development Corporation (JEDCO). Fisher associations, including the Aqaba Fishing Society and Thaghr el Ordon Fishermen Society, as well as the Aqaba Diving Society; Royal Jordanian Marine Sports Federation; and Sport Ecofishing Society, will play an active role in citizen science monitoring, sustainable fishing, sustainable dive operations, and other programme activities.

Ministry of Environment (MoE): The Ministry's mission is to maintain and improve the quality of Jordan's environment, conserve natural resources, and contribute to sustainable development through effective policies and laws and by mainstreaming environmental concepts into all national development plans. In the Aqaba Special Economic Zone, which encompasses all of Jordan's territory in the Gulf of Aqaba, MoE's normal mandate is given to ASEZA. However, the Ministry remains the national representative to international environmental conventions as well as PERSGA.

Institutions in the Region

Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden (PERSGA): PERSGA is an is an intergovernmental body established in 1995 and headquartered in Saudi Arabia, consisting of the governments of Djibouti, Egypt, Jordan, Saudi Arabia, Somalia, Sudan, and Yemen. PERSGA's mission is to conserve the coastal and marine environments of the Red Sea and Gulf of Aden; it also works to strengthen MPA management capacities and to provide technical support and coordinate marine monitoring programs across its member countries. PERSGA also provides an institutional framework for coordination among its member governments, including a coordination mechanism for Ministers of Environment and another for technical focal points (it is important to note that its mandate is much broader than the Gulf of Aqaba, and only 3 of its 7 member countries border the Gulf). PERSGA has implemented a number of programs related to conservation of the marine environment, including: 1) the GEF-funded project "Implementation of the Strategic Action Programme (SAP) for the Red Sea and Gulf of Aden" [25] from 1998-2006, which established the first SAP for the region; and 2) the GEF-funded "Red Sea and Gulf of Aden Strategic Ecosystem Management Project" from 2013-2018, which focused primarily on activities to "improve management of selected marine protected areas by local communities and strengthen information sharing between PERSGA member countries".

[25] https://iwlearn.net/resolveuid/7bf4e5d247323f1967d7be66643e00a4

Governorate of South Sinai (Egypt): The Governorate has a long record of involvement in sustainable tourism development., and ASEZA and the South Sinai Governorate have a Memorandum of Understanding to expand collaboration.

Coral Research & Development Accelerator Platform (CORDAP): CORDAP is a G20-Saudi initiative that has signed a global agreement with GFCR to advance science and technology for coral reef restoration, support blue recovery, and enable strategic engagement for the acceleration of coral conservation resources. In addition, CORDAP issued a first Call for Proposals in 2022 for a new US$ 18 million Coral Accelerator Program (CAP) to fund international collaborative research teams with impactful ideas in coral conservation and restoration.

Saudi Red Sea Authority (SRSA): The SRSA is the regulator of marine tourism activities in Saudi Arabia, and also has the mandate to develop a tourism economy along Saudi Arabia's Red Sea coastline by attracting investment, supporting SMEs, and assessing immediate and future infrastructure needs, while preserving and protecting the sea's pristine environment.

King Abdullah University of Science and Technology (KAUST): At KAUST, the Red Sea Research Centre (RSRC) is a global leader in coral reef research and can provide important scientific inputs to the programme. The RSRC also carries out periodic monitoring of substantial sections of the Saudi Arabian coastline.

NEOM: NEOM is a regional development program to build a city and tourism destination along the GoA / Red Sea coast, is another potential programme partner. While NEOM is a massive development initiative, its design incorporates many sustainability and environmental conservation elements, and it is expected to establish new MPAs in the region and undertake significant coral restoration programs (with support from Coral Vita). In addition, a joint NEOM-KAUST marine research institute is expected to start research activities in 2023 and to be fully operational in 2025. The institute will undertake research on coral recovery and restoration, understanding adaptation to warm ecosystems, and reef resilience, among other topics, all of which can enhance many of the GFCR programme interventions.

1.4 Ongoing / proposed projects and initiatives

The Gulf of Aqaba Coral Reef Resilience Program comes at a time of great interest among regional governments and international donors in the GoA, including the global importance of the GoA's coral reef ecosystems. However, existing and planned initiatives continue to rely on traditional science, research, conservation and sustainable management approaches to marine ecosystems; while such approaches have great value, they also fail to seize important opportunities to even further strengthen the conservation and sustainable utilization of coral reef resources. The proposed program is designed to fill this gap, by expanding the community of stakeholders for coral reefs to include significant new private sector participation, and by generating blended finance investment opportunities in reef-friendly businesses and projects that will significantly grow the financial and technical inputs directed towards ensuring the long-term existence of healthy coral reefs in the Gulf of Aqaba.

Several ongoing and planned project proposed to strengthen management of the Aqaba Marine Reserve (AMR), namely the EU-UNDP-ASEZA project "Enhance the Conservation of The Aqaba Marine Reserve by Improving Capacity for Effective Management"; the GEF 7-ASEZA-JREDS-IUCN project "Supporting Effective Operation and Performance Management of Aqaba Marine Reserve, Jordan": the Norway –

UNDP project "Improving the management and operation system of the new Aqaba Marine Reserve"; and the Norway – UNDP – JREDS project "A collaborative management of the Aqaba Marine Reserve Ecosystem". All of these projects are supporting improved management of the AMR through activities including management planning; upgrading of facilities and equipment; boundary demarcation; staff training; improved patrolling and surveillance program (including new equipment); public awareness and outreach; adoption of international standards and certifications, etc. Notably, none of these other initiatives are addressing financing and business planning for the AMR; this is a gap that the GFCR program will address, not only through a business plan for the AMR, but also through development and testing of various finance mechanisms to support coral reef conservation within the AMR, as well as any OECMs that may be established in Jordan (e.g. possibly for the Northern Deep Corals priority site).

The development of reef-positive businesses and projects in the Aqaba Special Economic Zone is another area where the proposed programme will collaborate and build on other ongoing initiatives related to Blue Economy approaches, in particular the GEF 8 / ASEZA / UNDP project "Support to develop and implement a Sustainable Blue Economy (SBE) in Aqaba"**.** Among other activities, this project is designed to establish a sustainable blue economic development institutional, policy, and legislative framework; improve business and investment community partnerships; and develop gender-sensitive financial incentive mechanisms to enable investments aimed to offset pressure on the marine environment. Similarly, the regional ASEZA/PERSGA/UNEP/GEF project "An Inclusive Approach for Harnessing Marine Ecosystem Services and Transforming to Sustainable Blue Economy in the Red Sea and Gulf of Aden" is supporting similar measures at the regional level, with a focus on marine habitats that represent an abundant "blue natural capital" resource for the region, and fostering of an enabling environment for "Private Sector Green Finance". The proposed GFCR program will seek to partner with these initiatives in developing models and partnerships for private sector investment in coral-positive and other marine resource projects and businesses; in guiding changes to the enabling environment and frameworks for such interventions; and in measuring the results of supported projects and businesses in meeting coral-positive / blue economy objectives. In addition, support for reef-positive business models will be implemented with the support of a range of partners and initiatives as detailed in Section 4 on Programme Solutions.

National Projects and Initiatives

EU-UNDP-ASEZA project ""Enhance the Conservation of The Aqaba Marine Reserve by Improving Capacity for Effective Management": This 3-year project (which will end in early 2025) has USD 4.49 million and is being implemented through an agreement between ASEZA and UNDP Jordan. The Aqaba Marine Reserve (AMR) has ambitious targets of rapidly achieving international recognition as an IUCN Green List site and a UNESCO World Heritage Natural Site. The project aims at improving management and operations of the AMR through a variety of approaches, including: upgrading of equipment and existing facilities / signage; capacity development for AMR staff; a new conservation management plan; a new eco-tourism development plan; improved patrolling and surveillance program (including new equipment); a socio-economic profile of local communities and development of income generating options (mainly locally produced products) and marketing support for local communities at the AMR site; awareness and outreach on the AMR; international recognition for the AMR (including obtaining Blue flag certification for a selected segment of the reserve coastline, IUCN Green List Membership, and designation as a UNESCO World Natural Heritage Site); enhancing climate change resilience; and supporting design work for the Aqaba Marine Park and Aquarium. Outputs from this project could facilitate the design and implementation of finance mechanisms proposed as part of the business AMR plan developed under Output 1.3 of the GFCR program.

GEF 7 / ASEZA/JREDS/IUCN project "Supporting Effective Operation and Performance Management of Aqaba Marine Reserve, Jordan": The objective of this project, which is expected to start in late 2023, is to enhance and strengthen the management effectiveness, equity and operational capabilities of Aqaba Marine Reserve (AMR) through capacity building and participatory approaches. This objective will be achieved through two outcomes. Outcome 1 focuses on improved governance and strengthened capacity and equipment for operational management, through activities including: new management planning, systems and manuals; studies to support the adoption of international standards that will improve efficiency and effectiveness levels; a capacity development programme manual; a monitoring programme to support the existing management plan; equipment for AMR ranger boats including sampling, bathymetry, and other equipment; and a staff training program. Outcome 1.2 focuses on participatory approaches towards management of the AMR, including: a participatory marine habitat rehabilitation programme; a Collaborative Learning Strategy with a relevant internationally nominated marine reserve (Ras Mohammed, Egypt); and a participatory communication, outreach and awareness programme for improving livelihoods of the communities associated with the AMR.

GEF 8 / ASEZA / UNDP project "Support to develop and implement a Sustainable Blue Economy (SBE) in Aqaba"**:** This proposed project, which is currently under development but expected to run from 2025 - 2030, has the objective to conserve and restore Jordan's blue natural capital along the Gulf of Aqaba, building resilience and supporting investments for sustainable blue economy development that provides benefits and livelihoods for the well-being of people. The project recognizes the importance of adopting the concept and approach of a "Blue Economy" that seeks to promote economic growth, social inclusion, and preservation or improvement of livelihoods while ensuring environmental sustainability of the oceans and coastal areas. The project has the following proposed outcomes: a sustainable blue economy institutional, policy, and legislative framework that accommodates gender mainstreaming; improved business and investment community partnerships; gender-sensitive financial innovative incentive mechanisms to enable investments aimed to offset pressure on the marine environment; improved marine ecosystem resilience; and improved SBE-related knowledge management. As this project is still in the early design phase, details on proposed activities do not yet exist, but as the project implementing agency, UNDP will work to align the aforementioned activities with those of the proposed GFCR programme.

Norway – UNDP project "Improving the management and operation system of the new Aqaba Marine Reserve": This one-year (June 2022 – June 2023) project, with approx. US$ 300,000 in funding from the Norwegian Ministry of Foreign Affairs, was designed to support the Aqaba Marine Reserve through the following activities: i) demarcation of the official boundaries of the reserve; ii) Improving office facilities; iii) establishing a dedicated database system; iv) designing a monitoring program; v) providing signage and a branding master plan; vi) capacity development of AMR staff; and vii) awareness and outreach to the local community and visitors. This project helped to strengthen the basic operational functions of the AMR; and the proposed programme will build on this strengthened capacity as it designs the AMR's business plan and finance mechanisms.

Norway – UNDP – JREDS project "A collaborative management of the Aqaba Marine Reserve Ecosystem": This one-year (June 2023 – June 2024) project, with approx. US$ 300,000 in funding from the Norwegian Ministry of Foreign Affairs, is designed to complement the above program by supporting implementation of the AMR Management Plan through inclusive, adaptive, and collaborative management. This shall be achieved through: (i) increasing patrols and surveillance to areas within the marine reserves and its buffer zone; (ii) communicating and delivering findings and information of marine scientific research to policy

makers and the general public; (iii) offsetting pressure on resources from fishing through contribution to building livelihood resilience of fishermen and, (iv) supporting actions and strategies for mainstreaming gender into coastal management.

Regional Projects and Initiatives

ASEZA/PERSGA/UNEP GEF regional project "An Inclusive Approach for Harnessing Marine Ecosystem Services and Transforming to Sustainable Blue Economy in the Red Sea and Gulf of Aden (HESBERSGA)" (2024 – 2028): This proposed project, currently under development, aims to address the root causes and barriers to accelerating an inclusive Sustainable Blue Economy transformation in the RSGA region so as to turn the region's most pressing challenges into development opportunities. The Project's Objective targets the relatively healthy state of some marine habitats in the Red Sea that represent an abundant "blue natural capital" resource for the region by supporting climate change adaptation and mitigation efforts while simultaneously creating sustainable and resilient marine ecosystems that form the foundation of a sustainable blue economic model. The project represents an opportunity for the region to establish a new vision in designing a sustainable socio-economic growth model that is linked to the building and conservation of "blue natural capital." Among other activities, the proposed project will foster an enabling environment for Private Sector Green Finance, looking at how public finance can be leveraged to create conditions for scaled up private investment for SBE. The project has much in common with the GoA GFCR Program and will use several tools developed by UNEP that can be used by the GoA GFCR Programme, including: i) an evolving MPA Toolbox and Learning Platform with case studies integrating governance between national governments, local communities, and market schemes to enhance the effectiveness of MPAs; ii) innovative coral reef restoration approaches identifying and protecting coral reef refugia; iii) practical guidance on sustainable blue economy financing; and iv) a Green Economy Toolkit for Policymakers with a guidance manual for green economy policy assessment and green economy indicators.

The regional Mediterranean Forum For Applied Ecosystem-Based Management (MED4EBM) project, which has Euro 3 million in funding from the EU-ENI CBC Med Program, is ending in late 2023. The project, which has been led by UNDP Jordan, is addressing Integrated Coastal Zone Management in the Gulf of Aqaba (as well as at sites in Italy, Lebanon and Tunisia), with the goal of developing and applying a common methodology to make ecosystem-based ICZM much easier to design and implement by applying innovative techniques and methods. The main outputs of the project have included initial development steps to establish a database of the national monitoring program on water quality, sediments, coral reefs and fish (although the database is not yet operational); ReefCheck monitoring; designation of Blue Flag beaches; and improved stakeholder involvement in knowledge management activities.

The GEF-UNDP-IMO GloFouling Partnerships Project: (https://www.glofouling.imo.org/funding) is a global initiative (2018 – 2025; USD 49 million) bringing together key partners to respond to the problem of invasive aquatic species introduced via biofouling (i.e. the accumulation of aquatic organisms on wetted or immersed surfaces such as ships and other offshore structures). The Project fosters interventions at multiple levels: legal, policy and institutional reforms in countries to implement the IMO Biofouling Guidelines; developing capacity to enact national policies; and bringing in active private sector participation to identify effective solutions and technologies to deal with biofouling. In the Red Sea and Gulf of Aden region, the project works with two main partners: Jordan, as a lead country, plus PERSGA, as a regional coordinator helping to expand outreach to other coastal countries in the Red Sea. The project will deliver a range of governance reforms at the national level through numerous capacity-building

activities, training workshops, demonstration sites and other opportunities for technology adoption to help address the issue of invasive species.

Sustainable Fishery Development in Red Sea and Gulf of Aden (https://persga.org/sfishproject/): The objective of this project is to introduce a regional mechanism for collaborative management of fisheries in the RSGA region and to improve the resilience of the fishery value chain in Yemen. The project includes three components: Component 1: Strengthening regional collaboration in management of marine fisheries and aquaculture in the RSGA region; Component 2: Improving Economic Opportunities, Food Security and Effective Management of Fishery Production in Yemen; and Component 3. Project Management, Monitoring and Evaluation and Reporting.

Red Sea Ecosphere Conference**:** Beginning in November 2022, the Government of Jordan will convene this biennial conference intended to enhance coordination among universities, research centres, and governmental and non-governmental organizations in studying and protecting the environment of the Red Sea. Among other objectives, this recurrent conference intends to support the development and implementation of environmental management strategies related to the Red Sea, and to facilitate the sharing of information on innovative methods and techniques for marine conservation and risk reduction strategies through the exchange of experiences and best practices among regional and international stakeholders.

Regional Scientific Programs for Coral Reef Conservation: The NGO Ocean X conducts ocean cruises to carry out coral reef science and advocate for coral reef conservation. They have carried out two cruises in the Gulf of Aqaba (2020 and 2022); they 2022 cruise covered coral reefs in the Jordanian and Saudi Arabian areas of the Gulf of Aqaba. Ocean X has an agreement to share its data with the Aqaba Marine Reserve. The Transnational Red Sea Centre (TRCS) is a scientific research centre created in 2019 at the Ecole Polytechnique Fédérale in Lausanne (EPFL) with the official support of the Swiss Foreign Ministry. From 2022 to 2025, the TRSC is planning a series of scientific expeditions along the Red Sea coastline focused on coral science, resilience and conservation; in 2022 they carried out a research cruise in the Gulf of Aqaba in partnership with Jordan's Marine Science Centre.

2 Programme Strategy

2.1 Problem Statement

Rapid economic growth and development is threatening the health of the world's most resilient coral reefs in a region where economic activity is highly dependent on these same coral reef ecosystems. Existing efforts to transition key economic sectors such as tourism and fisheries towards more sustainable and reef-friendly models and to conserve coral reef ecosystems have been constrained by lack of financial resources and very limited understanding of, or experience with, sustainable and reef-friendly investment opportunities and mechanisms.

2.2 Strategic vision and Theory of Change

The vision for the Gulf of Aqaba Resilient Reefs programme is "Coral reef ecosystems in the Gulf of Aqaba are conserved and restored, conserving biodiversity, supporting sustainable development, and increasing resilience to climate change". The programme will seek to fulfil this vision through four primary outcomes:

- Outcome 1: Heightened protection of functioning, resilient coral reefs in the Gulf of Aqaba

- Outcome 2: Integration of Red Sea coral reefs into the growing sustainability-oriented economy of Aqaba
- Outcome 3: Coral reefs in the region are regenerated and restored through new technologies and adaptive and science-based approaches
- Outcome 4: Knowledge management to support upscaling and replication of coral reef finance and business solutions

3. Description of each outcome

Under Outcome 1 (Heightened protection of functioning, resilient coral reefs in the Gulf of Aqaba), the programme will develop critical baseline information and monitoring strategies; establish regional coordination mechanisms; and strengthen sustainable finance for reef conservation efforts, all of which will ensure the conservation of the GoA's coral reef ecosystems and provide the basis for strategic investment decisions for reef-friendly businesses and projects. More specifically, the programme will: enhance existing baseline assessments of coral reef marine ecosystems; analyse existing economic valuation studies to demonstrate the value of biodiversity to decision-makers and local communities; fill critical gaps in existing monitoring programmes related to coral reef conditions and drivers of degradation; establish a Gulf of Aqaba Coral Reef Ecosystems Collaboration Platform to facilitate scientific information sharing among key stakeholders on the marine and coastal environment in Jordan, Egypt and Saudi Arabia, and to provide information to support effective policy making, regulations, management, and investment decisions related to coral reefs; develop and implement a Gulf of Aqaba Coral Management & Finance Strategy to generate joint strategies among Jordan, Egypt and Saudi Arabia on financing for the sustainable use and management of the region's coral reefs; undertake education and awareness programs to drive and sustain behavioural changes away from unsustainable activities in coral reef ecosystems; and support the development of new finance mechanisms to support MPAs and OECMs. Under Outcome 1, the programme will ensure the effective and sustainable conservation of all coral reefs in the Jordanian area of the Gulf of Aqaba, as well as opportunities for local inhabitants to participate in citizen science and participatory decision-making processes.

Under Outcome 2 (Integration of Red Sea coral reefs into the growing sustainability-oriented economy of Aqaba), the programme will identify, incubate and facilitate finance for reef-positive businesses and projects; put in place sector-specific regulations, management mechanisms and information systems to reduce negative impacts on coral reefs and facilitate investments in and operation of reef-friendly businesses; and promote the development of participatory and innovative aquaculture businesses. More specifically, the programme will: identify an initial pipeline of reef-positive investment opportunities; establish a Centre for Sustainable Blue Economy Innovation (CSBEI) to provide incubation and technical assistance services to support reef-positive entrepreneurs and businesses; provide blended finance through the CSBEI for reef-positive businesses targeting sustainable fisheries and aquaculture, sustainable tourism, management of plastics, and industry/ports/shipping activities; support new / updated / strengthened regulations, management mechanisms and information systems that enable the transition to sustainability in key sectors by ensuring that business activity is reef-friendly but also has the potential to succeed; collaborate with FAO, ASEZA, and others to facilitate the conditions for multiple investments in land-based aquaculture -- including fish, molluscs, and potentially seaweed -- in the target area allocated for this purpose and supplied by the pipeline; and directly support the Fishermen's Association as they pilot the aquacultural technologies being provided by FAO and the University of Jordan. The programme will also provide income-generating and employment opportunities to entrepreneurs and persons employed by small to medium size businesses engaged in reef-friendly investment opportunities (including aquaculture businesses), as well as benefitting fishers through more sustainable management

of fish stocks. Furthermore, establishment and operationalization of the CSBEI to provide grants and program related investments, combined with blended finance approaches to test and scale up potential reef-positive business models, will bring enormous new resources, partners and capacities to addressing the protection and effective management of the Gulf of Aqaba's coral reefs and the creation of sustainable reef-friendly businesses and livelihood opportunities.

Under Outcome 3 (Coral reefs in the region are regenerated and restored through new technologies and adaptive and science-based approaches), the programme will develop and up-scale investment opportunities and financing mechanisms to support coral restoration. The programme will: develop scientific partnerships on coral restoration approaches and data with local and regional partners; establish community participation protocols for coral restoration efforts; ensure the restoration sites are effectively conserved; enhance finance / investment opportunities to support coral restoration, including new regulatory-based financing mechanisms to support coral restoration, grants and investments (through the CSBEI) to develop the capacities of businesses to adopt and implement cost effective and ecologically beneficial practices for coral reef restoration, and public-private partnerships for coral restoration; and finally, implement pilot coral restoration activities at two of the programme's priority sites. Under Outcome 3, models and practices for coral restoration using the GoA's globally important coral reef species will be developed and piloted (for potential replication in other areas regionally and globally).

Under Outcome 4 (Knowledge management to support upscaling and replication of coral reef finance and business solutions), the programme will engage with the regional and global coral reef finance community for impact, scaling and replication. More specifically, the programme will: support collaboration and exchange of data and lessons learned with the GFCR Egyptian Red Sea Initiative programme; engage with GFCR REEF+ Knowledge Management & Finance Platform and other global coral reef learning mechanisms to facilitate connectivity among investors, entrepreneurs, and practitioners and share bankable reef-friendly solutions incubated by the programme; and facilitate knowledge sharing of lessons learned, strategies, financing solutions, etc. already existing in the Gulf of Aqaba, including information / models on EcoPorts and Jordan's zero discharge policies and regulations, data generated by the National Monitoring Program, and the methodology, processes, data, and other results of Jordan's Sea Use Master Plan (2015). Under Outcome 4, the data and other information, lessons learned etc. related to bankable reef-friendly business opportunities will be consolidated and share regionally and globally.

The ToC is based on various key assumptions and impact drivers:

- That ASEZA and the Government of Jordan have the capacity and willingness to improve policies that enable the adoption of sustainable practices, business models, and financing mechanisms
- That new revenue streams for MPAs and other mechanisms for coral conservation (such as fines and damage compensation payments; public-private partnerships; various user / license / concession fees / taxes) and coral restoration (such as regulatory-based financing mechanisms; grants and investments for businesses to implement ecologically beneficial coral restoration initiatives; and public-private partnerships) are sustainable and generate sufficient revenue to enable effective protection and restoration of coral reefs
- That sufficient private sector demand exists for investment financing (from both domestic and international/GFCR lending facilities) for reef-positive projects and businesses, which will allow for the structuring and financing of a robust pipeline of investable projects
- That financial mechanisms implemented by the CSBEI generate additional and sustainable financing.
- That local inhabitants and business operators (women and men) support coral reef conservation objectives, and understand and are motivated to engage in the development and operation of reef-positive sustainable businesses.

Theory of Change Diagram

DESIRED CHANGE

Coral reef ecosystems in the Gulf of Aqaba are conserved and restored, conserving biodiversity, supporting sustainable development, and increasing resilience to climate change

IMPACT

IF effective management and funding mechanisms are developed for coral reef conservation, THEN a cohesive approach to mitigating local drivers of coral reef degradation can be implemented. IF this approach couples reef-friendly investment principles with economic activity in key sectors, THEN economic development will avoid the degradation of coral reef ecosystems that constitute vital climate change refugia and safeguard ecosystem services for the region's coastal communities.

SDG Co-Benefits

- Biodiversity conservation
- Coastal protection
- New partnerships
- Economic opportunity
- Increased fisheries & tourism revenues
- Improved waste management
- Sustainable infrastructure development

Outcomes	1: Heightened protection of functioning, resilient coral reefs in the Gulf of Aqaba	2: Integration of Red Sea coral reefs into the growing sustainability-oriented economy of Aqaba	3: Coral reefs in the region are regenerated and restored through new technologies and adaptive and science-based approaches	4: Knowledge management to support upscaling and replication of coral reef finance and business solutions
Outputs	1.1: Ecological and socio-economic information related to marine ecosystems effectively gathered and communicated to inform conservation policy, prioritize intervention sites, address drivers of degradation, and assess the impacts of GFCR interventions 1.2: Regional planning, information sharing, and scientific research collaboration on coral reefs strengthened and contributing to conservation, and enhanced livelihoods for local communities, with a focus on women and youth 1.3: Financing mechanisms and related management capacities strengthened for Marine Protected Areas (MPAs) and OECMs	2.1: Reef-positive investment opportunities identified and supported through a Centre for Sustainable Blue Economy Innovation 2.2: Reef-positive investment opportunities scaled through finance from the Centre for Sustainable Blue Economy Innovation 2.3: Sector-specific regulations, management mechanisms and information systems in place to reduce negative impacts on coral reefs and facilitate investments in and operation of reef-friendly businesses 2.4: Aquaculture Innovation in Aqaba	3.1: Develop and up-scale investment opportunities and financing mechanisms to support coral restoration	4.1: Engagement with the regional and global coral reef finance community for impact, scaling and replication
Revenue Streams	○ Fines and damage compensation payments ○ Public-private partnerships ○ User / license fees for dive, tourism and pleasure boats ○ Concession fees for hotels ○ Tax on cruise ship visitors to Aqaba	• Revenues generated by reef-friendly projects and businesses (incl. new aquaculture ventures) • Investments in reef-positive fisheries, tourism and waste management businesses	• Regulatory-based financing mechanisms (e.g. fines / compensation payments; levies / taxes) • Public-private partnerships for coral restoration	None
Reef Threats	Land Based Pollution, Unsustainable Tourism, Marine-based Pollution, Coastal Infrastructure Development, Fishing Pressure, Coral Predators and Disease			

Assumptions and Impact Drivers

- ASEZA / GoJ have capacity / willingness to improve policies and regulations for sustainable practices, business models, and financing mechanisms
- New revenue streams for coral conservation and coral restoration are sustainable and generate sufficient revenue
- Sufficient private sector demand exists for investment financing for reef-positive projects and businesses and a robust pipeline of investable projects
- Finance mechanisms implemented by the CSBEI are able to generate additional and sustainable financing
- Local inhabitants and business operators (women and men) support coral reef conservation objectives and engage in reef-positive sustainable businesses

2.3 Programme outcomes, outputs and activities

Table 1: Overview of Outcomes, Outputs and activities

Outcome 1: Heightened protection of functioning, resilient coral reefs in the Gulf of Aqaba		***Geographic scope***
Output 1.1: Ecological and socio-economic information related to marine ecosystems effectively gathered and communicated to inform conservation policy, prioritize intervention sites, address drivers of degradation, and assess the impacts of GFCR interventions		
Activity 1.1.1: Gender-sensitive ecological and social assessments to enhance established baselines for monitoring and support for addressing the drivers of coral reef degradation in the Gulf of Aqaba	Phases 1-2	Gulf of Aqaba, with focus on priority sites (AMR, ASIP, NDC)
Activity 1.1.2: Develop information resources to support policy decision-making, including establishing the business case for investing in coral reefs, and evaluating the potential and realized economic impacts of coral reef associated interventions on local communities, with a specific focus on women	Phase 1	
Activity 1.1.3: Monitoring systems strengthened for coral reef ecosystems in the Gulf of Aqaba with community participation applying citizen science principles to effectively and rapidly assess emerging threats, ecological damage, and positive impacts of investments	Phases 1-3	
Output 1.2: Regional planning, information sharing, and scientific research collaboration on coral reefs strengthened and contributing to conservation, and enhanced livelihoods for local communities, with a focus on women and youth		
Activity 1.2.1: Gulf of Aqaba Coral Reef Ecosystems Scientific Collaboration Platform	Phases 1-3	Gulf of Aqaba, with focus on priority sites (AMR, ASIP, NDC)
Activity 1.2.2: Gulf of Aqaba Coral Reefs Management & Finance Strategy	Phase 1	
Activity 1.2.3: Aqaba Science and Technology Hub Business Plan	Phase 1	
Output 1.3: Financing mechanisms and related management capacities strengthened for Marine Protected Areas (MPAs) and OECMs		
Activity 1.3.1: Develop and implement financing mechanisms to support the conservation of all coral reefs in Jordan	Phases 1-2	Gulf of Aqaba, with focus on AMR priority site
Activity 1.3.2: Develop and implement an Aqaba Marine Reserve Business Plan and associated financing mechanisms	Phases 1-2	
Outcome 2: Integration of Red Sea coral reefs into the growing sustainability-oriented economy of Aqaba		
Output 2.1: Reef-positive investment opportunities identified and supported through a Centre for Sustainable Blue Economy Innovation		
Activity 2.1.1: Identify initial pipeline of reef-positive investment opportunities that are inclusive and gender-sensitive	Phase 1	Gulf of Aqaba
Activity 2.1.2: Establish and operate a Centre for Sustainable Blue Economy Innovation, including a reef-positive blue economy business incubator	Phases 1-3	
Output 2.2: Reef-positive investment opportunities scaled through finance from the Centre for Sustainable Blue Economy Innovation		
Activity 2.2.1: Work through the Centre for Sustainable Blue Economy Innovation to generate a range of blended finance offerings to support reef-positive businesses that are inclusive and gender-sensitive	Phases 1-2	Gulf of Aqaba
Activity 2.2.2: Identify and collaborate with regional and international partners on finance for innovative reef-positive businesses	Phases 2-3	
Output 2.3: Sector-specific regulations, management mechanisms and information systems in place to reduce negative impacts on coral reefs and facilitate investments in and operation of reef-friendly businesses		

Activity 2.3.1: Regulations, management mechanisms and information systems to support investments in sustainable fisheries and aquaculture	Phase 2	Gulf of Aqaba
Activity 2.3.2: Regulations, management mechanisms and information systems to support investments in sustainable tourism	Phases 1-2	
Activity 2.3.3: Regulations, management mechanisms and information systems to support investments in reef-friendly operations / businesses in industry, ports and shipping sectors	Phase 2	
Output 2.4: Aquaculture Innovation in Aqaba		
Activity 2.4.1: Develop and support aquaculture enterprises, including participation of fisherman's association	Phases 1-2	Gulf of Aqaba
Outcome 3: Coral reefs in the region are regenerated and restored through new technologies and adaptive and science-based approaches		
Output 3.1: Develop and up-scale investment opportunities and financing mechanisms to support coral restoration		
Activity 3.1.1: Develop partnerships for coral restoration with community participation, including on-the-ground activities and information sharing / lessons learned	Phase 1	Gulf of Aqaba, with focus on all priority sites (AMR, ASIP, NDC)
Activity 3.1.2: Develop conservation frameworks to ensure the viability of coral restoration initiatives	Phases 1-3	
Activity 3.1.3: Enhance finance / investment opportunities to support coral restoration	Phase 1	
Activity 3.1.4: Implement pilot coral restoration activities at the Northern Deep Corals site and the Southern Industrial Site	Phases 2-3	
Outcome 4: Knowledge management to support upscaling and replication of coral reef finance and business solutions		
Output 4.1: Engagement with the regional and global coral reef finance community for impact, scaling and replication		
Activity 4.1.1: Collaboration and exchange of data and lessons learned with the GFCR Egyptian Red Sea Initiative programme	Phases 2-3	Gulf of Aqaba
Activity 4.1.2: Engage with GFCR REEF+ Knowledge Management & Finance Platform and other global coral reef learning mechanisms to facilitate connectivity among investors, entrepreneurs, and practitioners and share bankable reef-friendly solutions incubated by the programme	Phases 2-3	
Activity 4.1.3: Facilitate knowledge sharing of lessons learned, strategies, financing solutions, etc. already existing in the Gulf of Aqaba	Phase 2	

Note: Phase 1 = Months 1-18; Phase 2 = Months 19-60; Phase 3 = Months 60-72

The design of the Gulf of Aqaba programme is aligned with the expected outcomes of the GFCR at the global level, and includes the following outcomes and outputs (Note: Details on partners for implementing specific outputs and activities are provided in Section 6.1.2).

Outcome 1: Heightened protection of functioning, resilient coral reefs in the Gulf of Aqaba
Implementing Partner for Outcome 1: UNDP Jordan for Output 1.2; IUCN-ROWA (Regional Office for West Asia) for Outputs 1.1 and 1.3

Output 1.1: Ecological and socio-economic information related to marine ecosystems effectively gathered and communicated to inform conservation policy, prioritize intervention sites, address drivers of degradation, and assess the impacts of GFCR interventions

Under Output 1.1, the programme will enhance existing baseline assessments of coral reef marine ecosystems in the region, including mapping of reefs; identifying key drivers of coral degradation; research on the determinants of coral reef health and recovery; identification of the characteristics / locations of climate resilient reefs; etc. This will be done with the effective participation of the local communities and include ecological assessments as well as analysis of existing economic valuation studies to measure and communicate the value of biodiversity to decision-makers and local communities. In addition, the programme will work to fill critical gaps in existing monitoring programmes related to coral reef conditions and drivers of degradation, and to promote citizen science approaches in these programs. The information generated by the activities under Output 1.1 will contribute to the selection of projects / businesses to be part of the incubator managed by the Centre for Sustainable Blue Economy Innovation (CSBEI) under Outcome 2.

Activity 1.1.1: Gender-sensitive ecological and social assessments to enhance established baselines for monitoring and support for addressing the drivers of coral reef degradation in the Gulf of Aqaba (this activity will start in Phase 1): The program will:

- Fill critical information gaps on coral reef ecosystems in the Gulf of Aqaba, including the following areas that are not covered by existing monitoring programs and in which information and data are very limited: i) key drivers of coral reef resilience and degradation; ii) maps of coral reefs and a coral reef inventory; iii) characteristics / locations of climate resilient reefs in the GoA; iv) information on coral reef carrying capacities; and v) information on the ecological and management determinants of coral reef health and recovery in the face of coral bleaching and disease
- Using existing literature (which is limited for the GoA), supplemented by the information generated in the previous activity, synthesize information on the importance of coral reefs as climate refugia and biodiversity habitat, in order to confirm priority sites for conservation, support more resilient design and systemic planning for MPAs and OECMs (including potential buffer zones and connectivity corridors), possibly includes identification of Key Biodiversity Areas (KBAs)[26]

Activity 1.1.2: Develop information resources to support policy decision-making, including establishing the business case for investing in coral reefs, and evaluating the potential and realized economic impacts of coral reef associated interventions on local communities, with a specific focus on women (this activity will start in Phase 1): As detailed in Annex I, several studies have been conducted to assess the value of ecosystem services in the Jordanian part of the Gulf of Aqaba. The Aqaba Development Corporation (ADC) conducted a study in 2008 (which used the travel cost method, since the most significant ecosystem service provided is tourism), which concluded that the economic value of Aqaba's coral reefs for tourism is

[26] Guidelines for a global standard for identification of Key Biodiversity Areas: version 1.1 | IUCN Library System

approximately JD 35.4 million (USD 50 million) per year. ASEZA and UNDP conducted another study in 2016[27] which showed that the economic value of ecotourism as a service of the Aqaba coral reef ecosystem ranged from JD 17 – 34.4 million (USD 25-50 million) per year. The program will:

- Review previous economic valuation studies of marine ecosystem services in the Gulf of Aqaba (focused on coral reefs, subsistence fisheries, income from fisheries and tourism, coastal protection, carbon sequestration, pharmaceutical potential, cultural value, etc.) as well as assessments of the cost of degradation of coral reef ecosystems in the region
- Utilize modelling tools to model ecosystem service values in current and future climatic conditions
- Using this newly consolidated information, develop targeted information resources (reports; primers; etc.) to support better decision-making and improved tools to justify the protection of coral reefs and other marine ecosystems, as well as to inform the design of sustainable business ventures and resource management decision-making (under Outcome 2), including potential for medicines, cosmetics and other products derived from coral reefs.

Activity 1.1.3: Monitoring systems strengthened for coral reef ecosystems in the Gulf of Aqaba with community participation applying citizen science principles to effectively and rapidly assess emerging threats, ecological damage, and positive impacts of investments (this activity will start in Phase 1):

Several important marine monitoring programs exist in the Jordanian part of the GoA. The National Coastal Monitoring program, supported by ASEZA and executed by the Marine Science Station (MSS) and University of Jordan, Aqaba (UJA) includes a census of coral reefs conducted along the entire Jordanian coast. The MSS/UJA has also conducted monitoring of marine ecosystems since 1996, supported by the Jordanian Phosphate Mines Company; while various resorts in the northern part of the GoA and ports in the southern industrial site carry out water quality monitoring of the marine environment (details on these programs are provided in Section 7.1.2 on programme co-financing). In addition, localised high-tech monitoring of coral photosynthesis has been conducted in collaboration with the Transnational Red Sea Centre. However, significant gaps remain in monitoring of the conditions impacting coral reefs, as most existing monitoring programs are poorly funded and small in scale; monitoring does not cover the entire area of the Jordanian GoA; and data collected by the MSS/JUA coral reef censuses has never been put into a database.[28] The proposed GFCR programme will seek to fill these gaps by:

- Assisting existing programs to integrate the following elements into their monitoring and to use this information to guide resource management:
  - Track and assess changes in reef communities in response to impacts from human activities and uses such as vessel groundings and oil/chemical spills, and to environmental stressors such as storms and diseases, as well as changing conditions due to climate change
  - In collaboration with regional partners (under the framework of the pending UN Treaty on plastic pollution), make use of online platforms and new technologies / mobile applications to exchange and visualize data on the spread of plastics on coral reefs and their impact on ecological functioning
  - Evaluate the natural recovery and/or restoration processes of degraded reefs (focused on the Northern Corals site, where port facilities were closed in recent years and natural recovery is

[27] The Economic Values of Aqaba's Coastal and Marine Resources. Dr Francis Vorhies. January 2016

[28] While existing monitoring programs have collected data on coral reefs, this data has never been consolidated, compared over time, or analysed with statistical tools. As for data on fish, the Marine Science Station will periodically go to various sites and assess how many of 60 target species are found; there is no measurement of fish catch in Jordan.

taking place but is not being monitored; and the Southern Industrial Site, where port facilities have been relocated but their ongoing impacts on coral reefs are poorly understood)

- In addition to integrating coral reefs into monitoring protocols, the programme will also promote the use of citizen science approaches in existing marine monitoring programs through establishing partnerships in which local communities and private sector partners are involved in data collection to better identify threats and suggest solutions to local problems. The recently completed MED4EBM project (see Section 1.4) has started such programs with local dive, fisher, and glass bottom boat associations, and this programme can build on this initial effort. Citizen science approaches can result in a sense of collective responsibility and empowerment; enhance public understanding of and access to information on coral reef ecosystem conditions, trends and values; and ensure that coral reef management leverages local knowledge and expertise to develop sustainable solutions that are better informed and culturally relevant.
- Finally, the program will seek to increase information sharing and development of common monitoring protocols between the national marine monitoring program of ASEZA for Jordan and of the National Institute of Oceanography and Fisheries (NIOF) for Egypt.

Output 1.2: Regional planning, information sharing, and scientific research collaboration on coral reefs strengthened and contributing to conservation, and enhanced livelihoods for local communities, with a focus on women and youth

The programme will establish a Gulf of Aqaba Coral Reef Ecosystems Collaboration Platform to facilitate scientific information sharing among key stakeholders on the marine and coastal environment in Jordan, Egypt and Saudi Arabia, and to provide information to support effective policy making, regulations, management, and investment decisions related to coral reefs. The Government of Jordan is in the process of establishing the Aqaba Marine Park (AMP), which will serve as a hub for regional and international marine research focused on developing science-based solutions to the global problems of climate change, biodiversity decline, and other major threats to marine environments. The AMP includes three main components: the recently-established Aqaba Marine Reserve (see Section 3 for details), and two components under development, namely the Aqaba Science and Technology Hub (ASTH), and the Aqaba Marine Aquarium (AMA). The ASTH will focus on several areas, including: i) researching the resilience of the Red Sea's coral reefs to rising temperatures, in order to support the expansion of coral restoration in the Red Sea and globally (the ASTH will build on initial research carried out by this programme under Activity 1.1.1 and sustaining it over the long term); ii) facilitating the development of sustainable and restorative marine-based products and industries; and iii) providing a logistical centre to support coral reef researchers from countries throughout the Red Sea region, as well as researchers from outside the region who are active partners with local/regional research initiatives. The ASTH may also organize an annual coral reef conservation & management symposium. The ASTH's science program and operational plan is still under development, but is expected to be drafted in time to be presented at COP 28. In addition, the programme will develop and implement a Gulf of Aqaba Coral Management & Finance Strategy to generate joint strategies among Jordan, Egypt and Saudi Arabia on financing for the sustainable use and management of the region's coral reefs.

Activity 1.2.1: Gulf of Aqaba Coral Reef Ecosystems Scientific Collaboration Platform (this activity will start in Phase 1):

Scientific research on coral reefs in the Gulf of Aqaba is carried out at the national level, with no collaboration among countries, and even within the Gulf's countries (including Jordan), the link between scientific research and data on the one hand and policy and management decisions on the other hand is

very limited, particularly as most research is presented in scientific publications but never disseminated to resource managers or decision makers. As another example, although EIA studies carried out for coastal development projects have developed detailed data on coral transplantation to MPA sites as a potential mitigation measure, these studies have not been shared with MPA managers. Led by UNDP Jordan, and working directly with ASEZA and the South Sinai Governorate, which have a Memorandum of Understanding to expand collaboration, the program will seek opportunities to expand and integrate coral reef management into the ASEZA – South Sinai Governorate partnership and program so as to enhance scientific collaboration at the regional level and link research activities with policy and management decisions. In Egypt, the program will also target collaboration with the National Institute of Oceanography and Fisheries (NIOF) and the Egyptian Environmental Affairs Agency (EEAA) in Egypt; and in Saudi Arabia the programme expects that CORDAP, KAUST and NEOM will be partners in the collaboration platform. Finally, the programme will collaborate with Aqaba Science and Technology Hub to facilitate knowledge sharing with regard to coral reef science and coral conservation and restoration approaches among regional initiatives and organisations. Specific activities will include:

- Work with the GFCR global Mermaid information platform / database to include information on the Gulf of Aqaba's coral reefs (linked to activities under Output 1.1)
- Assess options for effective sharing of scientific information on coral reefs and other marine and coastal ecosystems in the Gulf of Aqaba, including: i) the types of information, data and policy-supportive products the platform should provide (linked to the monitoring systems under Output 1.1.); and ii) which government institutions and/or other partners should participate in the mechanism (e.g. sub-national authorities including ASEZA, South Sinai Governorate, and Tabuk Emirate / NEOM; national-level environment, finance, planning and productive sector ministries/agencies); regional institutions such as PERSGA, etc. The assessment will seek to benefit from lessons learned through PERSGA's efforts to coordinate information sharing for its seven member countries across the Red Sea and Gulf of Aden.
- Support the platform in consolidating information at the regional level and in using that information to generate reports, data sets, analyses etc. to facilitate policy changes and management approaches at the national and regional levels (thereby supporting the policy/regulatory changes under Output 2.3) and to facilitate investment decisions for coral-friendly businesses and projects (thereby supporting activities under Outputs 2.1 and 2.2)
- Discuss with Egyptian and Saudi partners the potential for collaboration on scientific research / information sharing of the Red Sea proper, whose coral reef ecosystems are a natural extension of the corals of the Gulf of Aqaba and constitute an important biological link between the GoA and the Indian Ocean and beyond.

Activity 1.2.2: Gulf of Aqaba Coral Reefs Management & Finance Strategy (this activity will start in Phase 1): Led by UNDP Jordan, the programme will support joint development with Jordan, Egypt and Saudi Arabia of a GoA Coral Management & Finance Strategy to support regional approaches to conservation and management of globally significant 'last refuge' coral reefs in the region. The strategy will seek to create statements of intent and guidelines on collaborative approaches that the three countries can develop funding mechanisms for: 1) scientific research and monitoring on coral reefs; 2) operation of Marine Protected Areas (MPAs) and Other Effective area-based Conservation Measures (OECMs) to protect coral reefs (including a potential partnership with Saudi Arabia to conserve an ecological corridor along the Jordanian and Saudi coastlines to conserve endangered species such as marine turtles; or establishment of an accredited regional program for ICZM/MPA management, which might be located at the ASTH); and 3) utilizing blue economy approaches to sustainable use and management of coral reef areas (this will build on the initial Blue Economy framework for the GoA being developed under the "GEF 8 / ASEZA / UNDP project "Support to develop and implement a Sustainable Blue Economy (SBE) in Aqaba"

by seeking to generate agreement among regional partners on prioritizing the most feasible blue economy financing approaches). Development of the strategy should include inputs from environment, finance and productive sector (especially tourism) stakeholders, as well as regional initiatives such as PERSGA. The strategy will seek to build on previous national planning efforts, such as Jordan's Sea Use Master Plan (2015) and Egypt's South Sinai Protected Areas Management Strategy and Plan - 2012 -2020.

Activity 1.2.3: Aqaba Science and Technology Hub Business Plan (this activity will start in Phase 1): The Government of Jordan and ASEZA along with other partners are seeking to establish the Aqaba Science and Technology Hub as a leading centre for research and innovation in Aqaba. Although some of the main functions of the ASTH have been identified, and the ASTH is expected to become the future home of the Centre for Sustainable Blue Economy Innovation with support from this programme, the financial sustainability of the ASTH is not clear. The programme will develop a Business Plan for the ASTH with the goal of identifying viable financial mechanisms and plans to guide the ASTH towards financial sustainability and effective implementation – helping to make the ASTH a leading source of research, innovation, and regional collaboration on research and conservation of the GoA's coral reefs. The Science & Technology Hub is designed to: 1) provide scientists with high quality, well equipped spaces in which to conduct research; 2) nurture the development of sustainable marine and fresh-water based commercial enterprises; 3) offer incubation spaces for start-up businesses and young entrepreneurs – including hosting the CSBEI – in addition to R&D facilities for large companies; 4) foster collaboration and the sharing of ideas through joint ventures, seminars, conferences, etc.; 5) support monitoring of the coastal and marine environments of the Gulf of Aqaba; and 6) give tourists an opportunity to experience 'research in action' as part of programs integrated with the Aquarium and Marine Reserve.

There are various opportunities for sustainable financing for the ASTH, some of which are described above in the section on the CSBEI. Although the main source of initial financing for the ASTH will be from grants and other donations, ongoing operations could be at least partially financed from specific revenue streams that are sustainable. These can include the following: i) entrance, concessions, and specific activity fees and other revenue collected from the Aquarium; ii) licensing revenues from innovations and commercialisation of research from the ASTH; iii) paid services such as business plan development, financial modelling, and consulting on sustainable business development; and iv) sales of coral and other marine products for restoration, aquarium trade, and aquaculture. The GFCR programme will support the development of a Business Plan for the ASTH, including plans for developing some of the sustainable finance mechanisms listed above. The business planning process will include a determination of capacity and management needs; assessment of sustainable finance mechanisms and potential revenue streams; and development of a cost and revenue model and a resource mobilisation strategy.

Output 1.3: Financing mechanisms and related management capacities strengthened for Marine Protected Areas (MPAs) and OECMs

Under this output, the programme will assess potential new financing mechanisms to support MPAs and Other Effective area-based Conservation Measures (OECMs), and work with relevant partners to develop the mechanisms, regulations, partnerships, etc. required to implement the mechanisms. The project will also support MPAs in developing business plans that include implementation of the most applicable site-level financing mechanisms in each individual MPA, and it will implement capacity building programs to strengthen MPA management capacities, systems and resources for business planning and financial management. The programme will focus on the Aqaba Marine Reserve, but will also support financing approaches for any OECM that may emerge in Jordan's coastal area (Jordan does not currently have any OECM sites or legislation to enable their establishment, but the work to fully assess priority sites for coral

reef conservation under Activity 1.1.1 will establish the information necessary to adopt OECMs as an approach in Jordan if required).

Activity 1.3.1: Develop and implement financing mechanisms to support the conservation of all coral reefs in Jordan (this activity will start in Phase 1): The programme will:

- Carry out desk reviews, interviews, workshops, and technical studies / analyses to assess the viability and support for various coral reef conservation financing options. Among the most likely options are: 1) review and update of system of fines and damage compensation payments; and 2) public-private partnerships (mainly implemented in collaboration with the ASEZA and the new Aqaba Marine Park). See Annex III, Table 6 for additional details on these and other potential mechanisms.
- For those financing mechanisms with the highest potential and support from regional stakeholders, the programme will work with relevant partners to develop the mechanisms, regulations, partnerships, etc. required to implement the mechanisms

Activity 1.3.2: Develop and implement an Aqaba Marine Reserve Business Plan and associated financing mechanisms. This activity, which will start in Phase 1, constitutes solution 3 of the proposed programme (see Section 4 for additional details). In collaboration with other ongoing projects supporting management strengthening of the AMR (see Section 1.4), the programme will:

- Develop and implement an AMR Business Plan that incorporates MPA financing mechanisms[29] and strengthens local community participation and benefit sharing.
- Implement at least three priority finance mechanisms under the AMR Business Plan. Some options that will be explored include: 1) user / license fees for dive, tourism and pleasure boats; 2) concession fees for hotels within or adjacent to the AMR; and 3) a tax on cruise ship visitors to Aqaba. See Section 4, Table 3 for additional details on these and other potential mechanisms.

Outcome 2: Integration of Red Sea coral reefs into the growing sustainability-oriented economy of Aqaba

Implementing Partner for Outcome 2: UNDP Jordan

Output 2.1: Reef-positive investment opportunities identified and supported through a Centre for Sustainable Blue Economy Innovation

The programme will identify an initial pipeline of reef-positive investment opportunities through market assessments; consultations with fisheries, tourism and waste management associations and businesses; review of relevant policy documents; review and alignment with the GFCR Investment Principles; and a call for proposals to the Centre for Sustainable Blue Economy Innovation (the "Centre" or CSBEI). Criteria to select supported business models will include gender aspects, intersectional aspects such as age, potential for financial viability, and potential for positive impact on the coral reefs and associated ecosystems. The programme will work to move the Centre to the Aqaba Marine Park (AMP) once it is established and will seek to be the support mechanism to commercialise innovations coming from other areas of the ASP (i.e. pure or applied research). The Centre will have incubation and technical assistance capacity to support reef-positive investments in entrepreneurs and small – medium businesses including providing business mentoring, capacity building, and access to key support services for entrepreneurs and

[29] This will build on an initial assessment of finance opportunities in The Business Case for Conserving Aqaba's Coastal and Marine Resources. Dr Francis Vorhies, Senior Business and Economics Adviser IUCN Global Marine & Polar Programme and Ziad Samaha, IUCN ROWA Marine and Coastal Zone Management Programme

small businesses. There will be an emphasis on supporting smaller enterprises, women, vulnerable groups, and youth. The CSBEI will also act as a collaborative platform to explore larger investment opportunities, such as zero discharge programs for ports and other coastal infrastructure, electrification of boat and taxi fleets, etc. Overall, the focus of Output 2.1 will be to support the transition towards sustainability and development of reef-positive businesses in the fisheries and tourism sectors, as well as investments in reducing pollution in the marine environment and supporting for reef-friendly operations / businesses in industry, ports and shipping sectors.

Activity 2.1.1: Identify initial pipeline of reef-positive investment opportunities that are inclusive and gender-sensitive (this activity will start in Phase 1): Building on work initiated during the development of the full proposal (see Annex III of the GFCR full proposal), the programme will:

- Identify an overall pipeline of investable projects based on assessment of drivers of degradation; market assessments; consultations with fisheries, tourism and waste management associations and businesses; review of relevant policy documents (including Jordan's National Green Growth Strategy and Action Plan and the Economic Modernization Vision); review and alignment with the GFCR Investment Principles; and a call for proposals to the Blue Economy Business Incubator. Criteria to select supported business models will also include gender aspects, as well as intersectional aspects such as age.
- Carry out a national level landscape assessment to identify opportunities for impactful large-scale investments (both within and potentially outside the priority areas of the programme) from the GFCR Investment Fund (IF) managed by Pegasus Capital Advisors (PCA). Building largely on the information generated under activities 1.1.1 and 1.1.2, the landscape assessment will include information on the country's marine ecosystem, focusing on the distribution of (resilient) reef (and adjacent) ecosystems (including their threats and stressors); and relevant legal and economic information. The Landscape Assessment will be provided to the Investment Fund in order for the IF to build an understanding of the investment landscape and identify the most impactful investments. The landscape assessment will also prioritize opportunities for the management of plastic wastes and potential business / investment opportunities in improving the sustainability of plastics production / reuse / recycling in the Aqaba region.

Activity 2.1.2: Establish and operate a Centre for Sustainable Blue Economy Innovation, including a reef-positive blue economy business incubator**:** This activity, which will start in Phase 1, constitutes solution 1 of the proposed programme (see Section 4 for additional details). The CSBEI, which will be hosted by ADC, is expected to become operational rapidly as ADC already has the authority to manage this type of operation (make loans, invest in enterprises, provide business guidance, etc.). The programme will:

- Support the establishment of the CSBEI, including hiring of staff, development of operational and business plans; establishment of partnerships with law firms, universities, key local enterprises, etc.
- Design the financing arm of the Centre in close collaboration with existing and potential finance sources as noted above to include a range of blended financial products for reef-positive enterprises.
- Conduct annual calls for proposals for entrepreneurs and run an incubation program for 5 projects in Year 1, and 8 projects in subsequent years, to support new reef-positive businesses.
- Support the building of networks of entrepreneurs and organizations for learning and knowledge sharing on project design and implementation
- Develop and launch a finance plan for the CSBEI to attract additional grants and blended and commercial capital during programme implementation and beyond.
- Establish a monitoring and evaluation process that enables impact assessment for each venture in the portfolio (linked to the results consolidated in the research hub under Output 1.2)

Output 2.2: Reef-positive investment opportunities scaled through finance from the Centre for Sustainable Blue Economy Innovation

Building on the lessons learned through supporting initial investment opportunities ("quick wins") under Output 2.1 , the CSBEI will work with ADC and ASEZA, as well as local development and commercial banks, including the Village and Cities Development Bank and the Jordan Enterprise Development Corporation (JEDCO), to provide blended finance for additional reef-positive businesses targeting sustainable fisheries and aquaculture, sustainable tourism, management of plastics, and industry/ports/shipping activities. Eligible projects will be those that are supported by the technical assistance services, enterprises that have been through the incubation rounds, and other early or mid-stage businesses that can provide measurable positive impact on the GoA's coral reef ecosystems. Finance can be provided through grants or concessional loans so that they reach a stage where they are ready to receive investments from purely commercial sources.

Activity 2.2.1: Work through the Centre for Sustainable Blue Economy Innovation to generate a range of blended finance offerings to support reef-positive businesses that are inclusive and gender-sensitive (this activity will start in Phase 1): The programme will:

- Work with other programmes of the Centre, ADC, and ASEZA (and eventually the Aqaba Science and Technology Hub) to promote the finance offerings and generate leads and proposals (this could include an annual call for proposals, or accept proposals on a rolling basis)
- Review business plans and submitted proposals and provide financing for approved proposals

Activity 2.2.2: Identify and collaborate with regional and international partners on finance for innovative reef-positive businesses: The programme will reach out to potential regional and international investors in reef-positive businesses, including international impact investors (e.g. Pegasus); regional finance institutions and coral financing initiatives (e.g. CORDAP, which is proposing a US$ 18 million Coral Accelerator Program to fund research in coral conservation and restoration for early-phase projects through to final proof-of-concept development and testing); and Jordanian partners (e.g. the Jordan Enterprise Development Corporation (JEDCO); Amam Ventures; Ahli Fintech; and TTi, etc.) to:

- Advise them of investment opportunities under the CSBEI
- Work with interested investors to secure and structure financing for reef-positive businesses in the Aqaba region

Output 2.3: Sector-specific regulations, management mechanisms and information systems in place to reduce negative impacts on coral reefs and facilitate investments in and operation of reef-friendly businesses

Under Output 2.3, the program will support new / updated / strengthened regulations, management mechanisms and information systems that enable the transition to sustainability in key sectors by ensuring that business activity is reef-friendly but also has the potential to succeed. These key sectors include fisheries (with a focus on improved information and management mechanisms); tourism (with a focus on regulations to enable reef-friendly investments; sustainability standards; community participation; and a GFCR Solution on sustainable dive operations); waste management (with a focus on regulation and community education on plastics pollution); and ports and shipping (with a focus on prevention, response and monitoring of pollution).

Activity 2.3.1: Regulations, management mechanisms and information systems to support investments in sustainable fisheries: Although fishing is a relatively small industry in the GoA, fishers are considered an

important stakeholder group because of their long history in the area, and fishing is widely viewed as an important local tradition. However, fishing activity in the GoA has become less sustainable due to pressure on fish stocks and unsustainable fishing practices, as well as declining productivity due to degradation of the marine environment from pollution and development activities. Building on PERSGA's Sustainable Fisheries project, the programme will seek to strengthen the sustainability of fisheries activities in the region by:

- Increasing fishers' knowledge and awareness of sustainable fishing practices and technologies
- A capacity development program that can be made a requirement for the issuing of fishing licenses, so as to reduce unsustainable fishing practices and also facilitate the creation of high value sustainable fish products
- Building on initial efforts carried out under the MED4EBM Project, the programme will support regular collection of data on catches of local (reef-dependent) fish species

Activity 2.3.2: Regulations, management mechanisms and information systems to support investments in sustainable tourism (this activity will start in Phase 1): Several certification programs exist for hotels in Jordan, including a "green key" program led by the local NGO JREDS and a "blue flag" program for marinas, beach hotels and the public beach at the AMR Visitor Centre.

- Support policy and regulatory changes to enable reef-friendly tourism investments (e.g. for electrification of boats and taxis)
- Develop sustainability standards and/or sustainability certification programs for tourism operators (e.g. the Green Star Initiative)
- Through GFCR Solution #4 (see Section 4 for additional details), expand the engagement of the Green Fins approach in Aqaba to support all 35 dive centres and ultimately all snorkelling operators to follow Green Fins training and certification[30]. This will be accomplished by a combination of guidance from ASEZA, small financial incentives to dive and snorkel operators to cover costs of training, and other sustainable financing mechanisms, such as sponsorships from local resorts and sale of merchandise.
- Development of skills for local community members, including smaller enterprises and women and vulnerable groups, on reef-friendly ecotourism livelihoods opportunities

Activity 2.3.3: Regulations, management mechanisms and information systems to support investments in reef-friendly operations / businesses in industry, ports and shipping sectors: The city of Aqaba has a strict "zero discharge to the sea" policy and the advanced wastewater treatment facility serving the city has eliminated most environmental and health problems related to wastewater in Jordan's area of the GoA. Reclaimed water from this facility is used by some industries, for example to irrigate green open spaces / city landscaping, and to fill ponds established in the area of the Aqaba Bird Observatory.

- Enhance existing National Contingency Plans and practices for prevention, preparedness and response to oil and chemical spills to reduce impacts on reef ecosystems.
- Strengthen monitoring of i) brine effluent from desalination plants and effluent from water treatment plants; ii) solid waste management systems and flows; and iii) marine-based pollution, including from ferries, cargo ships, oil tankers, and fishing boats (including lost or abandoned gear)

Output 2.4: Aquaculture Innovation in Aqaba

[30] Green Fins conducted an initial visit and training in Aqaba in 2023 during which 14 dive centres joined the programme; further engagement is planned through the end of the year with financial support from GIZ.

FAO and ASEZA are supporting the establishment of an inland aquaculture facility in Aqaba at a site supplied with a sea water pipeline currently being contracted with funds from ADC. This GFCR Solution would entail a collaboration with FAO, ASEZA, and others to facilitate the conditions for multiple investments in land-based aquaculture -- including fish, molluscs, and potentially seaweed -- in the target area allocated for this purpose and supplied by the pipeline. FAO has supported feasibility studies, technical training and the purchase of equipment for pilot aquaculture ventures. However, the equipment will mostly arrive after the FAO project period has ended (end 2023) and financial support from the GFCR is essential to complete the pilot phase and support local aquaculture ventures in testing new aquaculture technologies. This solution also seeks to directly support the Fishermen's Association as they pilot the aquacultural technologies being provided by FAO and the University of Jordan. The program would be supported by the Centre for Sustainable Blue Economy Innovation and receive direct support from the GFCR programme itself.

Activity 2.4.1: Develop and support aquaculture enterprises, including participation of fisherman's association This activity, which will start in Phase 1, constitutes solution 2 of the proposed programme (see Section 4 for additional details). The programme will:

- Review existing pilot, feasibility and technological assessment with FAO; as needed, carry out additional assessments of potential ecological impacts and economic feasibility of aquaculture in the GoA
- Based on evaluation activities, develop guidance / regulations for reef-friendly aquaculture development
- Develop a technical and business support program with partners including the CSBEI, University of Jordan, ADC, and others.
- Work with investors and operators to facilitate installation and sustainability elements into aquaculture enterprises in the target zone[31].
- Incubation of Fisherman's Association project through the Centre for Sustainable Blue Economy Innovation including drafting of Business Plan, and creation of company structure.
- Secure financing for Fisherman's Association project and begin implementation

Outcome 3: Coral reefs in the region are regenerated and restored through new technologies and adaptive and science-based approaches

Implementing Partner for Outcome 3: UNDP Jordan

Output 3.1: Develop and up-scale investment opportunities and financing mechanisms to support coral restoration

As detailed in Section 1.1, a variety of studies have shown that corals in the Gulf of Aqaba demonstrated significantly less bleaching and subsequent die-out as compared to corals elsewhere in the world, and furthermore that coral reefs in northern sections of the Red Sea (including the Gulf of Aqaba) are considered a coral reef refugia from global warming and acidification. For this reason, the coral species found in the Gulf of Aqaba can serve as an invaluable coral gene bank that can support global efforts to restore coral reef ecosystems in other parts of the world where coral bleaching has devastated local reefs.

[31] Scaled-up commercial aquaculture in the Gulf of Aqaba can only be developed inland due to the sensitivity of the coral reef ecosystems to added nutrients. In Jordan, the government is currently developing a National Aquaculture Strategy that will focus on inland aquaculture with high economic returns and no impact on the marine environment.

The proposed programme will test restoration strategies for these globally important coral species. Although Jordan has some experience with coral restoration and transplantation, this has been carried out in an hoc manner and without established regulations and protocols. Two of the program's three priority sites (the Northern Deep Corals site and the Southern Industrial Site) have been significantly impacted by coastal development, and yet have also seen positive signs of natural coral reef recovery, particularly at the NDC site from which all port facilities have been removed. These sites will be the focus for restoration activities with key partners, including a better understanding of ongoing natural regeneration processes. The programme will also ensure that these sites are effectively protected so that coral restoration can succeed over the long-term. Finally, the programme will seek to develop new partnership and financing models, including through the CSBEI and/or public-private partnerships and other financing mechanisms (see Activity 3.2.1) that can support capacity building and restoration actions, promote partnerships on coral restoration approaches and techniques (linked to scientific information sharing under Output 1.2), and sustain restoration efforts over the long-term.

Activity 3.1.1: Develop partnerships for coral restoration with community participation, including on-the-ground activities and information sharing / lessons learned (this activity will start in Phase 1):

- Develop scientific partnerships on coral restoration approaches, techniques, and data among the Marine Science Station in Aqaba, the Aqaba Science and Technology Hub, and regional partners such as KAUST-NEOM and others. Such partnerships might include: i) ex situ conservation at the Aqaba Science and Technology Hub of unique corals of the GoA to support potential future restoration; ii) studies of the species and ecological conditions that produce the most effective natural regeneration of coral reefs, and pilot programs to carry out coral reef restoration using identified species and in areas with optimum conditions; iii) strategic and technical collaboration with the new KAUST Coral Restoration Hub, including exploring options to standardize restoration guidelines and protocols in the GoA / Red Sea region; iv) learning from the experiences of the Prince Mohammad Ben Salman Nature Reserve in Saudi Arabia on restoration strategies; v) partnering with KAUST-NEOM and their technical partner Coral Vita to use coral fragments grown at NEOM's coral farming facility for transplantation in the Gulf of Aqaba; and vi) development of a partnership with Saudi Arabia to transplant resilient corals from the Gulf of Aqaba to restore coral reef ecosystems in the southern Red Sea, where corals are less resilient to climate change impacts (a proposal for such a program is under preparation for potential financing by CORDAP).
- Establish community participation protocols for coral restoration efforts to ensure participatory roles and livelihoods opportunities related to coral restoration efforts for local communities and resource users
- Develop strategic partnerships among regional authorities including ASEZA and NEOM to share information on protecting areas of coral restoration and ensuring long term maintenance and monitoring of such areas
- Share information and lessons learned with the UNDP-GEF Green Sharm El Sheikh project in Egypt, which has a major component on marine restoration

Activity 3.1.2: Develop conservation frameworks to ensure the viability of restoration at these sites (this activity will start in Phase 1):

- Identify local drivers of coral degradation that may impact selected restoration efforts and develop plans to mitigate those drivers at restoration sites
- Support ASEZA in developing regulations, protocols and standards for restoration siting, activities, and responsibility for monitoring and maintenance of restored sites (e.g. collecting and removing drupela snails).

- Carry out an Environmental and Social Management Framework (ESMF) process for coral restoration activities, including site selection criteria/plans to be taken into account during the selection process for all business opportunities/projects relating to coral restoration/rehabilitation
- Carry out EIAs to assess whether sites have the environmental and enforcement conditions required for effective reef restoration (EIAs are required by the GFCR before funds are disbursed and restoration can commence)
- Strengthen protection and monitoring regimes as needed for sites selected for coral restoration efforts

Activity 3.1.3: Enhance finance / investment opportunities to support coral restoration (this activity will start in Phase 1):

- Implement regulatory-based financing mechanisms to support coral restoration, expected to include: 1) new regulations from ASEZA requiring companies involved in coastal development and/or found to have caused damage to coral reef ecosystems to pay fines / compensation payments to fund coral restoration; 2) a small levy on cruise ships to support coral restoration; and 3) contributions from tourism developers involved in the development of the Aqaba Marine Park and associated tourism facilities (as they will be direct beneficiaries of coral restoration actions)
- Under the CSBEI (Outcome 2), identify other potential coral restoration grant funding and/or blended finance opportunities; and provide initial grants and investments (through the CSBEI) towards developing the capacities of businesses to adopt and implement cost effective and ecologically beneficial practices for coral reef restoration, and to secure long-term funding for their work
- Seek out public-private partnerships for coral restoration (e.g. working with partners such as Neom's coral restoration / farming program; opportunities through CORDAP's Coral Accelerator Program; the Abu Dhabi Company building the Aqaba Aquarium; the Ayla Resort and other large hotels in Aqaba, and others) who can provide technical assistance, material inputs, and/or financing support

Activity 3.1.4: Implement pilot coral restoration activities at the Northern Deep Corals site and the Southern Industrial Site:

- Training of scientists, professional divers, monitoring technicians, etc., on coral restoration practices specifically tailored to conditions and opportunities in the Gulf of Aqaba (including staff of the Aqaba Marine Reserve and local community members among others)
- Provide equipment and materials for a small coral nursery to cultivate species identified as highly resilient to coral bleaching and to pilot techniques for transplanting such species onto reefs, including maintenance and monitoring
- Integrate lessons learned from restoration activities into GoA marine ecosystem planning and MPA management plans

Outcome 4: Knowledge management to support upscaling and replication of coral reef finance and business solutions

Implementing Partner for Outcome 4: UNDP Jordan

Output 4.1: Engagement with the regional and global coral reef finance community for impact, scaling and replication

The programme will facilitate stakeholder involvement with the GFCR REEF+ Knowledge Management platform, which is designed as a convening platform to drive finance and knowledge for bankable coral

reef solutions globally, by connectivity among investors, entrepreneurs, and practitioners, and rapidly and efficiently scaling Knowledge, Collaboration, Learning, Finance, Impact, Capacity.

Activity 4.1.1: Collaboration and exchange of data and lessons learned with the GFCR Egyptian Red Sea Initiative programme: The GFCR intends to support two concurrent programs in the Gulf of Aqaba and the Egyptian Red Sea. Because both programs share many similarities in terms of ecological conditions and challenges to effective coral reef conservation, it is highly strategic to ensure synergies and effective sharing of information, strategies, and lessons between the two programmes[32]. Both programs will undertake the following activities:

- Semi-annual meetings of the programme management units for both programs
- Potential sharing of technical experts and/or joint funding of some technical assessments
- Knowledge exchange & learning to share experiences, lessons, successes, etc., including potential replication or up-scaling of results between the two programs
- Sharing of baseline and monitoring information and data

Activity 4.1.2: Engage with GFCR REEF+ Knowledge Management & Finance Platform and other global coral reef learning mechanisms to facilitate connectivity among investors, entrepreneurs, and practitioners and share bankable reef-friendly solutions incubated by the programme: The programme will:

- Utilise REEF+ to provide GoA stakeholders with information about innovative, relevant and replicable bankable reef+ solutions incubated by other GFCR programmes, including information on: 1) GFCR related Programmes, Projects and Investments; 2) Coral Reef Positive Companies and Technologies, and 3) Innovations in coral reef finance and companies
- Update the GOA programme profile on REEF+ on a quarterly basis by developing and uploading articles, case studies, audio-visual and other materials that share information and analysis about reef+ solutions emerging through the programme that can be replicated and/or scaled
- Participate actively in the GOA global community of practice including presentation and engagement in REEF+ collaboration and learning events including practitioner discussions, meetings, webinars, masterclasses, trainings, and micro-communities
- Attend the REEF+ annual conference on coral reef finance

Activity 4.1.3: Facilitate knowledge sharing of lessons learned, strategies, financing solutions, etc. already existing in the Gulf of Aqaba: The programme will:

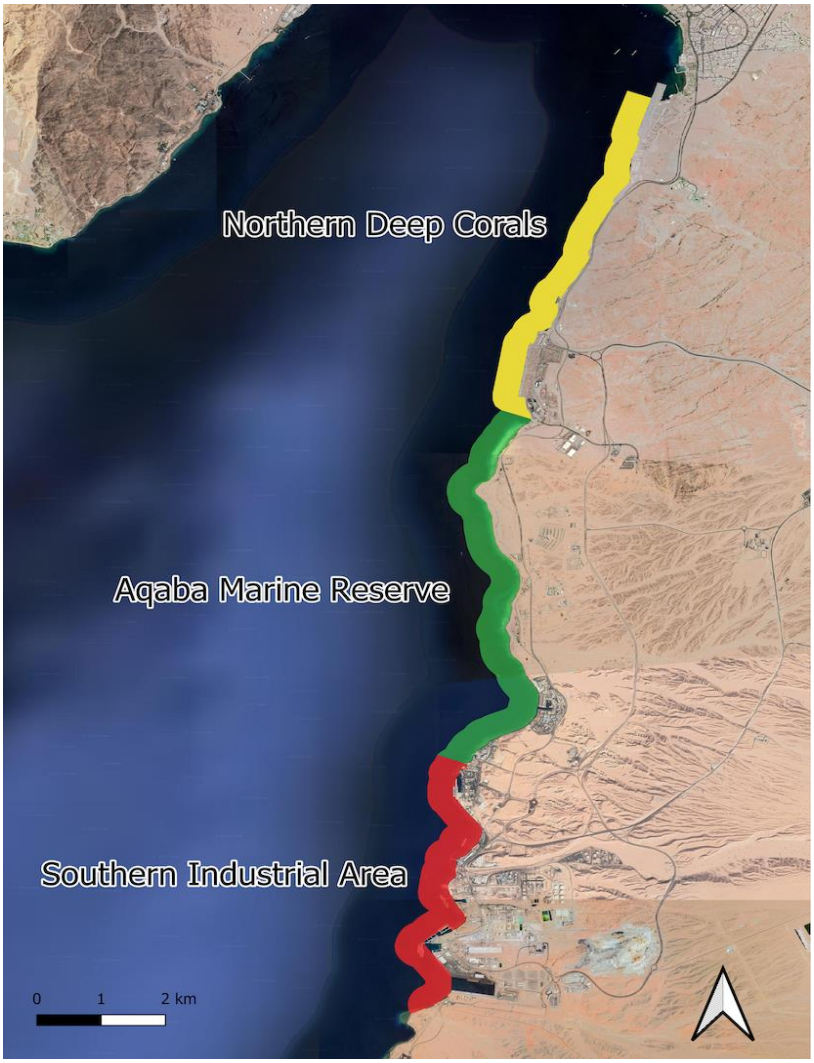
- Partner with CORDAP and PERSGA on information sharing and up-scaling strategies for the larger Gulf of Aqaba / Red Sea region
- Share information / models on EcoPorts and Jordan's zero discharge policies and regulations throughout the Gulf of Aqaba region
- Share data on coral reef / marine monitoring from the Jordanian part of the Gulf of Aqaba: A database is currently under development at the AMR that includes results of the National Monitoring Program that has been running since 1999. In addition, a large amount of data was produced by the Ocean X expedition in 2022. ASEZA has issued directives for data sharing and encouraging joint scientific publications both nationally and internationally.
- Share the methodology, processes, data, and other results of Jordan's Sea Use Master Plan that was completed in 2015 as a model for other countries on the Gulf of Aqaba.

[32] Note: The Government of Egypt is currently unsure that it will support the sharing information and lessons learned between the ERSI and GoA programmes; for this reason, activity 4.1.1 is not scheduled to start until Phase II of this programme while the GoE's concerns are addressed.

3 Priority Implementation Sites

Overview

Three sites have been selected as priority implementation sites: 1) Aqaba Marine Reserve (AMR); 2) Northern Deep Corals (NDC); and 3) Southern Industrial Site (SIS). Although these 3 sites do not cover the entirety of the Jordanian coastline, they encompass the vast majority of Jordan's coral reef ecosystems and most of the very limited coastline of 27 km. Thus, the GFCR programme will effectively cover all of Jordan's coastal area. Because Jordan's territory within the Gulf of Aqaba is relatively small, some of the conditions / challenges at the three priority sites are essentially identical and can be summarized here. For example, the Aqaba Special Economic Zone Authority (ASEZA) has overall management authority for all three priority sites, and for Jordan's entire marine area in general, while the Aqaba Development Corporation (ADC) oversees all development activities throughout the area. In terms of ecosystem types, there are no mangroves in the Jordanian part of the GoA, and while seagrass beds are known to occur in some areas, there is no data available on their location and extent.



3.1 Priority Site 1: Aqaba Marine Reserve (AMR)

Site overview and ecological characteristics: The AMR has a total area of 2.8 sq. km., representing approximately 3% of the country's entire marine area of 96 sq. km., and it extends along 7 km. of the coast, representing approximately 26% of the country's entire coastline of 26.5 km. This site is located in close proximity to the Aqaba urban area, and provides employment for local persons at the reserve and the 35 dive centres within the reserve. The AMR represents an outstanding marine ecosystem that sustains intact ecosystems and interacting biological processes which require long-term conservation support for their unique diversity and endemism. It covers shallow habitats, reef formations and deep-sea areas which support diverse habitats, high numbers of species, and high levels of endemism (see Annex I for details). The semi-enclosed nature of the Gulf of Aqaba minimizes the occurrence of high waves and strong currents, while seagrass beds and sand beaches regulate nutrient and sediment input into the reef complexes. Coral reefs within the AMR are estimated to cover 200 ha, or approximately half of all the coral reef area in Jordanian waters. Seagrass beds within the AMR are small in comparison with the magnitude of coral reef extent. The species richness and biodiversity nevertheless are very high with studies indicating the importance of conserving these meadows (additional details in Annex I). The AMR also contain "fossil" (or relic) coral reefs along its southern shore that are of great scientific interest (each fossilized reef includes fossilized animals that inhabited the marine area during different eras).

Management

The Aqaba Marine Park was reclassified and renamed as the Aqaba Marine Reserve (AMR) in 2020; the entire reserve is a no take zone and is currently on the tentative list of UNESCO World Heritage Sites (https://whc.unesco.org/en/tentativelists/6630/). The AMR is managed under the authority of the Directorate of the Aqaba Special Economic Zone Authority (ASEZA). The Reserve's management consists of three Divisions: Administrative, Regulatory and Logistics; Visibility and Public Relations; and Research and Studies. In addition to a regular staff of around 40 persons, 10 young rangers from Aqaba have been hired to enhance the AMR's monitoring and surveillance capacity. The Aqaba Marine Reserve Management Plan (AMRMP, 2022-2026) guides management of the reserve, while the AMR's Zoning Plan 2023 has established three zones, as follows: 1) Coral Coastal Zone (this includes the AMR); 2) Coral Reserves (this includes the coral reefs within the above defined Coral Coastal Zone restricted for scientific research and monitoring only); and 3) Beach Protection Zone (this limits development within an area 50 meters to 100 meters landward from the shoreline.

The AMR is fully financed by ASEZA. The AMR's annual budget in 2022 was USD 700,000, of which 55-60% was used for salaries and the remainder for other operating expenses. The AMR estimates that effective management of the reserve (i.e. full implementation of the management plan, including monitoring and patrolling, capacity building, scientific studies and surveys, visitor management and awareness raising) would cost between USD 1.2 – 1.5 million per year. At present, the AMR is benefitting from support from several international donor projects, funded by the EU, GEF and others (see Section 1.4 for details), which are providing significant inputs in terms of facilities, equipment and training.

Economic and community benefits: Human activities in the reserve are carefully controlled, with different activities limited to specific zones of the AMR. Fishing is not allowed within the reserve; bait collection had been allowed at specific times of the day and specific locations, but is not currently allowed by the AMR's bylaw. For this reason, the extensive coral reefs within the reserve are critically important habitat

for fish populations for the entire northern part of the GoA. The primary economic benefit provided by the AMR is through tourism (although no data on tourism numbers or revenues exists); the reserve is the site of the vast majority of dive, snorkel and glass bottom boat excursions in Jordanian waters.

Drivers of degradation: Active MPA management at the AMR, including the ban on all fishing, visitor management, prohibitions against coastal construction and commercial shipping, etc., has been effective in reducing many drivers of degradation for coral reefs such as plastics pollution, physical damage to reefs from visitors, sedimentation, and pollution from ships. Nevertheless, the AMR faces a variety of management challenges, including significant visitor pressure in the form of beach use, snorkelling / diving, fishing and other activities mean that most staff are focused on monitoring visitor activities at the expense of conservation, research, education and other objectives. This has also contributed to high levels of staff turnover with higher rates for higher qualified staff. By providing low impact alternatives and education for divers, better low impact (electrified) boats for divers, snorkelers and glass bottom boat tours, and various alternative livelihood and fish protein options for fishers and the local economy, reef-positive businesses will contribute to further reducing the direct pressures on the coral reefs.

Justification as priority site: The AMR is Jordan's only marine protected area and represents an outstanding marine ecosystem that sustains intact ecosystems and interacting biological processes which require long-term conservation support for their unique diversity and endemism. It occupies 25% of the length of the Jordanian coast and includes diverse habitats of coral reefs and seagrass beds. The scoring of this site against a list of site selection criteria is provided in Annex I.

3.2 Priority Site 2: Northern Deep Corals (NDC)

Site overview and ecological characteristics: The Northern Deep Corals site was Jordan's main port area for over 60 years, until port operations were moved further south along the coast in the past decade. Currently, this area is primarily used by fishermen practicing traditional artisanal fishing. The area has not been extensively mapped, but the overall area is estimated to be 7 sq. km. and the area of coral reefs within this is estimated to be 50 hectares. This site is located in close proximity to the Aqaba urban area.

Management: ASEZA has contracted Abu Dhabi Ports to prepare the site for future development under a new master plan. Most notably, the plan calls for the establishment of the Science and Technology Hub and Aquarium, two of the three key elements (along with the existing Marine Science Station) of the proposed Aqaba Marine Park (AMP). Although this site is not expected to have formal protection status, ASEZA is committed to preserving the coral reefs in this area to support both the research and tourism objectives of the AMP, and ASEZA has already carried out extensive efforts to remove solid waste from the site, including objects such as tires, bottles, ropes, plastic bags and boxes.

Economic and community benefits: The establishment of the Aqaba Marine Park, with its Science and Technology Hub, Aquarium, and Marine Science Station, are part of an overall vision to create a world class research and tourism destination closely linked to and focused on coral reef conservation. For this reason, ASEZA has prioritized protecting the coral reefs in this area as they will be an important site for field research and part of the visitor attraction of the AMP. The site is in close vicinity to other tourist attractions, including the Aqaba Old town, hotels area, Palm oasis, Mamluk fort Museum, Arab Revolt Plaza, fishermen port, and cruise Terminal. Apart from tourism, the coral reefs in the NDC constitute important habitat for fish stocks and are the only area in Jordanian waters where fishing (small-scale only) is allowed.

Drivers of degradation: The NDC is currently in a transitional state from being an area with significant port activity to becoming an area of tourism. For this reason, the NDC is likely to be the primary focus of coral restoration activities in the Jordanian GoA. Overfishing is a potential threat at this site, particularly the capture of bait fish for pelagic fishing, although this has recently been banned within the reserve. Coastal construction, including construction of the Science and Technology Hub and Aquarium, also pose a potential threat to the site's coral reefs. Apart from fishing boats, there is no substantial vessel traffic at the site, as the port is now further south and dive / snorkel boats generally do not visit the area. The NDC site is close to one of the main valleys that reach the coast. The valley is dry most of the year, but during short heavy rain events flash flooding may occur.

Justification as priority site: Despite being a port area for more than 60 years, the coral reefs in the NDC site have maintained good coral cover (see Annex I), particularly in deeper areas, which has been suggested as an important component of coral refugia (Kramer et al., 2019). To date the corals in the area are poorly studied, but local researchers were surprised after the relocation of the port at the strong ecological characteristics and functioning of the site's coral reef ecosystems, and at the natural recovery rates of some corals in the area. The scoring of this site against a list of site selection criteria is provided in Annex I.

3.3 Priority Site 3: Southern Industrial Site (SIS)

Site overview and ecological characteristics: The Southern Industrial Site marine habitat is a historically well-developed coral reef habitat on the southern coast of the Jordanian part of the Gulf of Aqaba; about 19km south of the northern edge of the Gulf of Aqaba and about 2km north of the Jordanian border with Saudi Arabia. This site is primarily industrial and there are few local inhabitants. Intensive development has taken place in the area, including establishment of the Jordanian Phosphate Mines Company Industrial Complex (JPMC IC), the construction of ports, laying of gas pipelines and cooling water intake and outflow for the JPMC IC and the Thermal Power Station. The area also hosts the Arab Fertilizers and Chemicals Industries Ltd "KEMAPCO", which has recently established a small desalination plant with a daily capacity of 12,000 m^3 using the cooling water abstracted for its operations, as well as Aqaba Industrial Ports, which is planned to be the main port for bulk, liquid, and livestock cargo. Despite this level of development, monitoring of the sites (see Annex I for additional detail) has documented 46 hard coral species at the site belonging to the families *Acropora sps., Montipora sps*., *Favia sps and Fungia sps.* Some structural modifications were noticed in some areas, mainly due to construction activities where hard coral abundance and cover were slightly perturbed, but in general coral cover appeared to be consistent with other sites in the Jordanian area of the Gulf of Aqaba.

Management: All facilities at the SIS have their own environmental management plans based on Environmental Impact Assessments. Furthermore, ASEZA has implemented and continues to enforce a zero-discharge rule, which allows only seawater to be released back into the Red Sea from any industrial or municipal operations. The Jordanian Phosphate Mines Company has had a regular coastal environment monitoring program since 1996 (additional details on monitoring of this site are provided in Annex I).

Economic and community benefits: The industrial site is instrumental for Jordan and hosts important industrial ports, industry, and storage facilities. The site will be the donor of seawater for a large desalination plant, which is vital for Jordan's ability to provide sufficient drinking water. While no fishing

is allowed at this site, the coral reefs therein provide important habitat for fish populations who migrate to other areas of the GoA where fishing is allowed.

Drivers of degradation: When the new port area was established on the southern end of the coast, coastal construction impacts were significant, but this construction is mostly completed and port operations do not seem to have a significant negative impact on coral reef ecosystems. However, as an area with industrial activity, this site has been subject to some shipping and industrial incidents, including spillages of produced and handled material, oil / chemical spills from ships or land-based facilities. In addition, the pending construction of a desalination plant in the area could results in sediment flows into the marine area.

Justification as priority site: Despite significant port / industrial operations at this site, coral reefs at the site continue to show extensive cover and ecological functioning. A better understanding of the ecological performance of these corals would be valuable in increasing understanding of coral resilience to natural and anthropogenic stresses. The scoring of this site against a list of site selection criteria is provided in Annex I.

4 Programme Solutions

Additional information on Reef-Positive Businesses and Investment Opportunities for the Centre for Sustainable Blue Economy Innovation, including links to specific drivers of degradation, and descriptions of additional potential investment opportunities, is provided in Annex III.

Summary Table of Proposed GFCR Interventions

Table 2: Summary of Programme Solutions

Number and name of Solution	Sector	Location Implemented	Coral Reef Driver of Degradation Addressed	Linked Programme Outputs	GFCR Grant Request (USD)	Readiness stage	Implementing Partners
1. Centre for Sustainable Blue Economy Innovation	Micro, Small Medium-Sized Enterprise Development	Aqaba	Diverse	2.1: Reef-positive investment opportunities identified and supported through a Centre for Sustainable Blue Economy Innovation 2.2: Reef-positive investment opportunities scaled through finance from the Centre for Sustainable Blue Economy Innovation	**TOTAL: $ 2,530,000** **Phase I:** $446,000 **Grant co-financing:** $50,000,000	Incubation	ADC, ASEZA
2. Aquaculture Innovation in Aqaba	Aquaculture	Aqaba (inland)	Over-fishing	2.2: Reef-positive investment opportunities scaled through finance from the Centre for Sustainable Blue Economy Innovation	**TOTAL: $360,000 (est)** **Phase I:** $105,000 **Grant co-financing:** +1,000,000 (est)	Incubation Stage	FAO, ADC, ASEZA
3. Generating Sustainable Finance for the Aqaba Marine Reserve	MPAs	Aqaba Marine Reserve	Unregulated Tourism, pollution, threat of fishing	1.3: Financing mechanisms and related management capacities strengthened for Marine Protected Areas (MPAs) and OECMs	**TOTAL: $** TBD **Phase I:** $40,000 **Grant co-financing:** $9,390,000	Incubation Stage	AMR, IUCN, ASEZA
4. Green Fins Expansion	Ecotourism	Aqaba Marine Reserve	Unregulated Tourism	2.3: Sector-specific regulations, management mechanisms and information systems in place to reduce negative impacts on coral reefs and facilitate investments in and operation of reef-friendly businesses	**TOTAL:** $ 80,000 **Phase I:** $80,000 **Grant co-financing**: $60,000	Design	Green Fins, AMR, Dive Shops

4.1 Solution #1 Centre for Sustainable Blue Economy Innovation (CSBEI)

Description

The Centre for Sustainable Blue Economy Innovation (CSBEI or the "Centre") in Jordan will be developed in partnership between UNDP Jordan and the Aqaba Development Corporation (ADC). The ADC is the financing arm of the Aqaba Special Economic Zone Authority (ASEZA) – a government authority managing the Aqaba Special Economic Zone. The mission of the CSBEI will be *to generate, incubate, and finance sustainable enterprises that measurably contribute to the long-term health of the Red Sea coral reef ecosystems and its associated communities and economies*. The Centre for Sustainable Blue Economy Innovation will be a blended finance facility that provides the following services:

1) Commercialization and licensing of innovative technologies supporting the CSBEI mission
2) Business incubation and other support services for micro, small, and medium-sized enterprises (MSMEs) with attention to women-run business and youth opportunities.
3) Blended finance including grants, technical assistance, and concessional loans for MSMEs and sustainable finance solutions contributing to a sustainable blue economy in Aqaba.

The Centre itself will be incubated under ADC and will seek to become a self-sustaining facility that is integrated into the Aqaba Science and Technology Hub during the course of the GFCR GoA programme.

Link to the GFCR Theory of Change

The Centre is a local manifestation of the GFCR's Theory of Change in that it is designed to provide blended finance solutions for coral reef conservation and associated communities in Jordan. The Centre itself will be a source for both reef-positive businesses and finance solutions as well as a blended finance facility. Its mission is to conserve the coral reef ecosystems of the Gulf of Aqaba using blended finance, business innovation, and innovative finance solutions.

Background

ASEZA and the ADC seek to encourage the development of sustainable enterprises in Aqaba. Given the economic, cultural, and ecological importance of Jordan's Red Sea coastline – only 27km long – the enterprises that ASEZA and ADC seek to develop would need to be sustainable, especially with regards to their potential impact and dependence on the Red Sea coral reefs. Another stated goal of ASEZA is to build a vibrant community in Aqaba of residents that live and work in the Zone rather than return to Amman or other areas following short stays. Building an entrepreneurial ecosystem around the sustainable blue economy addresses these multiple development needs and can secure lasting job creation and increased tourism and service offerings in Aqaba[33].

The Aqaba Development Corporation (ADC) is the development arm of ASEZA and was established in 2004. ADC seeks to work with public-private partnerships and is central to the development of the Aqaba Marine Park – a complex of closely related initiatives including the Aqaba Science and Technology Hub, Public Aquarium, and Aqaba Marine Reserve. The ADC is the ideal partner and host for the establishment

[33] Other initiatives to support MSMEs, such as the GIZ-supported projects "'Employment-oriented MSME promotion'" and Innovating Access to finance for Micro, small and medium-sized enterprises also seek to promote entrepreneurship in Jordan, but these are almost entirely based in Amman and none are active in Aqaba. The GFCR programme will however seek to build from these other initiatives and establish partnerships for training – especially on the gender and youth focused efforts.

of the Centre for Sustainable Blue Economy Innovation due to a combination of their business and finance expertise, a shared mission for the sustainable development of Aqaba, their leadership on the Aqaba Marine Park investments, and their ability to provide not only co-financing but follow-on financing for growing companies coming out of the Centre.

The Centre is currently in concept stage and will be incubated within the ADC for the first several years. Fortunately, ADC has a long history of investing and assessing commercial opportunities. The GFCR programme will finance an innovation and commercialization expert consultant, a Centre Director, and an assistant. This team, together with additional support from the PMU, ADC, and partners will develop the detailed operation and business plan of the Centre and will organize the initial calls for entrepreneurs and innovations. Additional finance, admin, and technical support will be provided to the Centre by ADC internal resources. Once the Aqaba Science and Technology Hub is fully established – likely over the course of the next 5 years - the Centre will move to establish itself in that physical space and will become an integral partner for the commercialization and business support for the range of innovations and technologies generated by the Hub and its partners that will include local and international universities and research centres. It is expected that the Centre will support 4-5 enterprises during its first year of operations and will seek to support 8 enterprises or projects each subsequent year.

Success Factors and Challenges

The Centre for Sustainable Blue Economy Innovation has a strong chance of becoming a self-sustaining centre for entrepreneurship and finance in Aqaba as it will be the first incubator facility in the Zone and the only one focused on the coral reef economy. As well, its close association with the Aqaba Science and Technology Hub will allow for strong cross fertilization among diverse partners and innovators. There are other incubators in Jordan covering a wide range of topics from technology, finance, and women's empowerment but none have operations in Aqaba. An incubator with a focus on the coral reef economy in Aqaba can develop and support a growing ecosystem of enterprises and entrepreneurs and will be well supported by ASEZA and ADC.

Some expected challenges include the current limited ecosystem for entrepreneurs in Aqaba. Although there is a vibrant entrepreneurial ecosystem in Amman, organizations and entrepreneurs have not established themselves yet in Aqaba. Additional challenges include the limited area of Red Sea coast in Jordan, with relatively limited economic activities that can be trialled in this area. This challenge can be addressed by considering the innovations to be developed as potentially viable for the greater Gulf of Aqaba region as well as other areas of the Red Sea. Additionally, ADC is financing a sea water access pipeline leading to an inland agriculture and aquaculture development zone that will create on shore opportunities for innovative aquaculture for fisheries, seaweed, and other sustainable enterprises.

Addressing Drivers of Degradation

The CSBEI will seek to address the main drivers of reef degradation in not only the Jordanian coast of the Red Sea but as many of the drivers are shared throughout the GOA and other parts of the Red Sea ecosystem, key drivers of degradation across the Red Sea in general. These drivers of degradation include:

1) Land-based pollution
2) Rapidly growing and poorly regulated tourism
3) Marine-based pollution
4) Coastal infrastructure development
5) Unsustainable fishing and harvesting of other living marine resources
6) Coral predators and disease.

Projects will be assessed and prioritized by a technical review committee that will include a range of key experts and partners in the region. For example, these will include representatives from ADC, the CSBEI Director, the University of Jordan Faculty of Basic and Marine Science, the Director of the Aqaba Marine Reserve, and the Director of the Aqaba Marine Science Station. Project will be assessed based on a rigorous set of prioritization criteria building on the GFCR Investment Principles and refined for the situation in Aqaba. Specific details will be established during the setup phase of the CSBEI.

Initial Target Opportunities

UNDP and the ADC have identified several initial opportunities that will be explored as part of pipeline preparation in the first round of incubation as follows:

Electrification of Marine Tourism Transport

The increasing diversity of options for electrifying marine transport vessels creates the opportunity to transform the local marine transport sector of Aqaba into an electric fleet of fishing, tourism, and yachting vessels and develop a business economy around this transformation. Conversion on local marine vessels towards electrical propulsion systems would eliminate oil and gas releases, decrease sound pollution, and create a strong distinction for the tourism sector – attracting ecologically minded tourists. As electric transport is the future, this would also provide Aqaba an opportunity to become a regional leader in product sales and servicing.

The marine electric vehicle (MEV) industry is expected to grow by 10% per year reaching 7.2 billion in 2028.[34] There are three main types of marine transport that could be the target of this initiative: fishing boats, dive boats, and glass-bottom boats (and other tourism boats). As well, private yachts may eventually seek to transform their propulsion systems toward electric power. Although this industry does not currently exist in Jordan (or elsewhere in the Red Sea for that matter), there are a range of companies that have been advancing this sector including battery companies like Corvus Energy and Electrovaya, Boat companies such as Duffy Electric Boat and Torqeedo and even submersibles - Triton Submarines. Aqaba could be an interesting location for marketing and servicing these emerging products in the Red Sea. There are electric ferries also being developed and this could replace the existing ferry service between Jordan and Egypt and offer opportunities for RSA as NEOM develops.

The beneficiaries would be the glass bottom boat drivers, divers (with reduced noise during dives), fishers – with ultimately lower operating costs, the boat sector, and the tourism industry in general in Aqaba.

Plastic and Tyre recycling, reuse and remanufacturing

Although the ASEZ is well managed and enforces zero-discharge and other laws that protect the fragile ecosystems of Jordan's Red Sea coast, plastic waste and other solid waste such as used tyres do end up in the Sea and cause harm to the coral reefs. Currently all recoverable waste is transferred to facilities large distances away from Aqaba resulting in expensive and complex plastic and other waste management. This solution seeks to bring high quality, low impact plastic and other material recycling technologies to Aqaba to create a local green industry that provides a low-cost alternative to irresponsible disposal of waste products in the Sea. This solution is at concept stage and will require incubation of business ideas to further develop and finance the concept.

[34] Research and Markets 2022. https://www.researchandmarkets.com/report/marine-electric-vehicle.

The Jordanian Royal Marine Conservation Society (JREDS) and other conservation groups have identified the importance of plastic and other solid waste pollution as a threat to coral reefs in the Gulf of Aqaba.[35] Actions are taken on a regular basis by scuba divers to remove plastic from the reefs. There are no current projects to establish modern recycling facilities in Aqaba. Substantial knowledge and experience exist in Amman.

Other initial opportunities that have been identified that could become innovation, incubation and investment targets for the Centre include:

Table 3: Potential Investment Opportunities for the Centre for Sustainable Blue Economy Innovation

Investment Opportunities and links to Coral Reef Conservation	Partners	Budget / Source
Reef-positive businesses in the fisheries sector • **Aquaculture** (Solution 2): FAO is supporting the establishment of an inland aquaculture facility to the north of Aqaba, with the idea of 1) supporting fishers in the GoA to transition to become aquaculture farmers/employees (which in theory would reduce the level of fishing pressure in the GoA) and 2) encourage aquaculture investments. One potential product could be bait fish to local fishers and reducing their need to fish for bait fish in reef areas. Other products to develop with aquaculture could include molluscs, seaweed and algae. • **Cold storage / transport for fisheries products:** Investing in this infrastructure could increase the value of fish catches in the GoA, thereby reducing the necessary level of fishing pressure (assuming new entrants are not allowed into the fishery). This is currently planned by ADC at the fishers marina. (Cold storage could risk opening up new markets for the fisheries leading to overfishing and should be limited to pelagic species.) • **Coral Products Farming:** Invest in an on-shore facility to grow coral fragments for sale to hotels and coral restoration projects near the port and planned future aquarium. There is also the potential to allow visitors to pay to visit the growing facility or participate in coral restoration efforts (example of Coral Vita in the Bahamas)	*Potential partners: Fisher Associations; University of Jordan (Aqaba Branch)*	Project budget, Investors, ADC (for pipeline establishment) , FAO (TBD)
Reef-positive businesses in the tourism sector • **Electrification of Marine Tourism Transport:** Support investments in the electrification of dive boats and glass bottom boats operating in the Aqaba Marine Reserve, as well as taxis operating in Aqaba, which will reduce gas and oil discharges into the AMR as well as marine noise pollution. • **Aqaba Marine Park:** Work with ASEZA to develop a sustainable finance plan for the Aqaba Marine Park that includes the allocation of revenues to coral reef conservation actions. (e.g. a plan where income from the aquarium helps to support the Aqaba Marine Reserve and the new Science & Technology Hub, which may assimilate the existing Aqaba Marine Science Station)	*Potential partners: ADC, ASEZA; hotels; Cities & Villages Development Bank (building on their Accredited Entity status with GCF) on electrification of boats*	ASEZA is seeking significant funding for the Aqaba Marine Park complex; hotels would presumably have own funds for adopting green practices

[35] See JREDS website http://www.jreds.org/en-us/Projects-Management/ArticleID/92/Confronting-the-Plastic-Pollution-Problem-in-Aqaba-and-Advancing-the-Status-of-Environmental-Journalism-%E2%80%93-Phase-I

Investment Opportunities and links to Coral Reef Conservation	Partners	Budget / Source
• **Sustainable Hotel Operations:** Provide low-interest loans to hotels to invest in reef-friendly practices (e.g. reduce water consumption; improve effluent management; etc.) • **Sustainable Dive Operations** (Solution 4): Work with Green Fins (newly established in Jordan) to improve operational sustainability of dive operators and explore potential to implement certification programs for diving centres and divers. Also explore various sustainable finance mechanisms that could be used to incentivise both dive shops and divers to use the Green Fins approach. • **Ecotourism Attractions[36]:** Explore the potential for grants or loans to finance ecotourism facilities that can increase tourism revenues in the Gulf of Aqaba while also reducing direct tourism pressure on coral reef ecosystems. Possibilities might include: ○ Expansion of the existing Aqaba Bird Observatory ○ Establishment of eco-tourism trails that adjoin sea and land ○ An underwater hotel (or a hotel with some underwater rooms), or an underwater tunnel allowing visitors to walk from the new Aquarium out to the reefs		
Reef-positive businesses to reduce plastic pollution in the marine environment • **Water Bottle Factory:** Invest in the establishment of a factory to produce and fill reusable water bottles (in order to eliminate the use of single-use plastic water bottles in the area, which are a significant problem in the Gulf of Aqaba). This would also require regulatory changes, enforcement provisions, and public outreach • **Plastic and Tyre Recycling / Reuse / Remanufacture:** Design out waste and pollution from plastic manufacturing, distribution, use, etc.; promote the development of reuse/ remanufacture of plastics; establish a sorting/transfer station to reduce solid waste flows and create green jobs; engage and encourage the private sector to establish a recycling facility for plastics, and develop financially sustainable recycling markets	*ADC, ASEZA*	Commercial operations
Reef-friendly operations / businesses in industry, ports and shipping sectors • Identify potential Nature-Based Solutions (using the IUCN Global Standard on NBS) that could reduce negative impacts from industry, ports and shipping on coral reefs; prioritize them according to feasibility and impact; carry out pilot implementation of selected NBS • Explore opportunities for partnerships with ports / industrial facilities in the coastal zone to make investments in reef-friendly operating practices, including restrictions on dredging and land reclamation that takes place in coral reef areas	ADC, Aqaba Container Terminal, Jordan Industrial Ports Company, Jordan Phosphate Mines	Corporate social responsibility funding

[36] An ecotourism plan for the GoA was developed in 2014 as part of the UNDP-GEF project "Mainstreaming the conservation and sustainable use of biodiversity into tourism development and operations in threatened ecosystems in Egypt", which focused on developing alternatives to marine-based tourism, such as hiking and biking trails, bird watching, visits to Wadi Rum and Wadi Araba, etc.; for the most part such alternatives remain to be developed.

Investment Opportunities and links to Coral Reef Conservation	Partners	Budget / Source
• Explore opportunities with shipping companies (cargo; oil; ferries; etc.) to reduce activities that degrade reefs, including solid waste and oil pollution; garbage from ships; physical damage to marine ecosystems; dumping of ballast water; etc. • Explore opportunities for investments in improved municipal sewage collection and treatment systems; wastewater reuse and reduced loses in water distribution systems; solid waste collection, recycling and disposal systems • Explore opportunities for the installation of state of the art ballast treatment for cruise ships and other ships using the coastal infrastructure of Aqaba.	Company, etc.	

Revenue and Financial Sustainability

The Centre for Sustainable Blue Economy Innovation is designed to become a self-sustaining Centre with revenue generated from the following sources:

- Donations for funding innovation and reef positive entrepreneurship programs including women and youth led enterprises
- Licensing revenues from innovations and commercialisation of research from the Aqaba Science and Technology Hub
- Revolving revenue from concessional loans, reimbursable grants, and other debt "like" finance of MSMEs
- Equity shares in enterprises that have the potential for rapid growth and an exit strategy (sale of company through acquisition, management buyout, sale to private equity firm, etc.)
- Paid services such as business plan development, financial modelling, and consulting on sustainable business development.

Development Plan and Milestones

Note: The CSBEI, which will be hosted by ADC, is expected to become operational rapidly as ADC already has the authority to manage this type of operation (make loans, invest in enterprises, provide business guidance, etc.).

Phase 1

- Engagement of International Innovation and Incubation Expert, engagement of Centre Director (national hire by ADC) and their assistant (initially internally sourced with ADC).
- Establishment of partnerships – law firms, universities, key local enterprises, etc.
- Development of Operational and Business Plans
- Launch of first round of open calls for proposals for reef positive businesses (initial call for proposals may target a specific one or two sectors, to be determined by the Centre's technical review committee and Direction.) There will be no geographical focus as the coastline of Jordan is only 27 km long and thus a small section of the northern Gulf of Aqaba ecosystem.
- Identify key partners for the early opportunities identified above to engage in the incubation process.
- Incubation of first five concepts / companies (incubation services will include technical assistance, business mentoring, and other capacity building for entrepreneurs and organizations in order to diversify employment prospects and economic opportunities in the Gulf of Aqaba region, with a focus on support for smaller enterprises, women, youth, and vulnerable groups; i.e. ensuring that women have equal access to credit and financial services, financial literacy, and education, as

means to encourage more women to participate in coral reef preservation and protection by supporting women-led businesses and start-ups).
- Initial financing of three of first five companies

Phase 2
- Additional rounds of calls for proposals – conducted annually at least with a target of five companies or concepts per incubation round.
- Additional Incubation Cohorts for the companies selected.
- Support the building of networks of entrepreneurs and organizations for learning and knowledge sharing on project design and implementation
- Integration with Aqaba Science and Technology Hub
- Expansion of Centre personnel (if opportunities are growing)
- Develop and launch a finance plan for the CSBEI to attract additional grants and blended and commercial capital during programme implementation and beyond. Engagement with partners to achieve a shared mission of entrepreneurship development in Aqaba should be done to expand the Centre's impact in Jordan and the GoA. The goal of the finance plan should be financial sustainability
- Establish a monitoring and evaluation process that enables impact assessment for each venture in the portfolio (linked to the results consolidated in the research hub under Output 1.2)

Phase 3
- Financial Sustainability efforts begin to achieve financial break even

Finance Tools

The Centre for Sustainable Blue Economy Innovation will have a range of finance and other tools available to incubate and grow target enterprises and finance mechanisms.

1) Technical Assistance – in the form of consultation on business strategies, feasibility studies, business plan development, environmental and social impacts, and more. The main instrument to deliver these technical assistance services will be through the call for proposals and the incubation programs that will run annually. This technical assistance will be provided by the International Innovation and Incubation Expert, the Centre Director, and consultants brought on to support specific companies and projects.
2) Grants and Reimbursable Grants – Early stage enterprises face large risks and while grant financing may be beneficial to the enterprise, reimbursable grants include the requirement to reimburse the grant amount (or part of) to the Centre when sufficient revenue is generated. This helps the business or organization focus on revenue generation through providing a marketable product or service. Reimbursable grants are not recognized as liabilities on a balance sheet and thus, do not adversely impact an enterprise's ability to receive outside financing. This differentiates reimbursable grants from forgivable loans which, similar to reimbursable grants, are not paid back to the investor/donor if the enterprise is not able to generate adequate profits.
3) Concessional Loans – These quasi-commercial loans are an effective low-cost debt instrument that offers either lower rates than commercially available (based on risk and collateral) or favourable terms such as delayed initial interest payments. The Centre will conduct rigorous due diligence on all companies potentially receiving concessional loans including expected clear reef-positive impacts.
4) Equity – The Centre will take equity positions in a limited set of companies that have the potential for "venture capital" level returns. This could include innovative technologies in different areas of sustainability related to reducing the above listed drivers of reef degradation and opportunities for technologies addressing climate change (the main driver of coral reef loss).

Beneficiaries

The Centre seeks to identify and support local entrepreneurs and business actors in Jordan with an emphasis on women and youth where possible. Specific programs will be established to encourage participation in the incubation programs and other capacity development efforts by women and youth business leaders and entrepreneurs. An ideal target of 50% women entrepreneurs supported by the Centre will be established. The Centre will work with partners to support the development of an entrepreneurial environment in Aqaba – necessary to attract and retain talented entrepreneurs. Efforts will be made to engage with individuals and groups currently dependent on the coral reefs such as fishers, tourist operators, scientists, etc. to support alternative opportunities for sustainable business. Engagement with local, national and international universities and centres of research and innovation will also help bring new ideas and potential entrepreneurs to Aqaba and the Centre.

Implementing Partners

The main implementing partner for the Centre is the Aqaba Development Corporation (ADC) described above. ADC has existing expertise on concessional loans and equity; the technical team of the Incubator will help adapt this expertise to the sustainable blue economy. The ADC has stated their interest in leading this Centre and is willing to contribute staff and office space to support the launch and first few years of operations. The GFCR programme will engage an expert in blue economy investing as the Director and that the ADC would provide support staff and oversight though their Board of Directors. The ADC is owned by the Government of Jordan and ASEZA and is mandated to build new infrastructure, expand existing utilities, create necessary business enablers and manage/operate key facilities for ASEZA. ADC owns the ports, airport, and strategic parcels of land in ASEZ. It also has the development and management rights for these assets and key infrastructure and utilities. It strives to develop these assets and optimize private sector participation in their development and management to stimulate the economy and promote growth and development of ASEZ and, thus, Jordan. ADC has launched a number of enabler projects aiming at supporting the business environment in Aqaba and formed several public and private partnerships through "Build-Operate-Transfer (B.O.T) or Joint Ventures (JVs) such as Aqaba Container Terminal, Aqaba Air Cargo Terminal, Aqaba Ports Marine Services, and Aqaba National Real Estate Project.

Other partners in the Centre's implementation are expected to be:

- ASEZA
- Aqaba Chamber of Commerce
- Aqaba University of Technology
- University of Jordan - Faculty of Basic and Marine Science
- Aqaba Container Terminal
- Jordan Industrial Ports Company
- Jordan Phosphate Mines Company
- Aqaba Fisherman's Association
- Aqaba Marine Reserve
- Marine Science Centre
- Cities & Villages Development Bank

Scalability and Replication

The Centre itself will seek scalable and replicable business and market solutions for a sustainable blue economy in Aqaba and the Red Sea. It is expected that the Centre will grow from its initial capacity to

being able to support increasing innovations and emerging sustainable enterprises in Aqaba and the Gulf of Aqaba. It is likely that the Centre will be able to identify and support opportunities for investment from the GFCR Investment Fund run by Pegasus Capital Advisors.

Co-Financing

The Aqaba Development Corporation will provide co-financing for the Centre through its investments in the Aqaba Marine Park (especially the Aqaba Science and Technology Hub), which are estimated at $50 million USD (land and infrastructure investment). ADC is the main implementing partner for the Centre for Sustainable Blue Economy Innovation, and is prepared to co-invest in the CSBEI through both financial and in-kind support. ADC has stated their interest in hosting the CSBEI at the Aqaba Marine Park, and is willing to contribute support staff, office space, and oversight through their Board of Directors to support the launch and first few years of CSBEI operation. Additional co-financing is expected from other partners such as the Cities & Villages Development Bank and ultimately commercial banks that seek to invest in the enterprises being incubated and supported by the Centre.

Key Performance Indicators and Targets

Key performance indicators for the Centre will include the following:

- # of individuals (gender/youth segregated) going through the Incubator program
- # of individuals (gender/youth segregated) benefiting from other capacity development and support programs.
- # of enterprises supported by the Centre (disaggregated by Incubation, advisory, financing, and other support)
- Amount of financing provided to sustainable enterprises (gender/youth segregate)
- Amount of co-financing generated by enterprises receiving support from the Centre (gender / youth segregated)
- # of direct jobs (gender/youth segregated) created in sustainable businesses for communities dependent on coral reefs
- # of indirect beneficiaries based on the population that is dependent on reefs for protection from climatic events and for economic outputs
- Some enterprises will have the ability to measure: # ha of reef protected/reef resilience improved

18-month GFCR Grant Cost (USD)	Total GFCR Grant Fund Cost Estimate (USD)	Grant Co-financing (source)	TOTAL (USD)
$446,000	$2,530,000	$50,000,000 (ADC)	

Revenue Generation (USD/yr)	Commercial Investment (USD)	Debt, Equity, or N/A	Type of Investor (Public or Private)	GFCR Grant to Commercial Investment Leverage
TBD	$5,000,000 (anticipated)	Debt (primarily)	5,000,000 (Commercial banks, public development banks)[37]	(1:2)

[37] The 5 million in commercial investments assumes 5 enterprises per year are financed at 200,000 on average per enterprise over a period of 5 years. This is probably an underestimate as some enterprises could need 1-2 million but may take a few years to be ready for this level of investment.

4.2 Solution #2 Aquaculture Innovation in Aqaba

Description

The FAO and ASEZA are supporting the establishment of an inland aquaculture facility in Aqaba at a site supplied with a sea water pipeline currently being contracted with funds from ADC. The development of an aquaculture research, training, and pilot program was initiated at the request of the Jordanian government. The aquaculture work has the goals of supporting a marine aquaculture economy that generates economic growth, provides alternative livelihoods to fishers and other groups dependent on Red Sea ecosystems, and increases the availability and sustainability of fish protein in Jordan. In particular, the hope is to transition fishers who currently or may potentially create overfishing in the Gulf of Aqaba to new employment in aquaculture. ADC has provided the Fishermen's Association with land adjacent to where the seawater pipeline will lead so that they may be one of the earliest beneficiaries of the aquaculture opportunity. This solution seeks to directly support the Fishermen's Association as they pilot the aquacultural technologies being provided by FAO and the University of Jordan. The seawater pipeline being developed is part of a plan to conduct agriculture and aquaculture in the desert using seawater and desalinized seawater (see "The Sahara Project"), approximately 25 km from the sea. The FAO has been exploring the possibility of inland aquaculture in Jordan for many years[1] and has initiated training programs for local students and others with goal of developing aquaculture businesses near the pipeline. A pilot aquaculture facility is currently being established at the Marine Science Station, but is only funded through 2023. This solution would entail a collaboration with FAO, ASEZA, and others to facilitate the conditions for multiple investments in land-based aquaculture -- including fish, molluscs, and potentially seaweed -- in the target area allocated for this purpose and supplied by the pipeline. The program would be supported by the CSBEI and receive direct support from the GFCR programme itself.

Link to the GFCR Theory of Change

The project seeks to transition fishers to aquaculture farmers and employees and as such reduce the level of fishing pressure in the GoA, and to ensure that fishers do not press to regain more fishing rights, or engage in illegal fishing. While biodiversity in the GoA and the Red Sea is high, biological productivity in general is low, creating a situation in which even moderate fishing may have a disruptive impact on fish stocks and by extension coral reefs. Jordan has taken a strategic decision to close some areas to fishing, and also to implement seasonal closures (during reproductive seasons). closing fisheries during the reproduction season. However, in order to ensure continued compliance and local support for such closures, fishers must be provided with alternative livelihoods and/or other incentives. One such approach has been the establishment of five stores in the newly built fish market in Aqaba where fishers can get higher prices for their catch. The proposed aquaculture solution is another such incentive system. Furthermore, in addition to providing valuable products and livelihoods for the community and investors, the development of a profitable inland aquaculture industry would reduce pressure on the limited shoreline, facilitate the recovery of fish stocks and their habitats, and enable research at the Aqaba Science and Technology Hub targeting production of bioactive material and gene repositories of resilient corals.

Background

The economics of fishing in the Jordanian waters of the Gulf of Aqaba have become increasingly difficult over the past decade, due to factors including declining fish stocks; increased restrictions on fishing zones, gear and seasons; and increased fuel costs. In addition, most fishers do not have the capital to purchase the boats and gear to engage in deep sea or longer range fishing. As a result, fishers have asked the Government of Jordan and ASEZA for many years to assist them in developing alternative livelihood

options. In response, ASEZA and the Ministry of Agriculture partnered with the Food and Agriculture Organization (FAO) to launch an aquaculture project with three main elements: 1) develop an Aquaculture Strategy for Jordan with a focus on marine aquaculture; 2) a capacity building program – covering principles, investment, and fish management; and 3) a pilot aquaculture system – establishing a unit to demonstrate basic technology. The FAO project will end in December 2023; the first two elements have been completed, and a pilot recirculating aquaculture system is expected to be operational by end 2023 at the Marine Science Station (under the supervision of the University of Jordan, Aqaba). This pilot system will allow for demonstration and training on aquaculture for fishers and other stakeholders while ADC completes the pipeline to the commercial scale aquaculture systems that are being established further inland, and also completes the required EIA processes. Consultations carried out by the GFCR programme development team with FAO and the University of Jordan, including visits to the proposed inland commercial aquaculture site and participation in FAO capacity building workshops, showed that the GFCR programme's support for pilot aquaculture systems could build on what the FAO project has achieved in terms of capacity building, strategy development, increased investor interest in aquaculture, enhance public awareness of aquaculture products, and interest among fishers and other community groups, who see employment in aquaculture as a viable alternative livelihood and/or as a supplemental source of income during the periods when wild caught fisheries are closed, have demonstrated their interest through their participation in the capacity building program; they have also been consulted throughout the development of the strategy, and are eager to participate in implementing pilot aquaculture projects / businesses.

Aquaculture is one of the world's fastest growing food industries, based primarily on fish and fish farming, but diversifying into more niche products including molluscs, crustaceans, seaweeds and algae. These latter products are not only used for human food but can be used for animal feed, cosmetics, pharmaceuticals and fuels. There are currently 140 businesses doing freshwater aquaculture in Jordan and there is high demand for fish in the country. Most – up to 95% of fish consumed – is imported as Jordan has limited fresh water supplies. This land-based marine aquaculture is seen as an important opportunity. The pipeline project that is underway is in support of both potential aquaculture initiatives and an innovative desert agriculture project that has the support of the Norwegian and Jordanian governments called the Sahara Forest Project. There could be synergies between the agriculture project and the aquaculture projects in terms of using aquaculture waste for fertiliser, shared infrastructure and more. There is strong interest in developing additional aquaculture products such as giant clams (genus *Tridacna*), seaweed, and algae.

Success Factors and Challenges

There are many examples of land-based aquaculture although not that many in desert conditions. The initial work of the FAO will be essential to assess the feasibility of a profitable commercial enterprise to produce fish protein from this initiative. A feasibility assessment should be conducted that includes a full assessment of the potential environmental risks – not just for pollution but also for sourcing feed products. This assessment could include the potential impacts of the desalinization plant that will be established for the agriculture program – although only tangentially associated. The concept has the backing of various parties in Jordan as a means to provide alternative livelihoods for the Red Sea fishers to reduce pressure on what is seen as a threatened fishery. The Fishermen's Association has shown interest in this project and it is possible with the continued technical support of the FAO, and the demand for this type of solution in the Red Sea, that the project has good potential for success. There is land allocated to the fishers but they will require capacity development and financing. Monitoring will be essential to show that fishers are actually reducing fishing pressure and not simply adding aquaculture as another economic activity. This transition could be supported by a type of "conservation agreement" for

fishermen that are supported in this project. Substantial interest has been shown by existing freshwater aquaculture operators and investors in Jordan and internationally.

The challenges facing the project are also substantial. As with the desert agriculture project, costs are high and technical details are challenging. And as with any project to develop a new economic activity / business model, the project faces the standard risks of failure of new enterprises, new industries, and technical risks, as well as the risk that fishers may not be interested in participating in the project as anticipated. In addition, the project has potential environmental challenges, including ensuring that the aquaculture production system does not create localized pollution (even if the pollution does not reach the Red Sea); the risk of disease in aquaculture production; and the risk that the sourcing of feedstocks is unsustainable. Other potential environmental risks will be assessed in a feasibility study during programme inception. The goal of this solution is to reduce as many of those risks as possible such that private investors and operators will have the greatest chance of success and sustainability.

Addressing Drivers of Degradation

This project would address the drivers of overfishing which has impacts on the reef fish community and providing alternative livelihoods to local community members dependent on coral reef ecosystems.

Revenue and Financial Sustainability

This solution is focused on building a viable land-based marine aquaculture industry in Aqaba. Initial financial support will be for creating the conditions required for success – technical knowledge building and sharing, incubation of enterprises in the case of the Fisherman's Association, and perhaps de-risking some early investments from the private sector. Revenue for the enterprises would be generated from the sale of live and processed marine fish for consumption in Aqaba and Amman as well as other products as they are developed. Aquaculture activities are quite profitable in many areas and there is no reason that a viable and profitable solution is not possible in this case – especially if the main pipeline infrastructure has been financed by ADC and ASEZA. As the financial model has not been developed for this program, it is not possible to speculate on the ratio of GFCR support to revenue. This will be assessed during the first project phase.

Development Plan and Milestones

Year 1

- Review existing pilot, feasibility and technological assessment with FAO; as needed, carry out additional assessments of potential ecological impacts and economic feasibility of aquaculture in the GoA, including a full assessment of the potential environmental risks (e.g. pollution, sourcing of feed products, potential impacts of the desalinization plant that will be established for the agriculture program), as well as an assessment of aquaculture's potential to reduce fishing pressure on coral reef ecosystems (farming of bait fish; transition of fishers to aquaculture employment) and/or contribute to the restoration of ecosystem health and water quality (e.g. farming of bi-valves, sea cucumbers, herbivorous fish)
- Based on the evaluation activities, develop guidance / regulations for reef-friendly aquaculture development, including: sustainability, threat reduction and restoration criteria; use of native vs. non-native species; use of feed and aquaculture products on lower trophic levels; and potential certification systems.
- Develop a technical and business support program with partners including the CSBEI, University of Jordan, ADC, and others.
- Incubation of Fisherman's Association project through the Centre for Sustainable Blue Economy Innovation including drafting of Business Plan, and creation of company structure.

Year 2

- Securing Financing for Fisherman's Association project and begin implementation
- Working with investors and operators to facilitate installation and sustainability elements to aquaculture enterprises in the target zone.

Year 3 – Initial Revenue from sales
Year 4 – Cash flow break even
Year 5 – General profitability

Finance Tools

Technical assistance grants will be needed to develop a business plan and assure financing for the Fisherman's Association project. This can be done through the Incubator process or with direct technical assistance grant. Concessional loans can be used to de-risk other investor's and operator's enterprises but should only be done 1) if needed (as there is strong investor interest already), and 2) only during the first years of industry establishment as the pipeline itself and energy infrastructure are already subsidized by ASEZA. For the Fisherman's Association, once viability is shown through the business planning process, a recoverable grant should be issued, followed a year later (depending on progress) by a concessional loan. Fisherman's Association actors embarking on this initiative should form a company early on with clear roles and responsibilities, including operational/financial management and governance.

Beneficiaries

The direct beneficiaries of this project will initially be the fishermen of Aqaba for whom the aquaculture training program has been directed. However, it would be valuable to expand the types of direct beneficiaries to include woman and youth in both the training and in the company creation. Other beneficiaries will include the various investors and aquaculture operators who are interested in establishing facilities in the target area. Indirect beneficiaries are more numerous and would include fish buyers, restaurants, and ultimately consumers of the aquaculture fish products.

Implementing Partners

The United National Food and Agriculture Organisation (FAO) would be a key technical partner and is likely to be the implementing partner along with the University of Jordan Basic and Marine Science Faculty. Additional partners would include the fisherman' Association, ASEZA, ADC, and the Centre.

Scalability and Replication

Aquaculture is inherently scalable if the technology is based on strong sustainability principles, which this project will be, and the opportunities for replicating this business approach across many areas of the Red Sea, makes this initiative extremely interesting. This solution may ultimately be a viable opportunity for the GFCR Investment Fund managed by Pegasus Capital Advisors (PCA) but it will require several years to reach profitability. The initial interest in this activity by existing freshwater aquaculture entrepreneurs suggests that this activity could rapidly grow and be primed for consolidation in a few years.

Co-Financing

FAO has been financing the feasibility studies and the technical training for this solution and will (potentially) seek co-financing. This financing has led to training programs and the purchase of equipment for pilots. However, the equipment will mostly arrive after the FAO project period has ended (end 2023) and the financial support from the GFCR is essential to complete the pilot phase and test the viability of the aquaculture technology. The ADC is financing the pipeline and allocating land for the industry to develop. The total amount of this investment is still being determined but will be well over $1 million US.

Key Performance Indicators and Targets

Some key performance indicators include (Note: While FAO has been developing the aquaculture program for two years, they have not yet released their final report, so specific targets cannot yet be estimated):

- # of direct employment created in sustainable businesses for communities dependent on coral reef ecosystem
- # of indirect beneficiaries based on the population that is dependent on reefs for protection from climatic events and for economic outputs
- Amount of financing from commercial or quasi-commercial sources provided
- Kilograms of fish protein produced and sold
- # of enterprises established

18-month GFCR Grant Cost (USD)	Total GFCR Grant Fund Cost Estimate (USD)	Grant Co-financing (source)	TOTAL (USD)
105,000	360,000	TBD (FAO; ADC +1,000,000)	

Revenue Generation (USD/yr)	Commercial Investment (USD)	Debt, Equity, or N/A	Type of Investor (Public or Private)	GFCR Grant to Commercial Investment Leverage
TBD	TBD	Debt	Centre, Commercial Bank	(1:x) TBD

(Note: While FAO has been developing the aquaculture program for two years, they have not yet released their final report, so revenue generation targets cannot yet be estimated)

4.3 Solution #3 Generating Sustainable Finance for the Aqaba Marine Reserve

The Aqaba Marine Reserve (AMR) has various collaborations and support from ASEZA, IUCN, and various donors. As such, it has been well managed and continues to provide valuable services for the tourism sector in Aqaba and is the most important area of coral reefs along the Jordan Red Sea coast. However, the AMR has not secured sustainable financing for its long-term operations and there are multiple finance solutions that could be explored to strengthen the AMR's effectiveness and financial health. The AMR is fully financed by ASEZA. The AMR's annual budget in 2022 was USD 700,000, of which 55-60% was used for salaries and the remainder for other operating expenses. The AMR estimates that effective management of the reserve (i.e. full implementation of the management plan, including monitoring and patrolling, capacity building, scientific studies and surveys, visitor management and awareness raising) would cost between USD 1.2 – 1.5 million per year. At present, the AMR is benefitting from support from several international donor projects, funded by the EU, GEF and others (see Section 1.4 for details), which are providing significant inputs in terms of facilities, equipment and training.

This solution will implement priority financing mechanisms drawn from a marine protected area business plan to be developed by the programme, following emerging best practices being established by the IUCN's World Commission on Protected Areas. The business plan will identify, assess, and prioritise a portfolio of finance mechanisms that strengthen the long-term management of the AMR. The business planning process will occur over the course of one year with the AMR management being deeply engaged in both the process and in implementation of the finance solutions once they have been prioritised and designed.

The timeline for this solution is that during Phase I of the project, the AMR will develop its business plan with the support of an international consultant. During Phase II, one or two finance solutions that have been prioritized by the plan will receive support for their implementation. It is anticipated that by Phase III, revenues from the first one or two mechanisms will support the implementation of the remaining elements of the business plan along with its adaptive management.

Some initial ideas for finance solutions that could be developed and ultimately implemented following their assessment in this business plan are included in the following table. During the programme inception phase, the pros, cons and risks of each of these mechanisms will be explored fully as part of the AMR business planning process.

Table 4: Potential Financing Mechanisms for the Aqaba Marine Reserve

Finance Mechanisms	Description of potential financing mechanisms	Baseline Situation	Partners
Visitor Fees / User Fees / Licenses	As part of the AMR Business Plan process, establish revenue-generating mechanisms including: • User / license fees (e.g. from dive boats and glass bottom boats), possibly also installation of high tech mooring buoys that can support fee payment systems • A share of entrance and concession fees from the future	At present, the AMR has no entrance fees. One report noted that "ASEZA could license various uses of the marine area, particularly for tourism, shipping and fishing. However, fee schemes must be transparent, fair and generate adequate revenues for marine conservation activities". The Ministry of Environment confirmed in August 2022 (pers. comm.) that it supports the idea that companies	ASEZA, AMR

	Aquarium and for specific attractions, for example a Virtual Reality tour of the AMR • Concession fees for hotels within or adjacent to the AMR	with activities within MPAs should pay fees to carry out those activities.	
Conservation Trust Funds	As part of the AMR Business Plan process, establish an endowment account for the AMR that would essentially be a rainy day fund, with funds for the endowment coming from corporate sponsors, wealthy individuals, MPA revenues, ASEZA contributions, etc. As well, the AMR will explore the possibility of establishing a conservation trust fund for longer term sustainable finance management for the AMR recognizing that it often takes several years to establish a CTF and then more time to build up an endowment.	The Royal Society for the Conservation of Nature (RSCN) currently manages the USD 5 million Jordan Fund for Nature, which fund invests in different investments / companies to generate revenue, with average annual earnings of USD 200,000 - 250,000. RSCN can use up to 10% of that revenue to cover its operating costs, including its management of 11 PA sites in Jordan, with the remaining earnings going back into the trust fund. In Jordan, some PAs cover a significant percentage of their running costs through revenues generated by ecotourism activities, entrance fees, socio-economic activities, etc.), although others depend much more on funding from RSCN. A similar system should be explored for the AMR.	ASEZA, AMR
Conservation Taxes	Explore the potential for imposing a small tax or fee on cruise ship visitors to Aqaba (since they create an impact on the marine resources of the GoA) to generate funding for the AMR.	The Govt. of Jordan is resistant to a general conservation tax, which it believes would hinder tourism visitation. However, there may be some potential to institute such a tax or fee for international visitors if the programme is able to demonstrate that a conservation tax/fee could facilitate a move towards higher end, lower intensity tourism. A fee of $1 per client on a cruise ship could generate ¼ of the annual funding needed for the AMR.	ASEZA

Expected Cost of AMR Business Plan: $50,000 Grant funding
Leverage: existing finance for AMR from various donors and additional revenue to be generated from prioritized finance solutions.

18-month GFCR Grant Cost (USD)	Total GFCR Grant Fund Cost Estimate (USD)	Grant Co-financing (source)	TOTAL (USD)
40,000	40,000	$9,390,000	

Revenue Generation (USD/yr)	Commercial Investment (USD)	Debt, Equity, or N/A	Type of Investor (Public or Private)	GFCR Grant to Commercial Investment Leverage
Grants	Amount	Amount	Amount (source)	(1:x)

4.4 Solution #4 Green Fins Expansion

The coral reefs of the northern Gulf of Aqaba, including those that are found within Jordan, are primarily fringing reefs – starting near the low tide mark and continuing offshore until the depths are no longer conducive to coral reefs. These fringing reefs are highly susceptible to damage from snorkelers and divers entering the water from the shore – which is the most common means of entry on the Jordanian coast – who damage the reefs through physical contact (stepping on and collecting corals, etc.) as well as pollution (plastics, garbage, fuel, etc.) from visitors along the shoreline. Diving is considered a major industry at Aqaba with the presence of around 35 diving centres; snorkelling and diving are considered the primary cause of damage to marine biodiversity within the Aqaba Marine Reserve[38].

Green Fins is an initiative of the UN Environment Programme and The Reef-World Foundation. The Green Fins approach, conducted in partnership with governments and dive shops globally, leads to a measurable reduction in the negative environmental impacts associated with marine tourism. The aim of the program is to protect coral reefs through implementation of environmentally friendly guidelines promoting sustainable diving and snorkelling. It is the only internationally recognised environmental standards for marine tourism and has a robust assessment system to measure compliance. ASEZA is seeking to support the implementation of Green Fins in Aqaba as this approach is highly compatible with the future strategy of sustainable dive and snorkelling tourism for the Red Sea. An initial visit and training took place in 2023 during which 6 local Green Fins assessors were qualified and 14 dive centres joined the programme. This finance solution seeks to expand the engagement of the Green Fins approach in Aqaba to support all 35 dive centres and ultimately all snorkelling operators to follow Green Fins training and certification. This will be accomplished by a combination of guidance from ASEZA, small financial incentives to dive and snorkel operators to cover costs of training, and other sustainable financing mechanisms, such as sponsorships from local resorts and sale of merchandise. In 2024, Green Fins will develop a detailed National Implementation Strategy for Jordan, which will explore opportunities for raising private sector financing to support the programme over the long term. As such, there will be a small initial grant followed by a sustainable financing mechanism. This is a blended finance approach since a small grant will result in private revenues from the tourism industry being used to finance the long term implementation of the Green Fins program that will reduce the damage to reefs currently caused by poorly informed divers and dive boat operators who damage the reefs through physical contact (stepping on and collecting corals; anchor damage; etc.) as well as pollution (plastics, garbage, fuel, etc.).

Initial Cost of Green Fins Promotion: $80,000 Grant funding
Leverage: Current financing from GIZ, as well as the unlocking of sponsorships from local resorts, sale of merchandise, profits from 35 dive shops etc., by enabling Green Fins new program in Jordan to achieve a sustainable level of engagement

18-month GFCR Grant Cost (USD)	Total GFCR Grant Fund Cost Estimate (USD)	Grant Co-financing (source)	TOTAL (USD)
$80,000	$80,000	$60,000 estimated (GIZ, AMR, local sponsorships, merchandise sales)	$140,000

Revenue Generation (USD/yr)	Commercial Investment (USD)	Debt, Equity, or N/A	Type of Investor (Public or Private)	GFCR Grant to Commercial Investment Leverage
TBD	Amount	Amount	Amount (source)	(1:x)

[38] Al Tawaha et al. 2019

5 Replicability and Sustainability

The GFCR Solutions proposed by the GoA programme are designed to be replicable, scalable, and sustainable during and beyond the programme lifetime. This section summarises how each solution will pursue replicability and sustainability, and also describes the programme's overarching sustainability exit strategy.

Centre for Sustainable Blue Economy Innovation (CSBEI): The CSBEI will be developed in partnership between UNDP Jordan and the Aqaba Development Company (ADC). The ADC is the financing arm of the ASEZA, and has a long history of investing and assessing commercial opportunities. The mission of the CSBEI will be *to generate, incubate, and finance sustainable enterprises that measurably contribute to the long-term health of the Red Sea coral reef ecosystems and its associated communities and economies*. It is expected that the CSBEI will grow from its initial capacity to being able to support increasing innovative and emerging sustainable enterprises in the Gulf of Aqaba; several initial opportunities that will be explored as part of pipeline preparation in the first round of incubation are described in Section 4. The Centre itself will be incubated under ADC and will seek to become a self-sustaining facility that is integrated into the Aqaba Science and Technology Hub during the course of the GFCR GoA programme. It is likely that the Centre will be able to identify and support opportunities for investment from the GFCR Investment Fund run by Pegasus Capital Advisors. The CSBEI is designed to generate revenue from the following sources: 1) donations for funding innovation and reef positive entrepreneurship programs, including women and youth led enterprises; 2) licensing revenues from innovations and commercialisation of research from the Aqaba Science and Technology Hub; 3) revolving revenue from concessional loans, reimbursable grants, and other debt "like" finance of MSMEs; 4) equity shares in enterprises that have the potential for rapid growth and an exit strategy (sale of company through acquisition, management buyout, sale to private equity firm, etc.); and 5) paid services such as business plan development, financial modelling, and consulting on sustainable business development.

Aquaculture Innovation in Aqaba: The GFCR programme will collaborate with FAO, ASEZA, and others to facilitate the conditions for multiple investments in land-based aquaculture in an inland target area allocated for this purpose and supplied by a pipeline from the Gulf of Aqaba. This solution is focused on building a viable land-based marine aquaculture industry in Aqaba. Initial financial support will be for creating the conditions required for success – technical knowledge building and sharing, incubation of enterprises in the case of the Fisherman's Association, and perhaps de-risking some early investments from the private sector. Revenue for the enterprises would be generated from the sale of live and processed marine fish for consumption in Aqaba and Amman as well as other products as they are developed. Aquaculture activities are quite profitable in many areas and there is no reason that a viable and profitable solution is not possible in this case – especially if the main pipeline infrastructure has been financed by ADC and ASEZA. The initial interest in this activity by existing freshwater aquaculture entrepreneurs suggests that this activity could rapidly grow and be primed for consolidation in a few years, and the opportunities for replicating this business approach across many areas of the Red Sea make this initiative extremely interesting. This solution may ultimately be a viable opportunity for the GFCR Investment Fund managed by Pegasus Capital Advisors (PCA) but it will require several years to reach profitability.

Generating Sustainable Finance for the Aqaba Marine Reserve: The Aqaba Marine Reserve (AMR) has support from and collaboration with ASEZA, IUCN, and various donors, but it has never secured sustainable financing to support effective MPA management over the long-term. This solution will

implement priority financing mechanisms drawn from a marine protected area business plan to be developed by the programme during Phase I, which will include the identification, assessment, and prioritisation of a portfolio of finance mechanisms that can strengthen the long-term financing of the AMR. During Phase II, finance solutions prioritized by the plan will receive support for their implementation, and during Phase III, revenues from these mechanisms will begin to generate sustainable financing flows for the AMR. Some initial ideas for finance solutions that could be developed and ultimately implemented following their assessment in this business plan include: 1) user / license fees (e.g. from dive boats and glass bottom boats); 2) entrance and concession fees from the future Aquarium and for specific attractions, for example a Virtual Reality tour of the AMR; 3) concession fees for hotels within or adjacent to the AMR; 4) an endowment account and/or Conservation Trust Fund; and 5) a tax or fee on cruise ship visitors to Aqaba. These mechanisms also provide the potential for replication to other conservation areas (OECMs) in the Jordanian waters of the Gulf of Aqaba, as well as MPAs and OECMS in neighbouring countries in the GoA (Egypt, Saudi Arabia).

Green Fins Expansion: Green Fins is a program designed to protect coral reefs through implementation of environmentally friendly guidelines promoting sustainable diving and snorkelling. This finance solution seeks to expand adoption of the Green Fins approach (including training and certification) from 14 to all 35 dive centres in Aqaba, and ultimately all snorkelling operators. In 2024, Green Fins will develop a detailed National Implementation Strategy for Jordan, which will explore opportunities for raising private sector financing to support the programme over the long term. This is a blended finance approach since a small grant will result in private revenues from the tourism industry being used to finance the long term implementation of the Green Fins program.

Sustainability Exit Strategy

The programme's policy coordination, institutional strengthening and financing mechanism activities are essential to advance the overall enabling environment for coral reef protection and restoration in the Gulf of Aqaba, and to facilitate the replication, upscaling and sustaining of policy changes, improved management, and the GFCR solutions after the programme has ended. In addition to the GFCR Solutions described above, other key elements of the GFCR programme that are expected to develop technical and financial capacities to sustain coral reef conservation and financing in the Gulf of Aqaba over the long term include:

- Activity 1.2.1: Gulf of Aqaba Coral Reef Ecosystems Scientific Collaboration Platform: The programme will enable long-term functioning of this platform through financing generated by the strategy described under 1.1.2, as well as support through the existing Memorandum of Understanding for collaboration between ASEZA and the South Sinai Governorate, as well as other support from the Governments of Jordan, Egypt and Saudi Arabia, as well as integration with the GFCR's Mermaid information platform / database and the Aqaba Science and Technology Hub)
- Activity 1.2.2: Gulf of Aqaba Coral Reefs Management & Finance Strategy: The program will work with regional partners to agree on a strategy with funding mechanisms for: 1) scientific research and monitoring on coral reefs; 2) operation of MPAs and OECMs to protect coral reefs; and 3) utilizing blue economy approaches to sustainable use and management of coral reef areas
- Activity 1.2.3: Aqaba Science and Technology Hub Business Plan: The programme will develop a Business Plan for the ASTH with the goal of identifying viable financial mechanisms and plans to guide the ASTH towards financial sustainability and effective implementation – helping to make the ASTH a leading source of research, innovation, and regional collaboration on research and conservation of the GoA's coral reefs. Potential sources of long-term funding include: i) grants and other donations; ii) entrance, concessions, and specific activity fees and other revenue collected from the Aquarium;

iii) licensing revenues from innovations and commercialisation of research from the ASTH; iv) paid services such as business plan development, financial modelling, and consulting on sustainable business development; and v) sales of coral and other marine products for restoration, aquarium trade, and aquaculture.

- Activity 1.3.1: Develop and implement financing mechanisms to support the conservation of all coral reefs in Jordan: The program will work to develop coral reef conservation financing options for reefs both within and outside of protected zones, including systems of fines and damage compensation payments; and public-private partnership.
- Activity 3.1.3: Enhance finance / investment opportunities to support coral restoration: The facilitate the long-term support for coral restoration, the programme will explore options for regulatory-based financing mechanisms to support coral restoration, such as: 1) new regulations from ASEZA requiring companies involved in coastal development and/or found to have caused damage to coral reef ecosystems to pay fines / compensation payments to fund coral restoration; 2) a small levy on cruise ships to support coral restoration; and 3) contributions from tourism developers involved in the development of the Aqaba Marine Park and associated tourism facilities (as they will be direct beneficiaries of coral restoration actions). The programme will also seek to identify opportunities for supporting coral restoration through initial grants and investments through the CSBEI, and public-private partnerships for coral restoration that can provide technical assistance, material inputs, and/or financing support.

It is important to note that the programme has a strong community focus, and aims to empower and integrate local communities in numerous programme activities (including citizen science; restoration programs; reef-friendly business and project opportunities; participatory decision-making fora; and the GFCR programme's governance structure), which will strengthen their abilities and interest in managing, monitoring and benefitting from their coastal and marine resources over the long term.

Finally, during the programme's Consolidation and Sustainable exit phase, the programme will utilize knowledge platforms and products (see Component 4) to ensure scale-up and replication of the programme's GFCR solutions and other results.

6 Governance and Management Arrangements

6.1 Programme implementation arrangements

6.1.1 Convening Agent

UNDP Jordan is the GFCR convening agent for the programme and will provide strategic guidance, engage with partner organisations and governments, source investment opportunities for the programme's pipeline of interventions, ensure environmental and social safeguards are applied in all supported interventions, monitor results, and provide overall programme management. UNDP Jordan will support the coordinating Programme Management Unit (PMU), providing coordination across the different components of the programme and overseeing the day-to-day activities. UNDP Jordan will lead the reporting process on the programme's progress and manage the programme budget. UNDP Jordan and the PMU will be supported by the UNDP Regional Hub Office for Arab States based in Amman, Jordan.

UNDP Jordan has 3 pillars: 1) Environment; 2) Livelihoods; 3) Governance & Decentralization; all of which will be involved in the programme. The UNDP Jordan Environment pillar has 30+ staff, including economists, engineers, marine experts, etc. UNDP Jordan has been engaged over the past 15 years in multiple interventions related to coral reef conservation and marine biodiversity/ICZM in general, including: 1) implementation of the Global Environment Facility (GEF) funded project entitled "Mainstreaming biodiversity conservation into coastal zone management in Aqaba"; 2) support for projects on "Assessment, Revision and Improving of the National Coastal Environmental Monitoring Program, Aqaba, Jordan"; "Reduce the Marine Litter reaching Aqaba"; and "Review and Update the National Programme of Action for the Protection of the Marine Environment from Land-Based Activities"; 3) support for a national effort to translocate and transplant 7,000 coral reef colonies saving them from potential impact of the construction of a new port in Aqaba; 4) establishment of a dedicated database system (GIS-based) for coral reef and marine biodiversity in Aqaba; 5) support for the first report/study ever on the State of Coast; and 6) support for the establishment of the first marine reserve in Jordan. In addition, UNDP Jordan is currently supporting and coordinating the implementation of several projects funded by the GEF, European Union, and Government of Norway to strengthen the management of the Aqaba Marine Reserve (see Section 1.4 for details). UNDP Jordan also has long experience promoting local economic development through engagement of the private sector and financial institutions to leverage funding, support to social entrepreneurship and boosting microbusiness establishment; delivery of market-led capacity and skills building programs and facilitation of innovative web-based solutions to advance livelihood and decent work opportunities; and promotion of gender equality and the social and economic empowerment of women and youth.

UNDP Jordan will work to ensure the sustainability of the programme's outputs beyond its timeframe through continued participation in and support for the GoA Coral Reef Ecosystems Scientific Collaboration Platform as well as the GoA Coral Reefs Management and Finance Strategy, including collaboration with UNDP Egypt and UNDP Saudi Arabia to facilitate partnership between ASEZA, the South Sinai Governorate in Egypt, and expected partners in Saudi Arabia (e.g. KAUST, CORDAP, SRSA). Furthermore, UNDP Jordan is preparing to implement a GEF 8 supported project "Support to develop and implement a Sustainable Blue Economy (SBE) in Aqaba", which will establish a sustainable blue economic development institutional, policy, and legislative framework; improve business and investment community partnerships; and create financial incentive mechanisms to enable investments to offset pressure on the marine environment. Finally, by supporting the programme's engagement in the GFCR REEF+ Knowledge

Management & Finance Platform and other global coral reef learning mechanisms, the programme will provide GoA stakeholders with information about innovative, relevant and replicable bankable reef+ solutions incubated by other GFCR programmes that could be relevant for future application in the GoA.

6.1.2 Key Partners

6.1.2.1 Co-recipients

Co-recipient Organisation	Role in Programme
UNDP Jordan will be the only direct recipient of GFCR grant funding.	Convening Agent

6.1.2.2 Co-implementers

UNDP Jordan will aim to collaborate with the potential co-implementors listed below. During full proposal development, initial conversations with these organisations were conducted and the organisations have indicated their interest in collaboration. During the programme inception phase, full agreements will be put in place, and UNDP Jordan may also identify additional partners that will support implementation, including those from local NGOs, women and youth associations, the private sector, and academia.

Table 5: Programme Co-implementers

Co-implementer Organisation	Role in Programme

Aqaba Development Corporation (ADC) https://www.adc.jo/	• Experience / Value Added: ADC was established in 2004 by ASEZA and the Jordanian Government as the development agency for the Aqaba Special Economic Zone. ADC is a Government and ASEZA-owned company which was given ownership of all government-held assets in the Zone including the ports and the airport, and mandated to develop the Zone through infrastructure development, business support, and management of key assets. One of ADC's main roles is to attract private sector developers and operators in the Zone. ADC has a long history of investing in and assessing commercial opportunities. ADC also has the responsibility of implementing the ASEZ Master Plan. ADC is leading the development of the Aqaba Marine Park (AMP), which will serve as a hub for regional and international marine research focused on developing science-based solutions to the global problems of climate change, biodiversity decline, and other major threats to marine environments. The AMP includes three main components: the recently-established Aqaba Marine Reserve, and two components under development, namely a Science and Technology Hub, and a Public Aquarium.
	• Project Outputs-Activities: The specific outputs that ADC is expected to contribute to are:
	  • Outputs 2.1 and 2.2 (through close coordination on and hosting of the Centre for Sustainable Blue Economy Innovation)
	  • Output 2.4 (by participating in the development of financing mechanisms to support disaster risk reduction and associated community resilience and recovery)
	• Programme Governance: Member of Project Selection and Investment Committee (PSIC)

IUCN – ROWA https://www.iucn.org/our-work/region/wes	• Experience / Value Added: The International Union for the Conservation of Nature - Regional Office for West Asia (IUCN - ROWA) was established in 2004 in Amman, Jordan and covers 13 countries in the region, where it implements various conservation and sustainable development activities in the following thematic areas: 1) land degradation, aridity and desertification; 2) unsustainable water extraction and use; 3) biodiversity and

t-asia/about-rowa	habitat loss, and species extinction; and 4) threats to sensitive marine ecosystems through pollution, habitat destruction, Invasive Alien Species, and unplanned coastal development. IUCN combines the latest science with traditional knowledge of local communities to work to reverse habitat loss, restore ecosystems and improve people's well-being. Combined knowledge base and diverse membership make IUCN an incubator and trusted repository of best practices, conservation tools, and international guidelines and standards. IUCN is currently implementing a GEF-funded project to strengthen management of the Aqaba Marine Reserve.
	• Project Outputs-Activities: IUCN ROWA will act as the official implementing partner for the following programme outputs:
	  • Output 1.1: Ecological and socio-economic information related to marine ecosystems effectively gathered and communicated to inform conservation policy, prioritize intervention sites, address drivers of degradation, and assess the impacts of GFCR interventions.
	  • Output 1.2: Regional planning, information sharing, and scientific research collaboration on coral reefs strengthened and contributing to conservation, and enhanced livelihoods for local communities, with a focus on women and youth
	  • Output 1.3: Financing mechanisms and related management capacities strengthened for Marine Protected Areas (MPAs) and OECMs
	• Programme Governance: Member of the programmes' Technical Advisory Committee (TAC)

University of Jordan, Aqaba https://aqaba.ju.edu.jo	• Experience / Value Added: The University of Jordan, Aqaba (UJA), in collaboration with the Marine Science Station (MSS), runs national monitoring program for the marine environment in the Gulf of Aqaba, and has facilities for training and research on coral reefs and other aspects of the marine environment. UJA is also a key partner with FAO in piloting new aquaculture technologies in the Aqaba region. • Project Outputs-Activities: UJA will be a key participant in scientific assessment, collaboration and information dissemination under Outputs 1.1 and 1.2, and in providing technical guidance to the aquaculture solution proposed under Output 2.4 • Programme Governance: Member of the programmes' Technical Advisory Committee (TAC)
Green Fins https://greenfins.net/	• Experience / Value Added: Green Fins is an initiative of the UN Environment Programme and The Reef-World Foundation. The aim of the program is to protect coral reefs through implementation of environmentally friendly guidelines promoting sustainable diving and snorkelling. It is the only internationally recognised environmental standards for marine tourism and has a robust assessment system to measure compliance. ASEZA is seeking to support the implementation of Green Fins in Aqaba as this approach if highly compatible with the future strategy of sustainable dive and snorkelling tourism for the Red Sea. An initial visit and training took place in 2023 during which 6 local Green Fins assessors were qualified and 14 dive centres joined the programme. • Project Outputs-Activities: Under Output 2.3, the GFCR programme will expand the engagement of the Green Fins approach in Aqaba to support all 35 dive centres and ultimately all snorkelling operators to follow Green Fins training and certification. This will be accomplished by a combination of guidance from ASEZA, leveraging new revenue generation mechanisms from the marine tourism industry, and other sustainable financing mechanisms, such as sponsorships from local resorts and sale of merchandise. As such, there will be a small initial grant followed by a sustainable financing mechanism. • Programme Governance: NA
Fisherman's Associations	• Experience / Value Added: Local fishers in the Jordanian Gulf of Aqaba are represented by the Aqaba Fishing Society and the Thaghr el Ordon Fishermen's Society. • Project Outputs-Activities:

	• Technical assistance grants to develop a business plan and assure financing for the Fisherman's Association aquaculture project (with a direct technical assistance grant, and non-financing technical assistance from the CSBEI incubator) • Once the business planning process has demonstrated the viability of the aquaculture project, issue a recoverable grant followed a year later (depending on progress) by a concessional loan. It is recommended that the Fisherman's Association actors embarking on this initiative form a company early on with clear roles and responsibilities including operational and financial management and governance. • Programme Governance: NA

Table 6: Programme Partners (overall)

Activities	Programme Partners[39]
Activity 1.1.1: Gender-sensitive ecological and social assessments to enhance established baselines for monitoring and support addressing the drivers of coral reef degradation in the Gulf of Aqaba	• **IUCN-ROWA (main implementing partner). IUCN ROWA will implement activities 1.1.1 – 1.1.3 in coordination with the following IUCN entities: Global Marine and Polar Programme; Global Protected and Conserved Areas Team; and IUCN's commissions and specialist groups** • **Marine Science Station** • **Aqaba Marine Reserve** • University of Jordan, Aqaba • Fishermen / dive centres and glass bottom operators (for citizen science monitoring programs)[40] • Regional / international partners including KAUST/NEOM; Ocean X; Transnational Red Sea Centre
Activity 1.1.2: Develop information resources to support policy decision-making, including establishing the business case for investing in coral reefs, and evaluating the potential and realized economic impacts of coral reef associated interventions on local communities, with a specific focus on women	• **IUCN-ROWA (main implementing partner)** • ASEZA • ADC • University of Jordan, Aqaba Branch, including the Marine Science Station • Marine professional associations (fishing, diving, and tourist boat operators) • Hotel operators
Activity 1.1.3: Monitoring systems strengthened for coral reef ecosystems in the Gulf of Aqaba with community participation applying citizen science principles to effectively and rapidly assess emerging threats, ecological damage, and positive impacts of investments	• **IUCN-ROWA (main implementing partner)** • **Fishermen / divers and glass bottom operators (for citizen science monitoring programs)** • Marine Science Station • Aqaba Marine Reserve • University of Jordan, Aqaba Branch, including the Marine Science Station • Ben Hayyan Laboratory • Regional / international partners, including CORDAP, KAUST, NIOF, Transnational Red Sea Centre, and Ocean X
Activity 1.2.1: Gulf of Aqaba Coral Reef Ecosystems Scientific Collaboration Platform	• **ASEZA** • South Sinai Governorate • IUCN-ROWA • University of Jordan Aqaba Branch

[39] Programme partners who might receive GFCR program funds, through UNDP Jordan, are noted in bold text

[40] Aqaba Diving Society; Aqaba Fishing Society; Thaghr el Ordon Fishermen Society; Royal Jordanian Marine Sports Federation; Sport Ecofishing Society

Activities	Programme Partners[39]
	• Aqaba University for Technology • Internationally leading research institutes in coral conservation and restoration, including CORDAP, KAUST, NIOF, Mote Marine Laboratory and Aquarium, Transnational Red Sea Centre, and Ocean X
Activity 1.2.2: Gulf of Aqaba Coral Reefs Management & Finance Strategy	• **ASEZA or ADC** • IUCN-ROWA • Univ. of Jordan Aqaba Branch • Aqaba University for Technology
Activity 1.3.1: Develop and implement financing mechanisms to support the conservation of all coral reefs in Jordan	• **IUCN-ROWA (main implementing partner):** IUCN will engage the IUCN Commission on Environmental, Economic and Social Policy to support this activity. For all capacity building activities, IUCN can work in parallel with the IUCN Academy and through regional partners to provide and facilitate learning through study tours, twinning programmes, exchange programmes
Activity 1.3.2: Develop and implement an Aqaba Marine Reserve Business Plan and associated financing mechanisms	• **IUCN-ROWA (main implementing partner)** • **Aqaba Marine Reserve**
Activity 2.1.1: Identify initial pipeline of reef-positive investment opportunities that are inclusive and gender-sensitive	• Aqaba Development Corporation • Cities & Villages Development Bank • GFCR Investment Fund (Pegasus Capital Advisors) • Other finance partners
Activity 2.1.2: Establish a Centre for Sustainable Blue Economy Innovation, including a reef-positive Blue Economy Business Incubator	• Aqaba Development Corporation • ASEZA • Jordan Enterprise Development Corporation (JEDCO) • Other business incubators for SMEs in Jordan
Activity 2.2.1: Work through the Centre for Sustainable Blue Economy Innovation to generate a range of blended finance offerings to support reef-positive businesses that are inclusive and gender-sensitive	• Aqaba Development Corporation • ASEZA
Activity 2.2.2: Identify and collaborate with regional and international partners on finance for innovative reef-positive businesses	• International impact investors (e.g. Pegasus) • Cities & Villages Development Bank • Regional finance institutions and coral financing initiatives (e.g. CORDAP, SRSA) • Jordanian partners, such as the Jordan Enterprise Development Corporation (JEDCO); Amam Ventures; Ahli Fintech; and TTi, etc.
Activity 2.3.1: Regulations, management mechanisms and information systems to support investments in sustainable fisheries and aquaculture	• **Fisher Associations**[41] • Aqaba Marine Reserve • Marine enforcement agencies • Royal Scientific Society
Activity 2.3.2: Regulations, management mechanisms and information systems to support investments in sustainable tourism	• **Green Fins** • ASEZA (as regulator) • Hotel associations • Diving / tourism boat associations • Women Society; Coast Women Society

[41] Ibid

Activities	Programme Partners[39]
	• Royal Scientific Society • SRSA
Activity 2.3.3: Regulations, management mechanisms and information systems to support investments in reef-friendly operations / businesses in industry, ports and shipping sectors	• ASEZA • ADC • Port Operators • Shipping companies • Royal Scientific Society
Activity 2.4.1: Develop and support aquaculture enterprises, including participation of fisherman's association	• FAO • University of Jordan, Aqaba • Fisher's Associations • ASEZA
Activity 3.1.1: Develop partnerships for coral restoration with community participation, including on-the-ground activities and information sharing / lessons learned	• **Aqaba Marine Park** • **IUCN-ROWA** • **Fishers / divers**[42] • KAUST-NEOM • CORDAP
Activity 3.1.2: Develop conservation frameworks to ensure the viability of coral restoration initiatives	• **Local NGOs (e.g. JREDS)** • **Aqaba Marine Park** • University of Jordan (Aqaba Branch)
Activity 3.1.3: Enhance finance / investment opportunities to support coral restoration	• Aqaba Marine Park (through ASEZA or ADC?) • Ayla Resort • Mote Marine Laboratory and Aquarium • CORDAP • NEOM • SRSA
Activity 3.1.4: Implement pilot coral restoration activities at the Northern Deep Corals site and the Southern Industrial Site	• **Aqaba Marine Park** • **IUCN-ROWA** • **Fishers / divers** • Ayla Resort • Mote Marine Laboratory and Aquarium • CORDAP / NEOM / KAUST
Activity 4.1.1: Collaboration and exchange of data and lessons learned with the GFCR Egyptian Red Sea Initiative programme	• UNDP Egypt • USAID Egypt
Activity 4.1.2: Engage with GFCR REEF+ Knowledge Management & Finance Platform and other global coral reef learning mechanisms to facilitate connectivity among investors, entrepreneurs, and practitioners and share bankable reef-friendly solutions incubated by the programme	• Led by UNDP Jordan • ASEZA • University of Jordan, Aqaba • South Sinai Governorate • CORDAP • NEOM • SRSA
Activity 4.1.3: Facilitate knowledge sharing of lessons learned, strategies, financing solutions, etc. already existing in the Gulf of Aqaba	• Aqaba Marine Park • Port operators • Universities and research centres • Local NGOs • South Sinai Governorate • Ocean X and other intl. research programs

[42] Ibid

6.1.3 Governance and Operational structure

Programme Steering Committee

A Programme Steering Committee (PSC) will be established that will provide overall strategic direction and oversight to the programme; review annual plans, budgets and reports; support communication and fundraising actions, and ensure adaptive management of the program. The PSC will also ensure alignment with public policies and national and regional priorities, and ensure and facilitate coordination with programme partners and other programmes and initiatives in the region. The PSC will meet at least twice per year (with the possibility of having ad hoc meetings when needed), approving annual work plans and budgets and reviewing technical and financial reporting. The Aqaba Special Economic Zone Authority will act as the PSC Chair, and the UNDP Jordan Country Office representative to the PSC will act as the Committee's Secretary. Other members of the PSC will include: the Ministry of Environment, the Ministry of Planning and International Cooperation, and rotating membership for various local community representatives (as nominated by the PSC members and/or programme implementing partners) and private sector representatives (as nominated by the Boards of Commerce and Industry).

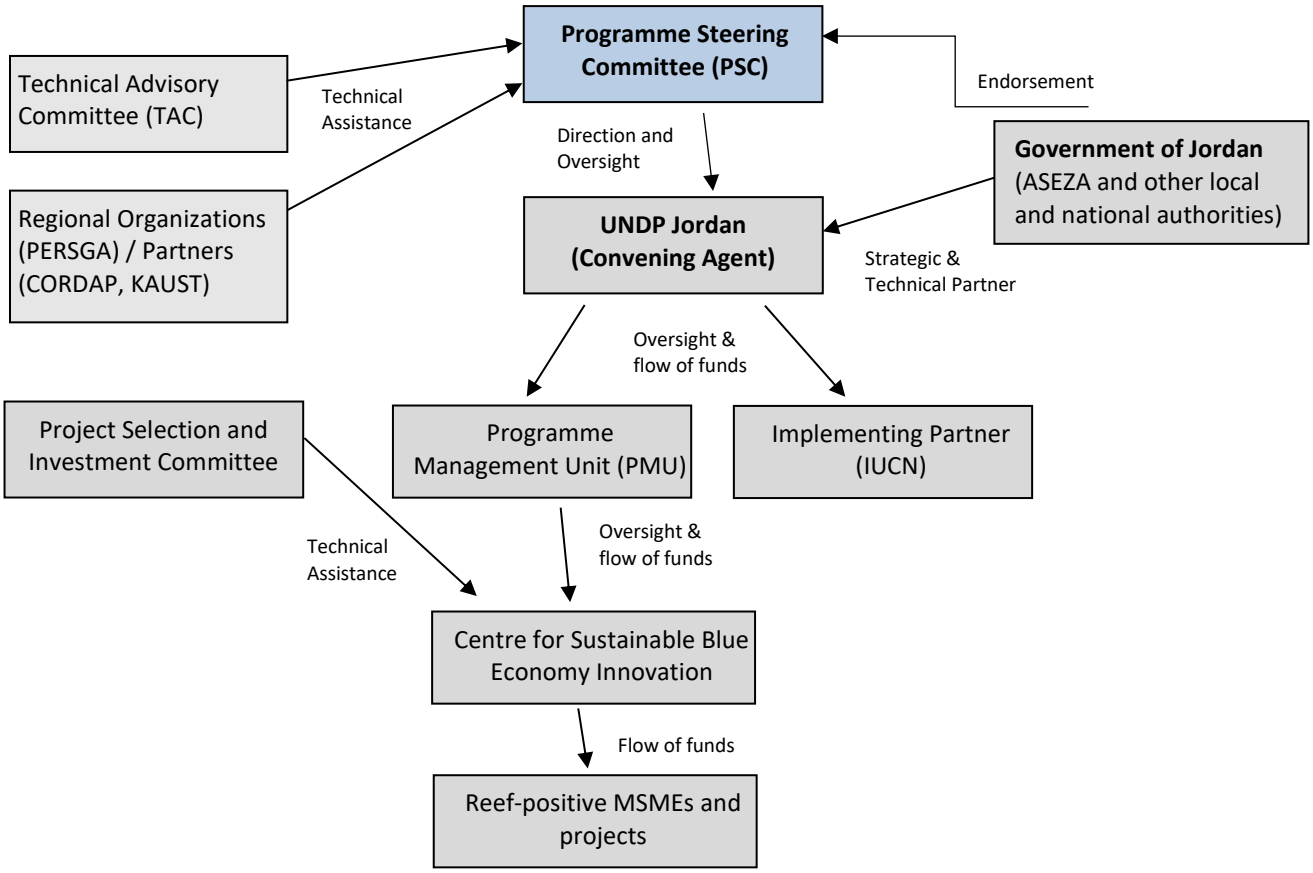
Other Committees

Project Selection and Investment Committee: The programme will also establish a Project Selection and Investment Committee (PSIC), which will evaluate and recommend projects that have responded to the calls for proposals issued by the Centre for Sustainable Blue Economy Innovation (CSBEI), based on criteria to be developed for each call and in adherence with the GFCR Policy Architecture (which includes Investment Principles and safeguards). The CSBEI will have the option to establish its own Investment Committee for final approval of any return-based investments in enterprises. The PSIC will support the PMU and CSBEI in designing, selecting and monitoring reef-positive businesses, vetting pipeline opportunities for financial viability and a positive impact on coral reef ecosystems and associated communities (the analysis of pipeline opportunities will include gender aspects and initiatives that promote gender equality will be favoured). The PSIC will meet when needed, in particular during the preparation of the calls for proposals and during the proposal selection process. The committee will also be called upon to identify co-financing opportunities to leverage private financing that can be distributed through the CSBEI, as well as support potential financiers to provide match-making services for the businesses supported. The PSIC will also secure alignment with other related projects that may add co-financing to these project/business development and financing structures. Membership in the PSIC will be determined in collaboration with the Aqaba Development Corporation (ADC) who will be hosting the CSBEI and should include UNDP Jordan, the ADC, the Ministry of Investment, the Cities and Villages Development Bank, and at least one civil society organization (additional members may be designated during programme implementation).

Technical Advisory Committee: A Technical Advisory Committee (TAC) will be established to provide technical guidance and backstopping; support the programme in its endeavour to strengthen communication, coordination and collaboration among programme stakeholder; and contribute to knowledge generation and dissemination. Membership on the TAC will include IUCN-ROWA, the University of Jordan - Aqaba Branch, and the Marine Science Station (additional members may be designated during programme implementation). These and other academic and research institutions will be instrumental in the identification of climate refugia, development of restoration approaches, and developing and implementing the M&E component of this programme.

In all three committees, UNDP will strive for a gender-balanced composition and will include gender-sensitive aspects in their operational procedures and gender mainstreaming training for their members.

Figure 1: Gulf of Aqaba Programme Governance and Operational Structure



UNDP Implementation

The programme will be implemented in accordance with UNDP Direct Implementation Modality (DIM), where UNDP will assume the overall management responsibility and accountability for the programme implementation. The programme will be executed in close coordination with the Aqaba Special Economic Zone Authority (ASEZA) in Jordan. Moreover, UNDP is envisaged to ensure effective involvement of the private sector to mobilize private capitals and ensure sustainable development outcomes. UNDP Jordan will sign agreements with co-implementers, establish reporting procedures and templates, hire all technical assistance required, and define collaboration agreements with implementing partners (the role of the different co-implementers is explained in section 6.1.2)

Programme Management Unit

UNDP Jordan will establish a Programme Management Unit (PMU) based in Aqaba. The PMU will be responsible for the day-to-day coordination and oversight of the programme, for the programme's

financial and administrative management, for periodic reporting to the PSC and regular required reporting to GFCR/UNDP, and for the execution of programme activities. The PMU will also continuously work to identify and secure additional funding and identify investment opportunities to support reef-friendly businesses and projects. The PMU will be overseen by the PSC, with additional oversight from the UNDP Jordan Country Office as GFCR Convening Agent, with the support of UNDP Nature team. Staff employed in the PMU will report to Head of Environment, Climate Change and DRR Pillar who in turn will report to the Office Resident Representative.

The PMU may include the following staff[43]

- Programme Coordinator (full-time)
- Financial / Administrative Assistant (full-time)
- Chief Technical Advisor (part-time)
- Knowledge Management and Communications Specialist (part-time)
- Gender Specialist (part-time)
- Monitoring and Evaluation Specialist (part-time)

6.2 Country ownership

6.2.1 Government engagement

While the Ministry of Environment is Jordan's representative in international conventions and major interventions concerning the environment, it is the Aqaba Special Economic Zone Authority (ASEZA) that carries out most of the Ministry's other executive function within the Aqaba Special Economic Zone (ASEZ), including Jordan's maritime jurisdiction. Thus, for the proposed GFCR programme, the Ministry of Environment will represent overarching policy dimensions, while ASEZA will act as the key co-implementer representing the Government on the ground. The other critical government partner for the proposed program is the Aqaba Development Corporation, which functions as the development agency for the ASEZ and the investment arm of ASEZA. Both ASEZA and ADC were consulted extensively during the design phase of this proposed programme. The roles of both ASEZA and ADC relevant to specific programme interventions are outlined in the table below:

Table 7: Government engagement in specific project interventions

Activities	Notes
1.1.3: Monitoring systems strengthened for coral reef ecosystems in the Gulf of Aqaba with community participation applying citizen science principles to effectively and rapidly assess emerging threats, ecological damage, and positive impacts of investments	The ASEZA-supported National Monitoring Program for the Marine Environment will be enhanced by the participation of marine resource user associations / community groups participating in Citizen Science programs
1.2.1: Gulf of Aqaba Coral Reef Ecosystems Scientific Collaboration Platform	ASEZA, through the Aqaba Marine Reserve and eventually the Aqaba Science and Technology Hub, will lead scientific collaboration and dissemination of information for enhanced scientific collaboration at the national and international levels

[43] The roles of the PMU team are further defined in Annex V.

Activities	Notes
Activity 1.2.3: Aqaba Science and Technology Hub Business Plan	ADC is leading establishment of the Aqaba Marine Park, including the ASTH, and will coordinate with the PMU in leading development of the ASTH Business Plan
1.3.1: Develop and implement financing mechanisms to support the conservation of all coral reefs in Jordan	ASEZA will have lead responsibility for instituting policy changes to allow for the use of new coral reef conservation financing mechanisms, in collaboration with the private sector and local and international NGOs
1.3.2: Develop and implement an Aqaba Marine Reserve Business Plan and associated financing mechanisms	ASEZA as AMR's managing authority will collaborate with local and international NGOs to implement the AMR business plan and/or financing mechanisms
2.1.1: Identify initial pipeline of reef-positive investment opportunities	ADC will establish the Aqaba Marine Park, which will eventually host the Centre for Sustainable Blue Economy Innovation Incubator
2.1.2: Establish a Centre for Sustainable Blue Economy Innovation, including a reef-positive Blue Economy Business Incubator	
2.2.1: Work through the Centre for Sustainable Blue Economy Innovation to generate a range of blended finance offerings to support reef-positive businesses that are inclusive and gender-sensitive	
2.2.2: Identify and collaborate with regional and international partners on finance for innovative reef-positive businesses	
2.3.1: Regulations, management mechanisms and information systems to support investments in sustainable fisheries and aquaculture	ASEZA will be responsible for establishing mechanisms and information systems to support investments in sustainable fisheries, tourism, circular economy approaches to reduce plastics pollution, and industry, ports and shipping sectors
2.3.2: Regulations, management mechanisms and information systems to support investments in sustainable tourism	
2.3.3: Regulations, management mechanisms and information systems to support investments in reef-friendly operations / businesses in industry, ports and shipping sectors	
3.1.1: Develop partnerships for coral restoration with community participation, including on-the-ground activities and information sharing / lessons learned	ASEZA, as Jordan's Focal Point in the Regional Organization for Conservation of the Environment of the Red Sea and Gulf of Aden, will support effective coral restoration partnerships in collaboration with local and international NGOs. ASEZA will also oversee the application of regulations, protocols and standards for restoration siting and activities, as well as any required EIA activities.
3.1.2: Develop conservation frameworks to ensure the viability of coral restoration initiatives	

6.2.2 Programme consistency with national priorities and plans

The Gulf of Aqaba GFCR Program demonstrates strong consistency with Jordan's priorities and initiatives outlined in Jordan's Economic Modernisation Vision Executive Program 2023-2025, including strategies highlighted in its Green Growth program to establish a regional hub for green entrepreneurship and innovation and to become a regional pioneer in nature conservation, and priorities in its Sustainability Pillar to develop a green economy and attract investments into sustainable projects which would also

facilitate greater access to green financing. The programme is also in alignment with Jordan's Economic Reform Matrix, which in turn is aligned with the UN Sustainable Development Goals (SDGs) and related strategies and plans, reflecting Jordan's commitment to development and environmental sustainability.

Overall, the proposed programme aims at supporting sustainable economic growth, creating job opportunities, promoting participation, and enhancing women's economic empowerment through marine environmental protection and coral reef positive investment. The Program will contribute to Jordan's economic growth, sustainable development, and improved quality of life in the following areas:

- Present Jordan as a regional environmental protection and blue economy investment hub: The programme will play a significant role in developing Jordan as a regional hub where opportunities for development of and investment in coral-friendly businesses and projects are available.
- Developing Local Talents and Future Skills: The programme aligns with Jordan's goal of developing and preparing local talent to meet future skill demands by providing capacity-building opportunities for local communities, including fishers, marine conservationists, and researchers
- Optimize Natural Resources for Sustainability: By supporting coral reef positive investment, promoting sustainable fishing practices and enhancing marine conservation, the programme will contribute to the optimization of natural resources and ensure inclusive sectoral growth while safeguarding the marine environment for future generations.
- Stimulating Domestic and Foreign Investments: The programme's commitment to sustainable practices makes it an attractive investment opportunity for domestic and foreign investors interested in environmentally responsible projects.
- Alignment with National and Global Agendas: The programme is aligned with Jordan's Economic Reforms Matrix, Sustainable Development Goals (SDGs), and sectoral strategies and plans, reflecting Jordan's commitment to international development and environmental sustainability.

6.3 Community engagement

Engagement with communities is a crucial aspect of the proposed Gulf of Aqaba GFCR programme. During the programme design phase, numerous local stakeholder associations were consulted in individual meetings and/or workshops, most notably the GFCR programme development workshop conducted in March 2023. These groups include the following 8 organizations: Women's Society, Coast Women's Society, Aqaba Diving Society, Aqaba Fishing Society, Thaghr el Ordon Fishermen's Society, Royal Jordanian Marine Sports Federation, Aqaba Glass Bottom Boats Society, the Sport Ecofishing Society, and the Royal Marine Conservation Society of Jordan. Other efforts at community engagement included workshops held during the past six months as part of the GEF-IUCN-ASEZA project "Enhancing Management of Aqaba Marine Reserve"; a MED4EBM Project workshop on Stakeholder Engagement in Fisheries Management; a stakeholder consultation workshop for the Aqaba Marine Reserve Zoning Plan; two workshops led by the FAO Project on Developing Jordan's National Strategy for Aquaculture; and several other meetings, workshops and field assessments. In each of these events, community representatives emphasised their strong desire for direct engagement in project implementation, and expressed the importance of project management actions to consider community needs and traditional uses of the coastal environment. For details of stakeholders consulted please refer to Annex VI.

Community engagement also included technical engagement with partners such as the Aqaba Diving Society, Aqaba Fishing Society, Thaghr el Ordon Fishermen's Society, and the Glass Bottom Boats Society, all of whom were consulted on ideas for environmental and socio-economic monitoring protocols using citizen science principles, based on their participation in such activities through the recently completed

MED4EBM Project. These monitoring protocols will provide a solid basis for Gulf of Aqaba GFCR Program knowledge building and will insure open access to information on the environmental and socio-economic attributes of the Gulf of Aqaba ecosystem.

During implementation, the programme will consult, engage, and promote benefits for the local communities whose livelihoods are closely connected with coral reefs. First, the programme will involve local populations and organizations in decision-making processes related to any program activities that might affect them. The program will also recognise and foster full respect for the human rights and cultural heritage of local communities and resource users, and will ensure that no actions are supported that violate these rights. Gender balance will be carefully considered, and gender analysis will be conducted during the inception phase, which will include identifying gender-balanced opportunities for participating in the Program's activities and benefiting from its interventions.

Community consultations and engagement will take place for all activities that may affect the local communities' rights and traditional livelihoods. Free, Prior, and Informed Consent (FPIC) principles will be applied. This involves undertaking culturally appropriate and meaningful participation with the local communities ensuring that they are involved in decision-making and implementation of the Program's activities. The eight societies listed above have already been identified as representatives of relevant stakeholders and potential partners in implementing programme activities. These organizations will be engaged in the programme under the leadership of the Programme Coordinator and the Gender Specialist, and through the participation of at least one civil society organization each (on a rotating basis) on the Programme Steering Committee and the Project Selection and Investment Committee. These organizations will also constitute key partners for the programme activities on sustainable fisheries; aquaculture innovation; and citizen science monitoring. The ability of these organizations to contribute to the programme's activities will be verified during the inception phase, at which time other organizations may also be engaged. Furthermore, during programme implementation, the capacity of local NGOs, CSOs, and resource user associations will be strengthened through a number of programme activities, including: i) training for fishers, divers and others in citizen science to support ecological and social assessments (activity 1.1.1); monitoring of coral reef ecosystems (activity 1.1.3); and sustainable fishing practices and technologies (activity 2.3.1); ii) development of skills for local community members, including smaller enterprises and women and vulnerable groups, on reef-friendly ecotourism livelihoods opportunities (activity 2.3.2); iii) training in coral restoration for local communities and resource users (activities 3.1.1 and 3.2.1); and iv) incubation services for local organizations with reef-friendly projects, including technical assistance, business mentoring, etc., with a focus on support for smaller enterprises, women, and youth (activity 2.1.2).

The Program will work closely with local communities to ensure they can benefit from reef-positive business opportunities. For example, the programme will utilise open and competitive bidding processes for coral reef related investments, and there will be calls for proposal specifically targeting women and local community-led organisations. Local community innovation, commitment, and capacity-building needs will be assessed and supported through development of community-based projects.

6.4 Coordination with other initiatives

The Project Management Unit (PMU) will promote close cooperation and coordination with the different stakeholders and relevant initiatives implemented in the Gulf of Aqaba. Section 1.4 provides an overview

of other large-scale ongoing and planned initiatives in the region related to coral reef protection and reef-positive businesses and investments.

Ecological assessments, monitoring, and scientific information management and sharing regarding the marine environment of the Gulf of Aqaba, and particularly climate-resilient coral reef ecosystems, is an important component for ensuring that the proposed programme is effectively protecting areas of coral reef that are globally significant for their ecological values and also vital for socio-economic opportunities in the region. In this regard, the programme expects to collaborate with other ongoing and large-scale research and monitoring programs in the region, including those of the University of Jordan, Aqaba in collaboration with the Marine Science Station; KAUST and Neom in Saudi Arabia; PERSGA at the regional level; and finally international scientific expeditions to assess and study coral reefs in the Gulf of Aqaba carried out by Ocean X and the Transnational Red Sea Centre (TRCS). In addition, information generated by the programme will be presented at the biennial Red Sea Ecosphere Conference held in Aqaba that brings together universities, research centres, and governmental and non-governmental organizations that are studying and protecting the environment of the Red Sea.

Regional Collaboration

The politically complex conditions in the Gulf of Aqaba / Red Sea region have made it difficult to fully engage and develop partnerships with partners institutions in other neighboring countries. As explained below, the Government of Egypt has been reluctant to link this programme with its own GFCR programme in the Red Sea, but other avenues are being explored using available diplomatic channels and technical opportunities, e.g. building on the back of existing sub-national collaboration as well as GEF projects that support exchanges. In Saudi Arabia, collaboration with key partners such as CORDAP, KAUST, SRSA etc. must go through the Ministry of Foreign Affairs, which is a complicated process. Nevertheless, initial consultations have taken place with key partners, and Phase 1 of the GFCR programme will be used to identify and prepare the ground for implementation of strong regional collaboration during Phases 2 and 3, building on the understanding shared by all three countries that the GoA is an interconnected ecosystem.

Collaboration with Egypt

The proposed Gulf of Aqaba programme is a national programme. When originally conceived of and submitted to the GFCR as a Concept, the programme was intended to be a regional program jointly implemented in both Jordan and Egypt. However, the Government of Egypt has decided to withdraw from the Gulf of Aqaba programme and focus on the pending GFCR Egyptian Red Sea Initiative program (it has even requested that all mention of the GOA programme is removed from the ERSI programme, as well as any mention of other global and regional initiatives and information including collaboration with GFCR's global learning system). Nevertheless, because both programs share many similarities in terms of ecological conditions and challenges to effective coral reef conservation, it is highly strategic to ensure synergies and effective sharing of information, strategies, and lessons between the two programmes, and the proposed programme includes various activities in this regard (as described under Output 4.1).

The proposed programme will collaborate with efforts under the ongoing Memorandum of Understanding between ASEZA and the Governorate of South Sinai in Egypt (which encompasses the entire Egyptian part of the Gulf of Aqaba) for collaboration in management of the GoA. The proposed programme will seek opportunities to expand and integrate coral reef management into this ongoing partnership; which aligns with the following elements of the MoU: Article 4 concerns collaboration in the field of tourism and is an

entry point for collaboration on ecotourism; Article 5: concerns collaboration in the field of environmental protection, including the marine environment; and Article 6 encourages collaboration on commercial and economic development, which can be linked and used in relation to reef positive investments. In addition, ASEZA and the Governorate of South Sinai initiated a coastal ecotourism development partnership in August 2023 to share best practices and models, in particular for working with private sector and NGO partners; and to develop a joint ecotourism promotion scheme for the cities of Aqaba and Sharm el Sheikh, which will include incentives for SMEs and other private sector actors. Building on this, the programme will facilitate efforts by ASEZA and the Governorate of South Sinai to establish a regional ecotourism platform that can i) promote ecotourism; ii) create a regional standard for accrediting ecotourism projects and facilities; and iii) facilitate information sharing on experiences and best practices among private sector and government partners, and will investigate options for integrating Saudi Arabian partners into this ecotourism partnership. Another area of collaboration discussed at the August 2023 meeting was networking / information exchange between regional MPAs, starting with the Aqaba Marine Reserve and Ras Mohammed National Park in Egypt; the programme (with support from IUCN ROWA) will facilitate any efforts by ASEZA, the Governorate of South Sinai, and the Egyptian Environmental Affairs Agency (EEAA) to move this forward.

Collaboration with Saudi Arabia

Although Saudi Arabia is not a GFCR recipient country and no partners in Saudi Arabia will receive GFCR grant funding through this programme, the Government of Saudi Arabia and various Saudi organizations are potentially important strategic partners for the proposed programme. UNDP Saudi Arabia will provide an important conduit for engaging with the Government of Saudi Arabia and other partners for effective partnerships. During its Inception Phase, the programme will seek to develop partnerships with the following institutions:

- The Coral Research & Development Accelerator Platform (CORDAP) is a potential partner for the program in undertaking a regional approach to participating in the GFCR REEF+ knowledge management and learning system. CORDAP is also expected to collaborate extensively with the Aqaba Science and Technology Hub (ASTH) once it is operational. CORDAP may also partner in designing, piloting and monitoring coral restoration activities in Aqaba. Among other approaches, researchers in Aqaba have submitted a proposal to CORDAP's US$ 18 million Coral Accelerator Program (CAP) for a joint effort with Saudi Arabia to pilot restoration of coral reefs along the Saudi coast using corals transplanted from the Gulf of Aqaba (which show higher resilience to coral bleaching).
- The Red Sea Research Center (RSRC) at the King Abdullah University of Science and Technology (KAUST) is a global leader in coral reef research and can provide important scientific inputs to the programme. The RSRC also carries out periodic monitoring of substantial sections of the Saudi Arabian coastline. Discussions are ongoing regarding potential partnerships with the RSRC on coral reef research and monitoring (including with the Aqaba Science and Technology Hub once it is operational), and on coral reef restoration (KAUST has just established a Restoration Hub).
- NEOM[44] is expected to undertake significant coral restoration programs (with support from Coral Vita) in the region, and is a potential technical and financing partner for coral restoration in the Gulf of Aqaba. NEOM (and the recently established Red Sea Authority) are also potential partners for exploring the possibility of an ecological corridor along the Jordanian and Saudi coastlines on the Gulf of Aqaba to conserve endangered species such as marine turtles, or possibly for establishing an

[44] The programme will carry out a private sector due diligence process in line with UNDP policies and standards before finalizing any agreement with NEOM or other private sector partners.

accredited regional program for ICZM/MPA management (which may go under the umbrella of the Aqaba Technology and Science Hub once it is established). In addition, the joint NEOM-KAUST marine research institute is a potential partner in undertaking research on coral recovery and restoration, including coral adaptation to warm ecosystems.

- Saudi Red Sea Authority (SRSA): The SRSA has confirmed its interest in collaborating with the programme in a number of areas, including: improved regulation of the diving sector; regional ICZM protocols; engagement and working with SMEs to maximize socioeconomic benefits; and economic valuation of coral reef ecosystems.
- Prince Mohammad Ben Salman Nature Reserve: This recently established protected area has confirmed its interest in collaborating on exchanging data and experiences on coral reef restoration and MPA management planning and technical capacities.

Collaboration with Regional Partners

- Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden (PERSGA): PERSGA has confirmed their interest in collaborating (through their GEF Blue economy project) on coral reef monitoring approaches; sharing of data on coral reefs and other marine ecosystems, communication and awareness activities, and strategies for MPA coordination and management.
- The Transnational Red Sea Center (TRSC) is seeking financing to carry out a series of scientific expeditions along the coastlines of Red Sea countries during the summers of 2022-2025, when the water temperature in the region is at its highest. These expeditions are designed to be conducted in close collaboration with local scientific authorities in each country, and will establish a comprehensive baseline on Red Sea-wide coral ecosystems and biodiversity, including data on metabolic response to thermal stress, thermal adaptive potential, 3d-mapping, etc., using such cutting-edge technologies and generating scientific deliverables. The GFCR programme will seek to partner with TRSC in identifying priority geographic and thematic areas for their research expeditions, facilitating collaboration with local researchers and authorities, and using information and data produced to guide policy decision making.

Finally, during its Inception Phase, the programme will explore other areas of potential collaboration with regional partners, possibly including:

- Mapping vulnerability to natural and man-made hazards along the coastline of the Gulf of Aqaba, and identification of existing agreements, protocols, tools and processes for disaster risk reduction, preparedness and response, particularly in border areas
- Establishing and operating a Science Engagement Program to encourage and inspire youth to become involved in marine science and technology, including topics on finance, business, MSMEs, etc., potentially integrated into the Aqaba Science and Technology Hub.
- Establishing a regional network of eco-tourism destinations and projects sharing homogeneous quality standards and methodologies to protect, enhance and promote the sustainable use of marine ecosystems.

6.5 Stakeholder mapping & engagement plan

A full-day workshop was conducted in Aqaba, Jordan in March 2023 to engage with stakeholders on the design of the proposed Gulf of Aqaba GFCR programme. This workshop built on two previous stakeholder engagement processes carried out in 2022 for a GEF-IUCN-ASEZA project on Enhancing Management of Aqaba Marine Reserve and a MED4EBM project on Stakeholder Engagement in Fisheries Management in

the Jordanian Sector of the Gulf of Aqaba, which also were part of an ongoing process in Jordan to formulate a new sustainable development vision for the Gulf of Aqaba region.

In addition to the aforementioned general meetings, all of which had wide and varied stakeholder participation, the programme design team conducted one-on-one meetings, site visits, and other consultations with a number of key stakeholders, including:

- Policymakers: Royal Administration for Environmental Protection and Tourism; Ministry of Environment; Aqaba Special Economic Zone Authority (ASEZA); Aqaba Development Corporation (ADC)
- Marine Environment / Science Institutions: Marine Science Station; Aqaba Marine Reserve; University of Jordan - Aqaba Branch Faculty of Basic and Marine Sciences
- Tourism / Industry Representatives: Aqaba Container Terminal; Jordan Industrial Ports Company; Ayla Resort, Tala Bay Resort; Aqaba Chamber of Commerce
- Resource User Associations: Aqaba Dive Association; Local Fishermen's Society; Aqaba Touristic Glass Bottom Boats Society
- NGOs: IUCN; Royal Marine Conservation Society of Jordan /JREDS
- Community Service Organisations: Princess Basma Centre; Coastal Women's Cooperative Society; Aqaba Women's Society
- Finance Institutions: Cities & Villages Development Bank
- International Donor Agencies: Norwegian Embassy; Japan International Cooperation Agency (JICA)

Based on these consultative processes, a number of common priorities for inclusive stakeholder engagement were identified and will be used to guide programme implementation:

- Community empowerment, engagement and training must be prioritized to bring local knowledge and resources to bear in achieving coral reef conservation and reef-friendly development
- Local populations and community organizations need increased awareness about the marine environment in general and its importance for social and economic conditions in the Gulf of Aqaba
- Interventions on recreation / tourism, environmental conservation and monitoring, information sharing and investment must be aligned with local cultural priorities
- Local communities should be prioritized in the recruitment of programme staff at all administrative and technical levels, and recent graduates of marine sciences programs should be included in training programs and implementation of the programme's activities.
- Local community representatives should be involved in programme management (including the programme steering committee) in such a way that gives them the power to influence the programme's strategic approach and decisions
- Entrepreneurs and small businesses should be supported in the development, finance and marketing of reef-friendly businesses, and existing marine resource users (e.g. fishers, dive operators, glass bottom boat operators) should be given priority in establishing such businesses

Additional information on local community engagement in programme implementation is described in Section 6.3. Information on how the programme will collaborate with other relevant initiatives is provided in section 6.4. An overview of relevant programme stakeholders and specific engagement strategies for each of them is provided in Annex VI.

6.6 Awareness building and communications

Awareness-building and communications will be important aspects of this programme. The programme's awareness building and communications activities have four primary objectives: 1) to increase support from the community, private sector, policymakers and other stakeholders for coral reef conservation, including advancing coral science, improving coral reef conservation through strengthened MPAs and OECMs; and transforming and improving livelihoods of coral reef-dependent communities; 2) to drive and sustain behavioural changes away from destructive activities in coral reef ecosystems; 3) to raise awareness about opportunities for the private sector and government to invest in reef-positive enterprises and long-term coral reef conservation; and 4) to promote the adoption of innovative finance solutions to support reef-positive businesses and projects, as well as the adoption of policy frameworks that facilitate the implantation of these solutions. To support the adoption of finance solutions and reef-positive businesses and projects, the programme will organize stakeholder meetings, roundtables, and knowledge-sharing events to introduce reef-positive projects to relevant stakeholders. The CSBEI will organize match-making events to bring together reef-positive businesses and projects with funds and investors, and will ensure that CSBEI-supported businesses and projects are featured in events and media coverage (e.g. traditional media, broadcast, and digital/social media).

In addition, to support upscaling and replication of lessons learned and best practices on coral reef conservation, reef-friendly investments, etc., the programme includes Activity 4.1.2 (Engage with GFCR REEF+ Knowledge Management & Finance Platform and other global coral reef learning mechanisms to facilitate connectivity among investors, entrepreneurs, and practitioners and share bankable reef-friendly solutions incubated by the programme) as well as Activity 4.1.3 (Facilitate knowledge sharing of lessons learned, strategies, financing solutions, etc. already existing in the Gulf of Aqaba). Furthermore, during programme implementation, UNDP will implement a Communications and Visibility Plan (this is described in further detail in Annex VII).

According to a number of earlier assessments conducted by several agencies and projects, the marine ecosystem in the Gulf of Aqaba remains for most stakeholders in Jordan an undervalued social, environmental and economic asset. Consequently, the logic of sustainably developing the GoA's resources has yet to permeate the mindset and practices of the majority of stakeholders in Jordan and specifically in Aqaba. For this reason, a more systematic and long term strategy is needed to ensure that stakeholders are aware of the environmental importance of marine and coastal resources and fully appreciate the services provided by them. Such a strategy should seek to develop public awareness of the significance of the marine environment and the need to conserve it as a vital resource for tourism, fisheries, scientific research and the intrinsic values of a pristine marine ecosystem. By increasing public awareness in these areas, the programme seeks to change behaviours that may contribute to drivers of coral reef degradation while simultaneously motivating governmental agencies and the private sector to adopt marine conservation initiatives.

UNDP Jordan has an existing communication and publicity strategy and action plan that addresses the protection and sustainability of the marine and coastal environment in Aqaba. For example, the existing strategy includes an analysis and assessment of "awareness" levels among different groups; the same exercise needs to be replicated but at a wider scale that encompasses all knowledge, attitude and practice (KAP) elements. Further, the existing strategy proposed that Jordan should "establish a local council for awareness and community participation in Aqaba that works to coordinate efforts and encourage collaborative work towards sustaining marine resources"; such a council does not yet exist but could be a key element of the GFCR programme's communications strategy. UNDP will work with the programme's partners to review and update this strategy so as to have it as a road map for the education and awareness activities under the GFCR program.

The programme's awareness building and communications activities will focus on, and partner with, two primary groups:

- Direct Users of marine and coastal areas and resources: Dive centres, glass-bottom boat operators; fishers; the Royal Jordanian Marine Sports Federation; beach visitors; tour guides; hotels (through the Aqaba hotels association); maritime companies; and coastal industrial facilities.
- Indirect Users of marine and coastal areas and resources: schools (public and private); local universities; local NGOs/CBOs; youth centres; women's associations; local governmental directorates (e.g. the Directorate of Awqaf or Islamic affairs, which can be an important partner as they deliver lessons and speeches at mosques and at other platforms that can include the importance of marine ecosystem conservation as an element of good community conduct); the chamber of commerce; and various departments and sections within ASEZA.

6.7 Gender mainstreaming considerations

This section draws on the full Gender Analysis and Action Plan presented in Annex IX, which provides more details on specific gender issues and on the activities, indicators, and responsible actors for each of the outputs.

Gender equality and women's empowerment can play a crucial role in coral reef conservation in several ways. However, there is a general consensus that women in Aqaba are not widely involved in coral-reef related activities, although there is only limited data and information as to the reasons and the existing gaps that prevent them from doing so. The programme will develop and use a comprehensive gender responsive approach that identifies the different needs, constraints and opportunities of both men and women in terms of participating in, and sharing the benefits of, conservation, management and investment activities related to coral reefs. Ensuring equal participation in coral reef conservation, management and investment interventions requires a deliberate and inclusive approach that addresses various barriers and challenges. The programme will adopt the following strategies to support women's participation and access to benefits:

1. Financial Inclusion: Provide women with access to financial services and credit facilities to support their involvement in coral reef preservation activities. This may include small grants / investments / finance mechanisms specifically targeted at women-led conservation initiatives
2. Capacity Building and Training: Offer training and capacity-building programs to equip women with the necessary skills and knowledge for active participation in conservation activities. This will include training in marine monitoring, data collection, eco-tourism, and other related skills
3. Women's Livelihood Diversification: Encourage the development of alternative livelihood opportunities for women that are linked to coral reef preservation. For example, promoting women's involvement in sustainable eco-tourism, handicraft production using sustainable materials, or marine education initiatives can create economic opportunities while contributing to conservation goals
4. Support Women-led Enterprises: Establish initiatives that specifically support and promote women-led businesses and organizations involved in coral reef preservation. This could include funding opportunities, technical assistance, and access to finance and/or markets for their sustainable products and services
5. Addressing Social Norms and Gender Stereotypes: Address traditional gender norms and stereotypes that may limit women's participation in certain activities. Promote a supportive and inclusive environment that encourages women to pursue roles in coral reef preservation

6. Policy Support: The programme will align itself with the women's empowerment strategy in the existing Economic Modernisation Vision Strategy for Aqaba, targeting actions for enhancing gender equality and women's economic opportunities

7 Financial arrangements and procedures

7.1 Overview

Table 8: Total Grant Costs (USD)

Source	Grant	Percent deployed as Concessional loan/Recoverable Grant/Guarantee
GFCR	10,000,000	10-20% Concessional Loans and Recoverable Grants (over the entire programme implementation period)
Co-financing	49,570,000	3% Debt and Equity (estimate of 2.5 million in investment by ADC in CSBEI companies)
Secured	28,500,000	
Anticipated	21,070,000	3% (included above)
		GFCR Grant Co-financing leverage

Table 9: Leverage potential of GFCR grants (USD)

	Private Sector Investment	Public Sector Investment	TOTAL	GFCR Grant Leverage
Secured	NA	28,500,000	28,500,000	1:5
Ambition	10,000,000	21,070,000	21,070,000	1:3
TOTAL	10,000,000	49,570,000	49,570,000	1:8

7.1.1 GFCR Grant Cost Overview by Outcome

Table 10: GFCR Grant cost by Outcome (USD)

Component	Total GFCR Grant Cost for first 18 months (% of TOTAL)	Percent deployed as Concessional loan/Recoverable Grant/Guarantee
Outcome 1	394,500	0%
Outcome 2	621,000	0%
Outcome 3	122,500	0%
Monitoring & Evaluation	100,800	0%
Programme Management	283,400	0%
Direct Costs	1,522,200	0%
Indirect Costs (7%)	106,554	NA
TOTAL	1,628,754	0%

Note: Concessional finance from the Aqaba Development Corporation is expected to start in Phase II.

7.1.2 Grant co-financing

Table 11: Grant Co-financing arrangements (USD)

Co-financing Source	USD	Monetary or In-kind	Status	Description of co-financing	Relevant programme outcome / output / activity
Aqaba Special Economic Zone Authority (ASEZA)	15,000,000	Monetary	Secured	Allocated budget for construction of the ASTH (remaining costs to be mobilized by the Royal court and other entities)	Output 1.2 + Output 2.2
ASEZA	1,000,000	In-kind	Secured	Cost of land donated by ASEZA to the National Center for Crisis Management to establish a DRR	Activity 2.3.4

Co-financing Source	USD	Monetary or In-kind	Status	Description of co-financing	Relevant programme outcome / output / activity
				facility in Aqaba to support disaster preparedness, response and recovery, particularly disasters that might impact the marine environment (e.g. chemical and oil spills)	
ASEZA	6,300,000	Monetary	Secured	Budget for management of the Aqaba Marine Reserve (900,000/year for 7 years)	Output 1.3
ASEZA	700,000	Monetary	Secured	Budget for national monitoring program (100,000/year for 7 years)	Output 1.1
ASEZA	1,000,000	Monetary	Ambition	Financing of the pipeline and allocation of land for development of inland aquaculture ventures (the amount of this investment is still being determined, but is expected to be over US$1 million)	Output 2.4
ADC*	600,000	In-kind	Anticipated	ADC will co-invest in the Centre for Sustainable Blue Economy Innovation through both financial and in-kind support. ADC has stated its interest in hosting the CSBEI at the Aqaba Marine Park, and is willing to contribute support staff, office space, and oversight through their Board of Directors to support the launch and first few years of CSBEI operation	Output 2.2
Private Tourism Operators**	720,000	Monetary	Anticipated	Private water quality monitoring programs per the requirements of the blue flag certificate (120,000/year)	Output 1.1
Private Industrial Operators***	1,200,000	Monetary	Anticipated	Private water quality monitoring programs (200,000/year) (see Annex IV for details)	Output 1.1
ASEZA / European Union	5,500,000	Monetary	Secured	Ongoing EU-ASEZA-UNDP project “Enhance the Conservation of the Aqaba Marine Reserve by Improving Capacity for Effective Management”	Output 1.3
Global Environment Facility	700,000	Monetary	Anticipated	Ongoing GEF-IUCN-UNDP project “Supporting Effective Operation and Performance Management of Aqaba Marine Reserve, Jordan”	Output 1.3 + Output 2.3
Global Environment Facility	2,000,000	Monetary	Anticipated	GEF-UNDP project “Support to develop and implement a Sustainable Blue Economy (SBE) in	Output 2.3

Co-financing Source	USD	Monetary or In-kind	Status	Description of co-financing	Relevant programme outcome / output / activity
				Aqaba" (PIF to be submitted in Dec. 2023)	
Global Environment Facility	7,350,000	Monetary	Anticipated	GEF-UNEP-PERSGA project "An Inclusive Approach for Harnessing Marine Ecosystem Services and Transforming to Sustainable Blue Economy in the Red Sea and Gulf of Aden (HESBERSGA Project)	Output 1.2 + Output 2.1 + Output 2.2
European Union	2,500,000	Monetary	Anticipated	Project "Catalysing a transformative model for circularity through 9R`s in Aqaba", focused on solid waste management in Aqaba (full proposal under development)	Output 2.3
Govt. of Canada	5,000,000	Monetary	Ambition	Project "Conserving the unique marine and coastal ecosystem and biodiversity in Aqaba" (a potential project; UNDP has initial approval to develop a concept note with a focus on marine biodiversity, including restoration of coral reefs and seagrass beds)	Output 3.1
Total	**49,570,000**				

* Additional co-financing is expected from ADC in the form of concessional investments in CSBEI companies and from other partners such as the Cities & Villages Development Bank and ultimately commercial banks that seek to invest in the enterprises being incubated and supported by the Centre.

** Mövenpick resort & Residences Aqaba; Mövenpick resort & spa Tala Bay; Intercontinental Aqaba resort; B12 beach club; Hyatt Regency Aqaba Ayla resort; Marina Ayla; AMR Visitor Center

*** ACT, Thermal power station, Ayla lagoons, Industrial Complex, Royal Yacht Club, Saraya project, Phosphate industrial complex, Kemapco, Jordan Industrial Ports Company

7.1.3 Commercial Investments

Table 12: Private Sector co-financing

Relevant Programme Solution	Source of Invest. Capital	Category	Amount	Status
GFCR Investment Fund	Private, Philanthropic	Equity	US$ 40 million (ambition)	Initial discussions on some potential options
Aqaba Development Corporation (Quasi-Governmental)	Own Capital, Land	Land, Debt, Equity	US$ 35 million in land value (committed) US$ 1million for Pipeline construction (committed) US$ 15 million for Science Hub (committed) US 2.5 million in debt and equity in reef positive enterprises	Most projects ongoing

7.2 Work-planning

The programme implementation period is projected to be from early 2024 until 2030. The following milestones will be achieved during the programme's Inception Phase (Months 1-18):

- Detailed report on coral reef ecosystems conditions and trends in the Gulf of Aqaba, refining information on key drivers of coral reef resilience and degradation, maps, etc., and an updated assessment of the importance of the GoA's coral reefs as climate refugia and biodiversity habitat
- Targeted information resources (reports; primers; etc.) on the economic value of coral reef ecosystems to support better decision-making and inform the design of sustainable business ventures
- Technical guidelines and data provided to existing marine monitoring programs in order to improve monitoring of coral reef conditions and impacts of key drivers of degradation
- Suite of options and strategy for the scope and functions of the Gulf of Aqaba Coral Reef Ecosystems Scientific Collaboration Platform
- Completed Gulf of Aqaba Coral Reefs Management & Finance Strategy
- Business Plan for the Aqaba Science and Technology Hub
- Completed Aqaba Marine Reserve Business Plan, including information on options for new financing mechanisms
- Overall pipeline of investable projects identified, based on assessment of drivers of degradation; market assessments; consultations with fisheries, tourism and waste management associations and businesses; review of relevant policy documents, etc.
- Completed national level landscape assessment to identify opportunities for impactful large-scale investments
- Establishment of the Centre for Sustainable Blue Economy Innovation (CSBEI) (engagement of Centre Director and Assistant; establishment of partnerships – law firms, universities, key local enterprises; development of Operational and Business Plans)
- First round of call for proposals and incubation of first concepts / companies under the CSBEI
- Monitoring and evaluation process established to assess impact of ventures in the CSBEI portfolio
- Feasibility study to explore options for new revenue generation mechanisms for Green Fins and its partners
- Assessment of potential ecological impacts and economic feasibility of aquaculture in the GoA
- Strategic plan for aquaculture pilot projects / ventures
- Scientific partnerships established on coral restoration approaches, techniques, and strategic planning with the Marine Science Station, KAUST-NEOM, CORDAP, and other partners
- Community participation protocols established for coral restoration efforts
- Local drivers of coral degradation that may impact selected restoration efforts identified and plans developed to mitigate those drivers at restoration sites
- EIAs completed for selected reef restoration sites
- Ecological surveys on live hard coral cover, macroalgae / other benthic groups, and reef fish biomass at the 3 programme priority sites
- Programme M&E strategy to guide technical impact monitoring and data collection throughout the programme
- Targeted Climate Risk/Vulnerability Assessment and Risk Preparedness Plans for critical reef habitats as well as communities dependent on coral reef resources.
- In-depth gender assessment
- Establish GFCR Programme Management Unit, including staffing, operations, systems, etc.
- Representatives, rules and operations for GFCR programme governance and decision-making bodies (steering committee, project selection and investment committee) defined

- Work plan for consolidation phase (phase 2 of the GFCR programme) completed
- Programme knowledge management and communications strategy
- Externally managed audit of the GFCR programme completed at the end of Phase 1

8 Risk management

Table 13: Risk management Matrix

Risks	Risk Level: Very high High Medium Low (Likelihood x Impact)	Likelihood: Almost Certain - 5 Likely - 4 Possible - 3 Unlikely - 2 Rare – 1	Impact: Extreme – 5 Major - 4 Moderate - 3 Minor - 2 Insignificant - 1	Mitigating measures	Responsible Unit/Person
Contextual risks					
Climate change impacts (coral bleaching; storm surges; etc.)	Medium	2	3	The corals in the Gulf of Aqaba have been found to possess unique resilience to coral bleaching and other climate change related stressors. In addition, because of its sheltered location, the Gulf of Aqaba is not subject to significant storm surges or saltwater intrusion. Nevertheless, the tolerance limits of the GoA's corals to warming are unknown, and coral bleaching remains a potential threat. To mitigate the risk of potential climate change impacts, including coral bleaching, the proposed GFCR programme includes activities to protect and restore coral reefs and their associated ecosystems, and to better understand the conditions and mechanisms that enhance the resilience of coral reefs in the GoA. Further, all investments made by the CSBEI will include assessments of climate risks, safeguards and contingency plans.	UNDP Jordan
Programmatic risks					
Limited investment opportunities	High	3	4	Although there is a vibrant entrepreneurial ecosystem in Amman, organizations and entrepreneurs have not established themselves yet in Aqaba. Because few investments or financing mechanisms exist in the region focused on reef-friendly businesses, the risk exists that there may not be a sufficient pipeline of "bankable projects" or "investor ready enterprises". This risk can be mitigated by considering the innovations to be developed as potentially viable for the greater Gulf of Aqaba region as well as other areas of the Red Sea. Also, ADC is financing a sea water access pipeline leading to an inland agriculture and aquaculture development zone that will create potentially significant onshore opportunities for innovative aquaculture for fisheries, seaweed, and other sustainable enterprises. As outlined in Section 4, the programme has identified various projects, initiatives, and business opportunities to compose the CSBEI pipeline. Through the CSBEI, the programme will provide technical assistance, training, development of business partnerships and piloting to create investable opportunities. In addition, UNDP will contribute its expertise and	UNDP Jordan

				networks to develop partnerships during programme implementation to encourage investors and funders to provide financing to support the programme pipeline.	
A fee / tax on cruise ships may result in loss of cruise ship business in Aqaba	Low	2	2	The programme proposes to assess the feasibility and desirability of implementing a fee or tax on cruise ship visitors as a mechanism for increasing conservation financing in Aqaba. In some parts of the world, efforts to establish taxes for cruise ships in one country have resulted in cruise ships changing to other destinations. However, cruise ships that visit Aqaba come first and foremost for the opportunity it provides their passengers to visit two other sites in Jordan, namely the world famous Petra historical site and the Wadi Rum World Heritage Site, and therefore they are unlikely to stop visiting Aqaba. The programme will work with ASEZA to carry out a full analysis of the potential revenue from a fee / tax system and of any risks it might entail for the cruise ship visits to Aqaba before any such system is implemented.	UNDP Jordan
Pollution /waste flows from the proposed Aquaculture solution	Low	2	2	Although the proposed aquaculture pilot projects will be located at a site 25 km. inland from the Gulf of Aqaba, the pilots share some of environmental risks common to most aquaculture projects globally, including the potential for localized water pollution (even if the pollution does not reach the Red Sea) from fish waste and/or the use of antibiotics and other chemicals, as well as the risk of the spread of disease to wild fish stocks. FAO has already completed a feasibility and technological assessment of the potential aquaculture projects. Under Output 1.4, the programme will carry out additional assessments (as needed) of potential ecological impacts, including a full assessment of the potential environmental risks, as well as an assessment of aquaculture's potential to reduce fishing pressure on coral reef ecosystems (farming of bait fish; transition of fishers to aquaculture employment) and/or contribute to the restoration of ecosystem health and water quality (e.g. farming of bi-valves, sea cucumbers, herbivorous fish)	UNDP Jordan
Institutional risks					
Limited local capacities and experience in entrepreneurial business development	High	3	3	The GFCR programme will establish the Centre for Sustainable Blue Economy Innovation to provide technical assistance, business mentoring, and other capacity building for entrepreneurs and organizations that are developing reef-friendly businesses and projects. This technical assistance will be provided by an International Innovation and Incubation Expert, the Centre Director, and consultants brought on to support specific companies and projects. In addition, the CSBEI will work closely with and be supported by the Aqaba Development Corporation, which is the financing arm of ASEZA and is the ideal partner and host for the establishment of the CSBEI due to a combination of its business and finance expertise, a mission for the sustainable development of Aqaba, its leadership on the Aqaba Marine Park investments, and its ability to provide not only co-financing but follow-on financing	UNDP Jordan

				for growing companies coming out of the Centre. The CSBEI will also seek to collaborate with the Cities and Villages Development Bank offices in Aqaba, which has extensive experience in supporting community-based enterprises and MSMEs.	
Potential barriers to collaboration with the proposed GFCR program for the Egyptian Red Sea	Low	3	1	Activity 4.1.1 of the proposed GoA programme is "Collaboration and exchange of data and lessons learned with the GFCR Egyptian Red Sea Initiative programme". Currently, the Government of Egypt is unwilling to commit to any collaboration between the Egyptian Red Sea Initiative (ERSI) and any other programs of any kind outside of Egypt. For this reason, Activity 4.1.1 is not scheduled to commence until Phase 2 of the GoA programme, with the hope that the Government of Egypt will better understand the benefits of a collaboration to share data and lessons learned by the time Phase 2 has started (note: The ERSI is located in the Red Sea itself, and not in the Egyptian waters of the Gulf of Aqaba). Also, the GoA programme will be able to support collaboration with Egypt in the Gulf of Aqaba region through the ongoing partnership between ASEZA and the Governorate of South Sinai (which encompasses the entire Egyptian coastline on the Gulf of Aqaba).	UNDP Jordan
Fiduciary risks					
Investment risks	Medium	3	2	There is a risk that some of the businesses / projects supported by the programme will not be feasible or able to sustain themselves over time and therefore unable to pay back recoverable grants or concessional loans made by the programme. The programme will provide support all businesses and projects receiving finance to help them overcome these challenges, and it will use GFCR grant resources to de-risk investments.	
Assumptions: • Partner organizations continue to be willing to engage in the programme governance and activities • UNDP and the co-implementers are able to mobilise the expected co-finance and investment leverage					

9 Monitoring and Evaluation and Results Framework

Entities that will be responsible for M&E of the proposed programme

- Programme Management Unit: The PMU, and in particular the PMU's M&E Specialist, will develop and oversee implementation of the programme's M&E strategy, which will guide technical impact monitoring and data collection throughout the programme
- IUCN ROWA: As the Implementing Partner for Outputs 1.1 and 1.3, IUCN ROWA will oversee M&E for all activities under those outputs and ensure alignment with the overall programme M&E strategy
- University of Jordan, Aqaba Branch & Marine Science Station: These partners will play the leading role in monitoring of the marine environment, based on their several decades of experience and technical expertise
- Aqaba Science and Technology Hub: Once the ASTH has been established, it will play a critical role in supporting monitoring programs and particularly in providing a forum for sharing of information from such program.
- Other partners for ecological monitoring: Local inhabitants will participate through citizen science monitoring programs. A number of private sector actors manage ongoing water quality programs (see Section 7.1.2 for details). International research groups such as Ocean X and the Transnational Red Sea Centre may continue to carry out research cruises in the GoA.

Development of the M&E strategy

The M&E Specialist in the Programme Management Unit will develop the programme's M&E strategy using the GFCR Monitoring and Evaluation Toolkit during the Inception Phase, and will oversee its implementation throughout the programme. The PMU will work with the GFCR Partner UNEP to develop the M&E Strategy and ensure that the GFCR indicators are captured. The M&E strategy will include detailed indicator reference sheets (including a description of the indicator, the unit of measure, disaggregation, the data collection plan and data quality issues) as well as information on the roles of M&E partners who can support baseline setting and monitoring of ecological indicators.

The M&E Strategy will include the following:

- M&E to check that interventions are in compliance with the agreed Investment Principles, the Safeguards and Gender Policies and the Risk Management Strategy of the GFCR on a regular basis (a gender specialist will support the M&E strategy development at the beginning of the project);
- Monitoring of the progress of the programme according to the workplan; in terms of performance to meet outcomes and outputs;
- Monitoring of the threats to coral reefs and associated ecosystems (e.g. seagrass beds) and the biophysical status of these ecosystems coupled with socio-economic effects on dependent communities;
- M&E for indicators related to the reef-positive businesses and projects, measuring aspects such as business profitability, socioeconomic impact, gender-inclusivity, innovation, and environmental standards implementation. Reef-positive businesses supported will report regularly on these indicators. An assessment of each initiative before and after the programme's support will be carried out (potentially through a scoring card) based on the M&E indicators, to measure its evolution. M&E for reef-positive businesses and projects will be carried out jointly with the CSBEI team;
- Strategy for adaptive learning based on regular monitoring, evaluation, and learning.

What capacity is lacking for M&E and how will it be acquired

- Capacity for ecological monitoring in Jordan is weak. The single biggest problem is a lack of research students; previous programs to collaborate with universities in Germany and Israel no longer operate, and local universities have few students and limited resources for such programs. The programme will seek to build new partnerships, in particular with KAUST in Saudi Arabia, to bring research faculty and students to the area.
- Experience with citizen science is very limited; the programme proposes to build on the recent creation of the area's first citizen science monitoring programs under the MED4EBM project.
- Data collected by monitoring programs is rarely entered into databases or assessed systematically. The programme will collaborate with the GFCR's global Mermaid information platform / database to include information on the GoA's coral reefs, and work with the ASTH to function as a central hub for collecting and disseminating monitoring data.

How M&E will be coordinated across the programme

- The M&E Specialist in the Programme Management Unit has overall responsibility for measuring / tracking indicators in the programme's Results Framework, with support from partners implementing specific outputs or activities (such as IUCN ROWA)

If the M&E for the programme will build on the existing M&E efforts?

The M&E programme will build on a number of existing monitoring programs, including:

- The National Coastal Monitoring program, supported by ASEZA and executed by the Marine Science Station (MSS) and University of Jordan, Aqaba (UJA), which includes a census of coral reefs conducted along the entire Jordanian coast.
- The MSS/UJA has also conducted monitoring of marine ecosystems since 1996, supported by the Jordanian Phosphate Mines Company
- Water quality monitoring in the marine environment is conducted by resorts (Mövenpick resort & Residences Aqaba; Mövenpick resort & spa Tala Bay; Intercontinental Aqaba resort; B12 beach club; Hyatt Regency Aqaba Ayla resort; Marina Ayla; AMR Visitor Centre) as well as port operators and other businesses (ACT, Thermal power station, Ayla lagoons, Industrial Complex, Royal Yacht Club, Saraya project, Phosphate industrial complex, Kemapco, Jordan Industrial Ports Company).
- Localised high-tech monitoring of coral photosynthesis has been conducted in collaboration with the Transnational Red Sea Centre.

The strategy for baseline assessments where it has not been possible to set targets during proposal development and the timeline for acquiring baseline assessment and setting targets

- The strategy to carry out baseline assessments and set targets for indicators in the programme's results framework is outlined under the Results Framework table below. The Gulf of Aqaba, including Jordanian waters, is a data poor region, but the strategy outlined below and the overall M&E strategy that will be developed during year 1 of the programme are designed to fill in the critical gaps.
- IUCN ROWA will lead the efforts regarding baseline assessments and target setting for the biophysical indicators, using peer-reviewed methodologies.
- The PMU, with support from UNDP Jordan, will lead efforts regarding baseline assessments and target setting for other indicators, using peer-reviewed methodologies as relevant.

Summarize the annual amount of GFCR financing requested for M&E in the first 18-months of implementation. Highlight and specify any co-financing for M&E either in direct financial or in-kind contributions.

During Phase I of programme implementation, a total of $158,300 is budgeted for M&E costs, including:

- $49,800 is budgeted for ecological surveys to fill information gaps on live hard coral cover, macroalgae / other benthic groups, and reef fish biomass at the 3 programme priority sites.
- $51,000 is budgeted for the PMU M&E Expert, a consultant to develop an Environmental and Social Management Plan, and a Gender Specialist to conduct in-depth gender assessment and assist in developing gender-related indicators.
- $57,500 is budgeted under Activity 1.1.3 to assist existing monitoring programs in integrating key information, including information on changes in reef conditions in response to human or natural stressors; utilizing new technologies to exchange and visualize data on the spread of plastics on coral reefs; and evaluating the natural recovery and/or restoration processes of degraded reefs at priority sites.

Independent Mid-term and End-of programme evaluations should be costed and include as an M&E activity

- Determining the cost for independent mid-term and end-of programme evaluations will be included as an M&E activity during the inception phase (but are not costed in the Inception Phase budget)

Strategy for learning through M&E processes

- The PMU M&E Expert will develop a strategy for learning through M&E in order to support adaptive management of the programme; this may include creation of an online dashboard to highlight progress on key indicators, and will be accessible to the public in order to promote transparency and public engagement.

Table 14: Fund level M&E Framework

Fund Indicator	Sub-Indicators	Baseline	Phase I Target (18-months)	Midterm Target*	Target by 2030	Notes
1. Coral reef extent of GFCR project	F 1.1 ha of coral reefs in GFCR programming	400 ha (Jordanian part of the GoA, figure taken from the AMR Nomination File), including an estimated 200 ha in the AMR, 50 ha in the NDC, and unknown area in the SIS	AMR: No net loss NDC: No net loss SIS: No net loss	AMR: No net loss NDC: No net loss SIS: No net loss	AMR: No net loss NDC: No net loss SIS: No net loss	
2. Area (ha) of coral reefs under conservation and sustainable management	F2.1 ha of MPAs and OECMs (GBF 30x30)	Aqaba Marine Reserve: 280 ha (Note: There are no other MPAs or OECMs in Jordan)	TBD	TBD	TBD	
	F2.2 ha of locally managed and co-managed areas	0 ha	TBD	TBD	TBD	
	F2.3 ha of fisheries managed areas	700 ha (Northern Deep Corals site, although management is minimal)	700 ha	700 ha	700 ha	Fishing is prohibited in the Jordanian area of the GoA outside of these 700 ha
	F2.4 ha of area with pollution mitigation	0 ha	400 ha	400 ha	400 ha	Because of the small Jordanian area of the GoA (190 sq. km.), waste management activities will benefit all 4 sq. km. of coral reefs
3. Area (ha) of coral reefs under effective coral restoration	F3.1 ha of effective coral reef restoration	TBD	5	10	30	Baseline and targets to be confirmed
	F3.2 Number of in situ coral restoration projects	TBD	5	10	30	Baseline and targets to be confirmed
	F3.3 Number of coral restoration plans, technologies, strategies or guidelines developed	0	1	2	3	Targets to be confirmed
	F3.4 Number of coral restoration trainings	3	1 (with 50% participation of women)	2 (with 50% participation of women)	5 (with 50% participation of women)	3 coral transplanting projects associated with EIA studies; targets to be confirmed
	F3.5 Number of people engaged in coral restoration	5	30	50	75	Faculty members / technicians of the U. of

Fund Indicator	Sub-Indicators	Baseline	Phase I Target (18-months)	Midterm Target*	Target by 2030	Notes
						Jordan Aqaba and community association members will be enhanced through community participation
	F3.6 Number of response plans (incl. financial mechanisms, e.g., insurance) in place to support coral restoration after severe shocks (e.g., storms, bleaching)	NA	NA	NA	NA	
4. Change in coral reef health	F4.1 Average live hard coral cover, %	TBD	No net loss	No net loss	No net loss	
	F4.2 Average macroalgae/other benthic groups, %	TBD	TBD	TBD	TBD	
	F4.3 Average reef fish biomass, kg/ha	TBD	TBD	TBD	TBD	
5. Number of communities engaged in meaningful participation, co-development and capacity strengthening	F5.1 Number of communities engaged in meaningful participation and co-development	1	1	1	1	The entire Jordanian coastline along the Gulf of Aqaba is considered to be a single community and is managed as such by ASEZA
	F5.2 Number of local organizations engaged in meaningful participation and co-development	8 community groups (300 persons), including: Royal Marine Conservation Society of Jordan; Women's Society; Coast Women's Society; Aqaba Diving Society; Aqaba Fishing Society; Thaghr el Ordon Fishermen Society; Royal Jordanian Marine Sports Federation; and Sport Ecofishing Society	10 community groups (400 persons, with at least 30% participation of women)	12 community groups (500 persons, with at least 30% participation of women)	15 community groups (750 persons, with at least 30% participation of women)	The baseline figure is for members of community groups engaged in various forms of citizen science monitoring
	F5.3 Number of local scientific / research partners involved in strengthening capacity for participation and co-development (e.g., national universities, regional science organizations)	3 (University of Jordan, Aqaba Branch & the Marine Science Station; Aqaba Marine Reserve; Transnational Red Sea Centre)	7 (4 new: Aqaba Science & Technology Hub; Ocean X; CORDAP; KAUST)	7	7	

Fund Indicator	Sub-Indicators	Baseline	Phase I Target (18-months)	Midterm Target*	Target by 2030	Notes
	F5.4 Number of local practitioners trained / supported in coral reef conservation (e.g. community rangers)	0	20	25	25	Note: Currently, 15 members of the AMR staff and Eu-ASEZA-UNDP Project have been trained
	F5.5 Number of agreements with local authorities or fishing cooperatives to manage marine resources (e.g., LMMAs, MPAs, OECMs)	0	TBD	TBD	TBD	
	F5.6 Number of national policies linked to GFCR engagement (e.g., NBSAPs, blue economy policies, national MPA declarations)	7: National Water Strategy (2016-2025); Climate Change Policy; Sea Use Master Plan; National Biodiversity Strategy and Action Plan (NBSAP); Aqaba Marine Reserve declaration (2022); Jordan's Economic Modernization Action Plan	10	12	15	
6. Number of people supported through livelihoods, direct jobs, income, and nutrition	F6.1 Number of direct jobs created (disaggregated by gender, age, disability, Indigenous peoples, small-scale producers)	0	TBD (at least 30% for women)	TBD (at least 30% for women)	TBD (at least 30% for women)	Mohammad says we can do this in 1 year; ASEZA probably has pretty good baseline information
	F6.2 Number of people with increased income and/or nutrition from GFCR support (disaggregated by gender, age, disability, Indigenous peoples, small-scale producers)	0	TBD (at least 50% women)	TBD (at least 50% women)	TBD (at least 50% women)	
7. Number of people supported to better adapt, respond and recover to the effects of climate change and major external shocks as a result of GFCR	F7.1 total direct beneficiaries (disaggregated by gender, age, disability, Indigenous peoples, small-scale producers)	0	TBD (at least 50% women)	TBD (at least 50% women)	TBD (at least 50% women)	
	F7.2 total indirect beneficiaries (disaggregated by gender, age, disability, Indigenous peoples, small-scale producers)	0	TBD	TBD	TBD	
	F7.3 Number of financial mechanisms / reforms to help coastal communities respond and recover from external shocks (e.g., insurance, loans, village savings, restoration crisis plans, etc)	NA	~~NA~~	NA	NA	

Fund Indicator	Sub-Indicators	Baseline	Phase I Target (18-months)	Midterm Target*	Target by 2030	Notes
	F7.4 Number of governance reforms / policies to support response and recovery to external shocks (e.g., crisis management plans, reforms for temporary alternative employment)	NA	~~NA~~	NA	NA	
8. Amount of public, private, and philanthropy finance mobilized by the GFCR	F8.1 Amount, number and type of public investments	0	1 (seawater pipeline for aquaculture; USD 1 million, grant co-financing)	1 (Aquarium and Science and Technology Hub; USD 40 million, grant co-financing)		F.8.4 is based on the # of businesses supported by the CSBEI (disaggregated by Incubation, advisory, financing, and other support), as well as any businesses coming out of the Aquaculture Solution
	F8.2 Amount, number and type of private investments	0	0	500,000	1,500,000	
	F8.3 Amount, number and type of philanthropy investments	0	100,000 (grants)	300,000 (grants)	600,000 (grants	
	F8.4 Number of businesses and sectors with GFCR funding sources	0	5 businesses, 2 sectors	15 businesses, 3 sectors	30 businesses, 3 sectors	
	F8.5 Number and type of sustainable finance mechanisms	0	1 business plan for the Aqaba Marine Reserve	2	4	
	F8.6 Leverage/mobilization ratio by sector (fisheries, water quality, restoration) of GFCR investment to other mobilized financing	0	TBD	TBD	TBD	
9. Amount of revenue and ROI ($)	F9.1 Amount of revenue and ROI generated from sustainable financing (by type)	0	NA	NA	NA	
	F9.2 Number and type of sustainable revenue streams	0	NA	NA	NA	
	F9.3 Amount (and %) of revenue in local enterprises	0	0	100k (100%)	500k (100%)	
10. Number of gender-smart investments	F10.1 Number of GFCR investments qualified as 2X Challenge standards, and % of total GFCR investments	0	1 (50%)	6 (40%)	12 (40%)	

* Targets are cumulative, including previous targets

Explanatory Note on implementation of baseline studies and setting of indicator targets (if needed):

F2.1 ha of MPAs and OECMs (GBF 30x30): The targets for area of MPAs and OECMs will be based on any newly established MPAs or OECMs in the programme area. If such areas are established, the PMU will liaise with relevant authorities (e.g. Aqaba Marine Reserve, ASEZA, others) to collect information on the size of the area based on formal designation documents. Establishment of any new MPAs or OECMs is not likely to occur during the Inception Phase of the program.

F2.2 ha of locally managed and co-managed areas: Same as for F2.1, but with regard to any locally managed or co-managed areas that may be designated during the programme.

F4.1 Average live hard coral cover, %: The baseline and targets for area of live hard coral cover will first be assessed by collecting and reviewing past surveys and entering their data into the GFCR's Mermaid information platform / database, in collaboration with the University of Jordan, Aqaba and the Marine Science Station. The programme will also seek to incorporate data collected by the Transnational Red Sea Centre and Ocean X on deep coral communities in the Gulf of Aqaba. After that, if gaps exist in the data on live hard coral cover, the programme will support surveys of missing areas of coverage as part of the ecological assessments under Output 1.1. All of this data will be used to establish 18-month, mid-term and end of project targets.

F4.2 Average macroalgae/other benthic groups, %: Similar to F4.1, but for macroalgae and other benthic groups, for which some relevant data should be available from the University of Jordan, Aqaba and Marine Science Station program of monitoring of marine ecosystems since 1996. If gaps exist in the data, the programme will support surveys of missing areas of coverage as part of the ecological assessments under Output 1.1. All of this data will be used to establish 18-month, mid-term and end of project targets.

F4.3 Average reef fish biomass, kg/ha: Similar to F4.1, building on the multi-decade effort by the University of Jordan, Aqaba and the Marine Science Station to measure the presence of 60 fish species on the GoA's reef. In this case, the programme will work with these partners to generate estimate of overall reef fish biomass through field surveys and establish 18-month, mid-term and end of project targets.

F5.5 Number of agreements with local authorities or fishing cooperatives to manage marine resources (e.g., LMMAs, MPAs, OECMs): The targets for number of agreements will depend on the level of interest among key stakeholders (fishers, protected area authorities) for co-management of fisheries and/or various MPA management modalities; the programme will work with the Aqaba Marine Reserve and the two fisher associations in the region (Aqaba Fishing Society; Thaghr el Ordon Fishermen Society) to determine the feasibility of and interest in such agreements.

F6.1 Number of direct jobs created (disaggregated by gender, age, disability, Indigenous peoples, small-scale producers): The targets for direct jobs created will be established as the programme unfolds and the CSBEI Incubator begins to provide technical and finance assistance to

participating companies which will in turn create new employment. Data on jobs created (disaggregated by gender, age, disability, Indigenous peoples, small-scale producers, etc.), will be collected and used by the CSBEI staff (Director and Incubation / Finance Expert) to establish 18-month, mid-term and end of project targets. In addition, any jobs created through strengthened MPA management and business planning, or through pilot coral restoration projects, will be measured by the PMU staff and used to establish 18-month, mid-term and end of project targets.

F6.2 Number of people with increased income and/or nutrition from GFCR support (disaggregated by gender, age, disability, Indigenous peoples, small-scale producers): The targets for number of people with increased income and/or nutrition will be based primarily on the jobs created under F6.1.

F7.1 total direct beneficiaries (disaggregated by gender, age, disability, Indigenous peoples, small-scale producers): Direct Beneficiaries will include persons participating in the CSBEI incubator program or employed by one of the incubator companies; persons employed in aquaculture businesses or in coral restoration; fishermen with enhanced incomes from improved fisheries management; dive shop employees benefitting from Green Fins training programs; etc. Data on these beneficiaries (disaggregated as required) will be collected by the PMU staff and used to establish 18-month, mid-term and end of project targets.

F7.2 total indirect beneficiaries (disaggregated by gender, age, disability, Indigenous peoples, small-scale producers): The baseline figure of 208,000 is the total population of the Aqaba region, all of whom reside within 30 km. of the programme's priority sites. Data on these indirect beneficiaries (disaggregated as required) will be collected by the PMU staff (with support from ASEZA) and used to establish 18-month, mid-term and end of project targets.

F8.6 Leverage/mobilization ratio by sector (fisheries, water quality, restoration) of GFCR investment to other mobilized financing: Targets for the leverage / mobilization ratio by sector will be based on the amount of co-financing generated by enterprises receiving support from the Centre. Data on co-financing will be collected by the PMU and CSBEI staff and used to establish 18-month, mid-term and end of project targets.