

GEF-8 PROJECT IDENTIFICATION FORM (PIF)

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General Project Information

Project Title

Restoration and Preservation of Key Biodiversity Areas and Ecosystems in Anbar Province, Iraq.

| | |
|--|--------------------------------------|
| Region Iraq | GEF Project ID 11426 |
| Country(ies) Iraq | Type of Project FSP |
| GEF Agency(ies): UNDP | GEF Agency ID |
| Executing Partner UNDP | Executing Partner Type GEF Agency |
| GEF Focal Area (s) Multi Focal Area | Submission Date 10/18/2023 |

Project Sector (CCM Only)

Taxonomy

Community-based adaptation, Climate Change Adaptation, Climate Change, Local Communities, Awareness Raising, Gender results areas, Gender Equality, Learning, Theory of change, Capacity, Knowledge and Research, Focal Areas, Influencing models, Stakeholders, Climate Change Mitigation, Renewable Energy, Ecosystem-based Adaptation, Livelihoods, Climate resilience, Forest, Drylands, Biodiversity, Protected Areas and Landscapes, Terrestrial Protected Areas, Mainstreaming, Tourism, Biomes, Tropical Dry Forests, Wetlands, Land Degradation, Food Security, Land Degradation Neutrality, Land Cover and Land cover change, Sustainable Land Management, Community-Based Natural Resource Management, Ecosystem Approach, Sustainable Fire Management, Sustainable Pasture Management, Restoration and Rehabilitation of Degraded Lands, Income Generating Activities, Improved Soil and Water Management Techniques, Demonstrate innovative approach, Convene multi-stakeholder alliances, Transform policy and regulatory environments, Strengthen institutional capacity and decision-making, Communications, Education, Type of Engagement, Participation, Consultation, Information Dissemination, Partnership, Indigenous Peoples, Beneficiaries, Civil Society, Community Based Organization, Non-Governmental Organization, Academia, Private Sector, Individuals/Entrepreneurs, SMEs, Gender Mainstreaming, Sex-disaggregated indicators, Women groups, Access to benefits and services, Participation and leadership, Capacity Development, Access and control over natural resources, Food Value Chains, Food Systems, Land Use and Restoration, Integrated Programs, Comprehensive Land Use Planning, Landscape Restoration, Integrated Landscapes, Resilience to climate and shocks, Food Security in Sub-Sahara Africa, Smallholder Farming, Land and Soil Health, Sustainable Production Systems, Gender Dimensions, Small and Medium Enterprises, Agroecosystems, Integrated Land and Water Management, Commodity Supply Chains, Sustainable Commodities Production, Smallholder Farmers, Targeted Research, Innovation, Knowledge Generation, Knowledge Exchange

| | |
|--|------------------------------------|
| Type of Trust Fund GET | Project Duration (Months) 48 |
| GEF Project Grant: (a) 5,722,146.00 | GEF Project Non-Grant: (b) 0.00 |

| | |
|---|------------------------------------|
| Agency Fee(s) Grant: (c) | Agency Fee(s) Non-Grant (d) |
| 543,604.00 | 0.00 |
| Total GEF Financing: (a+b+c+d) | Total Co-financing |
| 6,265,750.00 | 45,900,000.00 |
| PPG Amount: (e) | PPG Agency Fee(s): (f) |
| 150,000.00 | 14,250.00 |
| PPG total amount: (e+f) | Total GEF Resources: (a+b+c+d+e+f) |
| 164,250.00 | 6,430,000.00 |
| Project Tags | |
| CBIT: No NGI: No SGP: No Innovation: No | |

Project Summary

Provide a brief summary description of the project, including: (i) what is the problem and issues to be addressed? (ii) what are the project objectives, and if the project is intended to be transformative, how will this be achieved? (iii), how will this be achieved (approach to deliver on objectives), and (iv) what are the GEBs and/or adaptation benefits, and other key expected results. The purpose of the summary is to provide a short, coherent summary for readers. The explanation and justification of the project should be in section B “project description”. (max. 250 words, approximately 1/2 page)

Western Iraq, specifically Anbar province, faces an urgent need for ecosystem restoration. Over 50% of Iraq’s territory is arid desert and the interplay of climate change with unsustainable farming has eroded biodiversity, vegetation, and agricultural yields. This degradation not only threatens human well-being but also amplifies poverty risks among vulnerable groups. The project aims to enhance the resilience of Anbar's ecosystem by restoring KBAs and incorporating biodiversity conservation into sustainable land management.

The project will address gaps in biodiversity conservation and apply an integrated approach of policy reforms, strengthening of capacities and systems for integrated landscape management, and support the deployment of nature-based solutions to restore the oases ecosystem in Anbar province. The project aligns with the GEF’s goal to achieve healthy and resilient ecosystems, contributing to GEF’s core indicators on 1, 4, 6 and 11.

The project will introduce landscape management and conservation approaches, improving environmental knowledge, particularly on ecosystem services generated by 11,819,000 ha in Anbar. To improve conservation, sustainable use and restoration of natural ecosystems and integrated land management, the project will support conservation of species and habitats unique to western Iraq. The project will support Iraq's government in creating new Protected Areas in the west, support landscape resilience building against climate threats, strengthen institutional capabilities for, and promote adoption of sustainable practices in the agricultural and arable land use sector in Anbar. The project activities will provide benefits to a total of 225,000 individuals, with women comprising 50% of this beneficiary group.

Indicative Project Overview

Project Objective

To enhance Iraq’s natural ecosystem resilience by integrating biodiversity and ecosystem services concerns into environmental land use planning and sustainable land management policies and practices.

Project Components

Component 1: Enabling environment established at national and sub-national levels (Anbar Province) to enhance integrated natural resources management and facilitate increased investments in biodiversity and ecosystem conservation, sustainable use and restoration

| | |
|----------------------------|-------------------|
| Component Type | Trust Fund |
| Technical Assistance | GET |
| GEF Project Financing (\$) | Co-financing (\$) |
| 750,000.00 | 5,664,523.00 |

Outcome:

Outcome 1.1:

Strengthened policies, regulatory and governance frameworks for effective biodiversity conservation, sustainable land management and ecosystem restoration

Indicators and targets:

Up-to-date policies, regulations and strategies in place and operational

Cross-sectoral coordination mechanisms and capacities in place at national and sub-national levels to facilitate dialogue and collaboration.

A participatory national Spatial and Land Use Planning Framework and Guidelines finalized for approval

Integrated Land Use Plan for Anbar Province developed and approved and under implementation

Provincial biodiversity and ecosystem restoration strategy and finance plan developed and approved for implementation.

Output:

Output 1.1.1: Review/update legal, policy, and institutional frameworks and establish/strengthen cross-sectoral coordination mechanisms and capacities to enable inclusive and integrated management of biodiversity, critical landscapes and ecosystems,

Output 1.1.2: Develop a participatory and gender-responsive national-level spatial and land use planning framework and guidelines and support the preparation and implementation of an Integrated Land Use Plan for Anbar Province to guide conservation, sustainable use and restoration of KBAs, landscapes ecosystems.

Output 1.1.3: Formulate a provincial biodiversity conservation and ecosystem restoration strategy and finance plan, building on and coordinating with the national process for development of Iraq’s Biodiversity Finance Plan.^[1]

Output 1.1.4: Identify, design and implement finance solutions to protect Anbar’s biodiversity and restore its ecosystems (KBAs, PAs).

Component 2: PAs established and Anbar Province KBA management strengthened through comprehensive planning, financing, and adaptive co-management approaches

| | |
|----------------|------------|
| Component Type | Trust Fund |
|----------------|------------|

| | |
|----------------------------|-------------------|
| Investment | GET |
| GEF Project Financing (\$) | Co-financing (\$) |
| 3,050,000.00 | 24,681,135.00 |

Outcome:

Outcome 2.1:

Ecosystem assessments and valuation of targeted PAs and KBAs, for effective evidence-based management decision-making to strengthen protection and conservation status of species, critical habitats and ecosystems

Indicators and targets:

Comprehensive ecosystem assessments of the 5 identified KBA sites and valuation completed and report available and informing decision-making

30% increase in availability of data and information on the status of biodiversity and ecosystems in Anbar province

Gender-disaggregated data and information within the updated assessments and resultant strategies compared to the baseline data

Outcome 2.2

New PAs established, management plans developed and operational capacities in place for effective PA management in Anbar Province

Indicators and targets: 388,847 hectares designated as national protected areas (GEF Core Indicator 1)

280,178 ha Area of landscapes under improved management to benefit biodiversity (Core indicator 4.1)

5 new management plans for KBAs and PAs developed and effectively implemented in Anbar

Capacity scores of PAs improved (METT scores increase by 25% from baseline) by end of project

Number of PA staff (men and women) trained on PA management

Output:

Output 2.1.1: Conduct/update ecological, socio-economic profiles and biodiversity threat assessments of Anbar's PAs and KBAs, applying the Economics of Ecosystems and Biodiversity (TEEB) and KBA criteria and standards to evaluate and determine ecosystem health and inform priority management measures

Output 2.1.2: Package data and results from assessments and develop technical guidelines and decision-support tools to inform design and implementation of conservation, sustainable management and restoration measures and interventions

Output 2.1.3: Develop an interactive digital platform and information database (and train staff on its use) on Anbar's biodiversity and ecosystems to store, analyze and share data and information and inform management decisions

Output 2.1.4: Train and build capacity of local communities, CSOs, youth and women's groups, to contribute to monitoring and assessment of ecosystem status and health through citizen-science methods and approaches.

Output 2.2.1: Support preparation of dossiers and process for official designation and listing of two new protected areas, ensuring participatory, inclusive and gender-responsive community engagement

Output 2.2.2:

Develop PA and KBA management plans, and implement key priority actions, ensuring inclusive and participatory approaches that consider gender dimensions

Output 2.2.3: Institutionalize the use of an Integrated Management Effectiveness Tool (IMET) to track Protected Area Management Effectiveness and to inform management decisions and IUCN Green Listing process in the two sites designated as PAs.

Output 2.2.4: Assess capacity and training needs of PA staff and agencies at national and Anbar Province levels, and develop and roll out a training program to enhance PA management capacities and skills.

Component 3 Integrated Landscape Management and enhanced resilience of natural resource-based livelihoods in Anbar Province

| | |
|----------------------------|-------------------|
| Component Type | Trust Fund |
| Investment | GET |
| GEF Project Financing (\$) | Co-financing (\$) |
| 1,250,000.00 | 10,115,219.00 |

Outcome:

Outcome 3.1

Rangelands, woodlands, and wetlands under improved practices including in production sectors

Indicators and targets:

Area of landscapes under improved practices (excluding PAs and KBAs) 11,430,153 ha (GEF core indicator 4)

- *Ground vegetation density (+10% overall)*

ha of replanted woodlots with >75% survival (target 500 ha Indigenous species).

- *17,960 GHG emissions mitigated metric ton of CO2 (GEF Core Indicator 6)*

Number of local individuals trained and participating (including women) in ecosystem restoration and biodiversity conservation methods and interventions (50% women)

Outcome 3.2

Strengthened local livelihoods and incomes from sustainable use practices and alternative income generating activities that alleviate pressure on natural resources, enhance productivity, and build climate resilience

Indicators and targets:

225,000 beneficiaries participate in project supported interventions (over 50% females)

2 crops yield increased at least 10%

Incomes of participating households and individuals increased by 10% in Anbar province by end of project

Number of new value chains supported to increase productivity and access sustainable markets.

Output:

Output 3.1.1: Design and implement community-led targeted restoration interventions in degraded landscapes and ecosystems (forests, rangelands, wetlands) through nature-based solutions, including tree planting initiatives that actively engage both men and women.

Output 3.1.2 Train and build the capacities of local actors/individuals, community groups and SMMEs to participate in and engage in PA co-management arrangements.

3.2.1: Identify and pilot implementation of renewable energy technologies aimed at sustainable farming and agri-food solutions, ensuring increased access for women and female-headed households

3.2.2. Support for diversified alternative livelihood and income generating activities such as eco-tourism, beekeeping, handicrafts, and adoption of technologies such agroforestry (e.g., date palm) and integration of silvo-pastoral production systems to diversify income, with a focus on women and female-headed households

3.2.3. Support development of business support services, value chains and sustainable markets for sustainably sourced and agroecological goods and services, including those linked to conservation and restoration investments

M&E

| | |
|----------------------------|-------------------|
| Component Type | Trust Fund |
| Technical Assistance | GET |
| GEF Project Financing (\$) | Co-financing (\$) |
| 402,044.00 | 3,188,810.00 |

Outcome:

Outcome 4.1

Project-generated knowledge and lessons shared, and results and impact communicated and disseminated for wider learning

Indicators and targets:

No. of knowledge products developed and shared with local/national and global audiences

Outcome 4.2 Adaptive management of project activities in line with UNDP and GEF M&E and SES policies realized

Indicators and targets: MTR and TE delivered on time and according to expected quality (targets: MTR, TE and PIR independent quality ratings S or better)

Gender action plan fully implemented and reported in PIRs, MTR and TE

Stakeholder engagement plan fully implemented by end of project

Output:

Output 4.1.1 Develop and implement strategies for sharing/ exchanging knowledge, lessons and communicating project results and impacts, showcasing benefits for men and women (i.e., gender-disaggregated data)

Output 4.2.1: Implement project M&E plan and results reported through Project Board, quarterly and annual reports (PIRs), MTR, and TE

Output 4.2.2: Develop and implement a plan and report on project-level safeguards and risk management measures, including gender action plan and stakeholder engagement plan

Component Balances

| Project Components | GEF Project Financing (\$) | Co-financing (\$) |
|--|----------------------------|-------------------|
| Component 1: Enabling environment established at national and sub-national levels (Anbar Province) to enhance integrated natural resources management and facilitate increased investments in biodiversity and ecosystem conservation, sustainable use and restoration | 750,000.00 | 5,664,523.00 |
| Component 2: PAs established and Anbar Province KBA management strengthened through comprehensive planning, financing, and adaptive co-management approaches | 3,050,000.00 | 24,681,135.00 |

| | | |
|---|---------------------|----------------------|
| Component 3 Integrated Landscape Management and enhanced resilience of natural resource-based livelihoods in Anbar Province | 1,250,000.00 | 10,115,219.00 |
| M&E | 402,044.00 | 3,188,810.00 |
| Subtotal | 5,452,044.00 | 43,649,687.00 |
| Project Management Cost | 270,102.00 | 2,250,313.00 |
| Total Project Cost (\$) | 5,722,146.00 | 45,900,000.00 |

Please provide justification

PROJECT OUTLINE

A. PROJECT RATIONALE

Briefly describe the current situation: the global environmental problems and/or climate vulnerabilities that the project will address, the key elements of the system, and underlying drivers of environmental change in the project context, such as population growth, economic development, climate change, sociocultural and political factors, including conflicts, or technological changes. Describe the objective of the project, and the justification for it. (Approximately 3-5 pages) see guidance here

Covering an expansive 137,808 Km², of Western Iraq, the Anbar Province holds historical significance and rich ecological diversity for the country and the region. This region aligns with two globally recognized ecoregions and features a rich tapestry of arid terrains and grassy expanses. It is home to unique desert and steppe habitats that support a wide range of flora and fauna, thereby sustaining the indigenous local communities across this vast area. Extending through Northern Mesopotamia, Anbar Province shares ecological and geographical ties with Syria, Jordan, and Saudi Arabia. Throughout history, this governorate has been the agricultural hub of Iraq, benefiting from its fertile soil and a plentiful water supply originating from the Euphrates River and nearby lakes.

Agriculture has traditionally been the cornerstone of livelihoods for the semi-rural population, with over 40% of Anbar's women earning their income from this sector prior to the war. Anbar's strategic importance is further underscored by its identification of five Key Biodiversity Areas (Haditha Wetlands and Baghdadadi, Tharthar Lake and Al-Dhebaeji Fields, Habbaniya Lake, Qadissiya Lake, and Ga'ara), and two natural reserves (Al-Masad and Al-Dhabaa), making it a critical focal point for environmental conservation, social development, and scientific research in Iraq. Please see Annex C for further detail on the project site.

The proposed project aims to restore and conserve key biodiversity areas and ecosystems in Anbar Province, Iraq. It will enhance Iraq's ecosystem resilience by integrating biodiversity and ecosystem services concerns into environmental land use planning, sustainable land management policies and practices, and livelihoods opportunities in a gender sensitive manner. The project will employ an integrated strategy of legislative reforms, landscape management improvements, and implementation of nature-based solutions to restore the oasis ecosystems in Anbar Province, Western Iraq.

Key environmental trends and drivers

According to the Government of Iraq, 92% of the total area of Iraq is at risk of desertification; 90% of the area of Iraq is located within the dry-semi-dry climatic zone, and high summer temperatures reach more than 50 degrees Celsius. In recent years, climate change has negatively impacted large areas of western Iraq by increasing desertification, weakening agricultural productivity and severely impacting rangeland ecosystems and livestock grazing, putting further pressure on available resources, leading to more degradation and loss of vegetative cover, with negative consequences for human and food security of the country.

To date, there are 23 protected areas in Iraq listed in the 6th National Report to the CBD (2018)^[41]. In total these 23 sites protect 1.53% of the land area of Iraq (which equates to a land area protected of 6,714km² of total land area 437,831 km²). Two pivotal legal frameworks, Law No. 27 of 2009 on Environmental Protection and the Protected Areas Law No 2 of 2014, have been instituted. However, the management of these PAs is either non-existent or inefficient due to funding and capacity constraints. While the 2014 regulation on PAs represents a significant step forward in planning, establishment, and management, there's a need for enhanced enforcement, coordination, and capacity building. Despite these strides, there remain gaps in the institutional and legislative framework. There's a pressing need for better integration among the frameworks and policies to ensure they complement rather than conflict with each other.

The following section highlights the key trends and drivers that exacerbate the pressure on biodiversity and the natural ecosystem, causing biodiversity loss and ecosystem degradation in the area.

Biodiversity loss: Based on the Environmental Performance index (EPI) 2022, Iraq is ranked 169 out of 180 countries. Using 40 performance indicators across 11 issue categories, the EPI ranks 180 countries on climate change performance, environmental health, and ecosystem vitality. The Anbar Province and region face significant biodiversity decline due to a range of issues. These include the growth and intensification of agriculture, excessive ecosystem utilization, activities like logging, hunting, and over-fishing, as well as disturbances from human activities such as recreation, military operations, and other endeavors. In Anbar, hunting, particularly of large mammals, game birds, and raptors like the Saker Falcon and Peregrine Falcon during winter, poses a significant threat. The impact of hunting and fishing on biodiversity is profound. Historically, Anbar was a haven for Arabian Sand Gazelle, which were often seen near the eastern side of the Euphrates. However, due to intense hunting, their sightings have become rare. Electro-fishing, a technique introduced from southern Iraq, is also prevalent along the Euphrates River, as confirmed by local fishermen. Iraq's bird populations are also at risk, with over 30% of its bird species facing the threat of extinction. Anbar's biodiversity is impacted by increasing urbanization and tourism projects. Notably, the Habbaniyah tourism village has a pronounced effect on the local ecosystem. The influx of visitors during spring and summer leads to significant environmental degradation, with vast amounts of solid waste, including cans and plastics, littering the area and surrounding the lake. Additionally, numerous villages situated on the lake's southern and eastern peripheries discharge sewage and other waste into the lake.

Land degradation is a major environmental issue facing Iraq; more than 39% of Iraq's land area is desert.^{[1]³} Erosion plays a major role in increasing part of the permanent pasture areas, which influence vegetation cover. Moreover, due to climate change impacts, poor agricultural practices, and over-exploitation, much of the cropland is losing its inherent productivity. The semi-desert areas, in particular, have suffered from severe loss of vegetation because of overgrazing, off-road vehicle disturbance, urbanization and construction, and tourist activities. The rangelands and forest resources are deteriorating mainly because of overstocking what are essentially fragile ecosystems and because of deforestation for fuelwood and charcoal. Further, there is a deep gap in information on the biodiversity status and land management needs and the impact of climate change is still not fully understood across Iraq. As a result, Iraq faces serious problems of environmental degradation that must be addressed immediately because failure to act now will greatly compound the cost and complexity of later remedial efforts, and because environmental degradation is beginning to pose a major threat to human well-being which could lead to increase poverty, especially among the vulnerable segments of local communities.

Water scarcity: The Tigris and Euphrates rivers, Iraq's primary water sources, have seen significant reductions in flow, with significant impacts on ecosystems that depend on these resources. By 2021, these rivers had witnessed a decline of up to 40% compared to their flow in the 1970s. Compounding the physical scarcity, Iraq's water infrastructure, much of which dates back to the 1950s and 1960s, has suffered from underinvestment, leading to inefficiencies and losses. Population growth, with Iraq's population projected to double by 2050, and climate change, which is expected to reduce annual rainfall by 10% by 2040, further exacerbate the water scarcity challenge.

Rural livelihoods and natural resource dependence: Rural communities in Iraq heavily rely on local natural resources, a dependency that intensifies as formal job opportunities diminish. The average rural household consists of 6.3 individuals (as of 2019). The escalating rural poverty can be attributed to a combination of factors: a swift 2.3% population growth in 2019, ongoing internal conflicts, climate change repercussions, escalating water shortages, and rapid desertification,

indicating environmental sustainability concerns. These challenges have curtailed the potential for sustainable rain-fed and irrigated agriculture, livestock production, and other stable income avenues for the rural populace.

Gender parity: The recent conflicts have led to a rise in female-headed households, especially among the poor and farming communities in Iraq. These women face compounded challenges, including limited access to resources, vulnerability to violence, and societal pressure. Poverty has a gendered face in Iraq. Women, especially in rural areas, have limited access to resources, land ownership, and credit facilities. Their roles in agriculture are often confined to labor-intensive tasks without control over the produce or income.

Without the GEF investment/ Current Baseline Scenario: The socio-ecological pressures in Anbar would continue to generate cumulative environmental impacts, including land degradation and biodiversity loss. The use of unsustainable farming practices, , population growth and the increasing dependence on natural resources for livelihoods in face of increasing poverty and a coping mechanism, and behaviors that rely on and promote the overexploitation of natural resources, will continue to worsen, and will be compounded by the impacts of climate change on ecosystems. Urbanization and commercial and industrial developments will continue to impose critical impacts on natural resources in the absence of effective land use planning and integrated landscape management approaches. As a result, land degradation will be amplified, contributing to biodiversity loss, including possible extinctions of already threatened species, and reducing overall ecosystem resilience, jeopardizing the ecosystem goods and services critical for livelihoods and climate resilience for local communities. The failure to act now will greatly compound the cost and complexity of later remedial efforts, and because environmental degradation is beginning to pose a major threat to human well-being, further compounding the socio-economic situation of already poor households and communities, and leading to loss of livelihoods, food and water insecurity, health problems, and increased susceptibility of local communities to climate risks and hazards.

With the project scenario: Considering the pressing global environmental challenges and climate vulnerabilities, prioritizing the conservation and restoration of Key Biodiversity Areas and Protected Areas, and crucial ecosystems in Anbar is paramount. This will bolster Iraq's ecological resilience and safeguard remaining species and ecosystems, raise their profile and visibility, and catalyze a shift in behaviours and action to become more nature positive. Investments to mainstream biodiversity considerations and sustainable land management into policies, strategies, and practices of sectors such as agriculture, urban and industrial development, could facilitate a strong shift towards environmental stewardship. The initiative will adopt a holistic approach, emphasizing policy reforms, enhancing integrated landscape management capacities and approaches, and demonstrating and scaling up proven nature-based solutions to address the intertwined challenges of climate change and biodiversity loss and ecosystem degradation, focusing on Anbar's ecosystems and landscapes. With support from the GEF and UNDP, Iraq aims to safeguard and restore its environmental assets, build resilience, and stimulate green socio-economic growth across Anbar. Collectively, these efforts will generate environmental benefits at the local and global levels, including conservation of key species of fauna and flora, and unique ecosystems found in Anbar, while also strengthening the resilience of livelihoods and household economies that are dependent on the environmental goods and services generated by nature in this region.

Barriers to the achievement of the with-project scenario

- **Weak natural resource management policies and governance structures:** The existing environmental policy and legislative framework (see Iraq' 6th CBD National report) is inadequate and ineffective in preventing environmentally destructive practices and behaviour. There is inadequate enforcement mechanisms and absence of clear guidelines and accountability measures for the sustainable use and conservation of natural resources. This leads to unchecked exploitation, misallocation, and potential conflicts over resource rights. Over time, this can result in widespread environmental degradation, loss of biodiversity, and diminished

resource availability, which can have cascading effects on socio-economic stability, human well-being and security.

- **Lack of effective land use plans that integrate biodiversity & SLM:** In the targeted locations, a holistic landscape management approach is missing. Further compounding the issue is the significant data deficit on biodiversity and ecosystems among those in decision-making roles and professionals/practitioners overseeing natural resource management. This gap in information and awareness extends to the broader public as well and impedes societal understanding and appreciation of biodiversity and nature's importance human development and economic well-being and its susceptibility to the various threats imposed by human activities.
- **Limited/lack of scientific, social and economic data:** Iraq faces a significant deficit in scientific, social, and economic data essential for decision-making on the conservation and management of KBAs and PAs. This data gap complicates the task of effectively managing natural resources. Furthermore, there's a missed opportunity to integrate climate resilience, biodiversity, and SLM considerations into broader development and land use policies, strategies and practices. Compounding this issue is the lack of effective public awareness raising and knowledge transfer to rural communities in a manner that's both locally relevant and complements the traditional knowledge to inform human-environment interactions.
- **Limited capacity for institutionalising sustainable land management and biodiversity conservation:** Government institutions charged with the legal responsibilities of managing natural resources in Iraq have weak capacities for evidence-based planning, policy and strategy development and implementation, law enforcement, and provision of technical advisory support and guidance to local communities. In addition, the participation of the local actors in natural resources management is limited due to a lack of awareness and capacity-building efforts, as well as a lack of effective communication between them and the relevant government agencies at all levels.

Lack of investments in establishment and management effectiveness of protected area system:

Despite efforts made to expand the protected area network in the country, especially through the KBA - program (2016), the coverage of protected areas nationally (currently 1.53% of national territory) is still low and inadequate to protect biodiversity. The effectiveness of PA management in the existing system (the 1.53%) is also weak, resulting in the continued exposure of remaining biodiversity and ecosystems to an array of dire threats well described above, and in the Nature Iraq (2017).

- **Lack of sustainable livelihoods opportunities for local communities:** In Iraq, there's a notable scarcity of effective models to demonstrate both sustainable utilization of natural resources and positive economic outcomes. Often, the exploitation of these resources occurs without adequate attention to biodiversity or the overall health of ecosystems. This oversight can be attributed two main factors: the dearth of sustainable and economically viable alternatives available to local communities, limited access to modern energy technologies and climate-smart agriculture (CSA) technologies and secondly, the absence of holistic planning that integrates environmental and sustainability considerations. As a result, communities are neither equipped with knowledge, skills and tools nor incentivized to modify their livelihoods strategies and practices to align with biodiversity conservation and environmental stewardship objectives.

The decision to prioritize the project addressing environmental degradation and climate vulnerabilities in Anbar by the government is underpinned by several compelling factors:

- Iraq is one of the Middle East's most climate vulnerable countries. The combination of its hydrological limitations, increasing temperatures, and anthropogenic impacts on land quality and food insecurity, necessitates an urgent imperative to counter further land degradation by implementing climate-sensitive sustainable land management policies, strategies, and practices.
- Iraq is a vast, biodiversity-rich and ecologically diverse country, encompassing seven main terrestrial ecoregions and is one of the range countries for many migratory raptors enroute to their wintering grounds in Arabia and Africa, therefore, instituting environmental sustainability and stewardship at the national level could contribute significantly to global and regional efforts to conserve biodiversity, habitats, and prevent species extinctions.

- Anbar Province in particular hosts 5 Key Biodiversity Areas, and 2 natural reserves, making it a critical focal point for restoring and conserving key biodiversity areas, protecting wild species of fauna and their habitats, and for scientific research in Iraq that can benefit the world.
- With its diverse terrain, including alluvial plains, mountains, and deserts, and covering approximately one-third of Iraq's total area, Anbar provides a solid foundation for replicating the project's results and best practices in other regions of the country and beyond.

The project is therefore designed to address urgent climate, environmental, economic, and social challenges collectively within Iraq's most extensive and ecologically diverse region, serving as a blueprint for showcasing and duplicating its success.

Stakeholder involvement and consultation processes are critical to the success of this project. An effective engagement of key stakeholders was secured during the project initiation, including observation visits to the fields of the Key Biodiversity Areas of Anbar, consultations with local and national authorities, and a local NGO. Consultations are planned to be carried out further during the project design with key stakeholders, academia, private sector and local communities and indigenous groups. The project will involve a diverse array of stakeholders, encompassing governmental bodies like the Ministry of Environment, Anbar Governorate, Ministry of Planning, Ministry of Agriculture, Ministry of Culture, Tourism and Antiquities. Additionally, it will engage Civil Society Organizations and Women's groups, (for more details, please refer to the Stakeholders Engagement table in Section B). For each selected project activity, as well as for larger programmatic interventions, a comprehensive mapping of community stakeholders will be undertaken to ensure inclusiveness and participation of all stakeholders at the grassroots level. This collective effort aims to implement both top-down and bottom-up approaches for conserving biodiversity and restoring ecosystems. The project strives for a comprehensive and sustainable partnership between community members and policy makers, working together to tackle the complexities arising from climate change, while strengthening environmental resilience, empowering local communities as active agents and stakeholders in natural resource governance, and advancing holistic strategies for local development.

UNDP will collaborate with the Implementing Entities (Ministry of Environment and Anbar Governorate) to carry out activities through a DIM (Direct Implementation Modality) arrangement, as per the request of government. Project progress will be managed by the Project Manager, with the support of the Project Management Unit (PMU) and a Project Steering Committee, the structure of which will be finalized during PPG phase.

Current landscape of investments and stakeholders

Despite the environmental challenges faced, the Iraqi government has consistently demonstrated its dedication to biodiversity conservation and environmental sustainability. This commitment is evident in the National Biodiversity Strategy and Action Plan (NBSAP 2015-2020), which outlines 23 strategic national biodiversity targets and 34 actions spanning five years. Currently, the process for initiating NBSAP review is initiating, with the support from the GEF and UNDP. In line with its obligations as a CBD member, Iraq has submitted its 4th, 5th, and 6th National Reports in 2010, 2014, and 2018, respectively. Various Ministries, notably the Ministry of Environment and Ministry of Agriculture, have collaborated with multilateral and bilateral agencies on numerous projects to address environmental degradation challenges. Iraq has developed several national policies and strategies concerning climate change, environmental protection, biodiversity conservation, and sustainable agriculture. Additionally, it has ratified numerous international agreements. Several initiatives have been undertaken to bolster Iraq's efforts in shaping national policies, strategies, and plans for environmental conservation and sustainable growth. Notably, the National Environmental Strategy and Action Plan of Iraq, unveiled in June 2013, was a collaborative effort between Ministry of Environment, UNEP, and UNDP. GEF-funded projects through UNEP have also been instrumental in the development of Iraq's NBSAP 2015-2020 and the National Capacity Self-Assessment.

The proposed project is linked to others ongoing and previously implemented in Iraq and considers the good practices and lessons learnt, and will coordinate with the following ones:

1. FAO: Sustainable Land Management for Improved Livelihoods in Degraded Areas of Iraq project (GEF6, \$3,5mln)

The project aimed to reverse land degradation, and sustainably manage land and water in Southern Iraq's deteriorated marshland ecosystems, enhancing ecosystem resilience and improving livelihoods.

The lessons learned and good practices can be drawn from participatory approaches, particularly involving local communities and stakeholders in decision-making processes and in identifying local needs, priorities, and traditional knowledge for sustainable land management.

2. UNEP: Promotion of Integrated Biodiversity Conservation and Land Degradation Neutrality in Highly Degraded Landscapes of Iraq (GEF 7, \$4.5mln).

The project targets sustainable land management and biodiversity conservation in two Key Biodiversity Areas, Razzaza and Sawa lakes in South and Central Iraq. It aims to integrate these practices into national policies, creating a supportive institutional, legal, policy and economic environment. The initiative introduces two new protected areas and is supporting implementation of sustainable land management in two governorate agricultural zones, aligning with Iraq's 2017 LDN targets. Additionally, it emphasizes knowledge management, awareness-raising, and best practice dissemination. Partnering with UNEP, the proposed project will create an inclusive, gender-responsive Integrated Biodiversity Management Framework at multiple levels.

3. UNEP: Iraq Marshlands Restoration Project (\$11mln, Japan)

The project aimed to re-flood the marshes, promote sustainable resource management, and improve the livelihoods of the Marsh Arab communities while conserving the unique biodiversity of the area. Drinking water and sanitation systems were installed in key communities and piloted wetlands restoration undertaken for the benefit of people and wildlife. The activities helped train experts in wetland management and restoration, remote sensing and spatial analysis and community-based natural resource management, and partially funding was allocated to public awareness schemes, both locally and internationally.

The project provides several valuable lessons on good practices in the field of environmental restoration, community development, and sustainable resource management, including trainings of experts in wetland management, restoration, remote sensing analysis, and community-based resource natural management have proven to be a valuable investment. It built local capacity to continue and expand the restoration efforts beyond the project's duration. Allocating funds for public awareness schemes, both locally and internationally, helped raise awareness about the value of wetland ecosystems, garner support, and attract additional funding for similar projects.

4. UNDP: Human and Biodiversity Resilience (Canada, \$3.6mln, 2023-2026)

The project focuses on assessing the ecosystems of the Central Marshes, and among others, enforcing regulations and laws on sustainable hunting and fishing.

The project will provide lessons from the ecosystem assessments that can be inform interventions in the GEF-8 project for conducting similar studies and assessments in Anbar Province (Component 1). In addition, the lessons learnt on culturally sensitive interventions such as enforcement of laws on sustainable hunting and fishing will be useful for informing the GEF-8 project.

5. UNDP: Global Biodiversity Framework Early Action Support (GEF-7, \$263,000, 2023-2025).

The overall objective of the GBF-EAS is to fast-track readiness and early actions to implement the post-2020 Global Biodiversity Framework by providing financial and technical support to Iraq to the Convention on Biological Diversity in their work to review and align their national targets, National Biodiversity Strategies and Action Plans, policy frameworks, monitoring frameworks and finance with the Global Biodiversity Framework.

GEF-7 project will be coordinated with the project's efforts in Anbar to ensure that the restoration plans for the province are harmonized with the recently updated National Biodiversity Strategy and Action Plan (NBSAP) targets, and that Biodiversity Finance Activities are also in sync with this alignment.

6. UNDP: Global Biodiversity Finance Program (GEF-8, 2023-2027)

The objective of this project is to enable countries to mobilize resources at scale to implement the Kunming-Montreal Global Biodiversity Framework by supporting baseline diagnostics, capacity building, institutional arrangements, and development of biodiversity financing plans. Specific finance outcomes include: expenditures realigned to reduce negative impacts on biodiversity and make positive contributions towards biodiversity; future expenditures that have a negative impact on biodiversity avoided; generation of new financing targeted towards biodiversity; and cost-efficiencies made to current conservation practices that release additional finance for biodiversity. The project aims to support countries to establish a sound baseline of the existing financing landscape and needs, and to design comprehensive national biodiversity financing strategies in each country to reduce the national financing gap to enable implementation of the GBF. This Programme will outline an action agenda to support the reduction or redirection of resources causing harm; generate additional financial and non-financial resources from all sources; and enhance the effectiveness and efficient use of financial resources.

Component 1 of the proposed GEF-8 project will coordinate closely with this Program to ensure that planned development of the Anbar Province Biodiversity and Ecosystem Restoration Strategy and Finance Plan builds on national level work, including the studies, assessments and expenditure reviews and outcomes of policy dialogues that will result from this national process.

B. PROJECT DESCRIPTION

Project description

This section asks for a theory of change as part of a joined-up description of the project as a whole. The project description is expected to cover the key elements of good project design in an integrated way. It is also expected to meet the GEF's policy requirements on gender, stakeholders, private sector, and knowledge management and learning (see section D). This section should be a narrative that reads like a joined-up story and not independent elements that answer the guiding questions contained in the PIF guidance document. (Approximately 3-5 pages) see guidance here

The proposed project aims to restore and protect key biodiversity areas and ecosystems in Iraq's Anbar Province. It will increase the resilience of Iraq's ecosystems by mainstreaming biodiversity and ecosystem management considerations into environmental land use planning, land management policies, strategies and practices, and livelihoods activities of natural-resource dependent communities, ensuring gender-sensitivity and responsiveness.

Theory of change: The project's theory of change is rooted in the understanding that the urgent action to protect, restore and sustainably use Anbar Province's biodiversity and ecosystems requires a multi-faceted, gender-responsive and participatory process anchored on a whole-of-government and whole-of-society approach to addressing the environmental challenges facing the country and the province. Key in this is the need to enable integrated landscape management approaches that facilitate multistakeholder and cross-sectoral collaboration for developing an alternative vision towards transformed and thriving landscapes for people and nature. The resilience of biodiversity, landscapes and ecosystems against climate-induced and anthropogenic pressures will be resilient on increased investments driven by a proper valuation of the contributions these ecosystems make to society and economies at all levels – individual, household, sub-national and national. With the appropriate conditions in place, e.g., political will and enabling environment, the proposed interventions are well positioned to generate the envisioned outcomes, results, and impact.

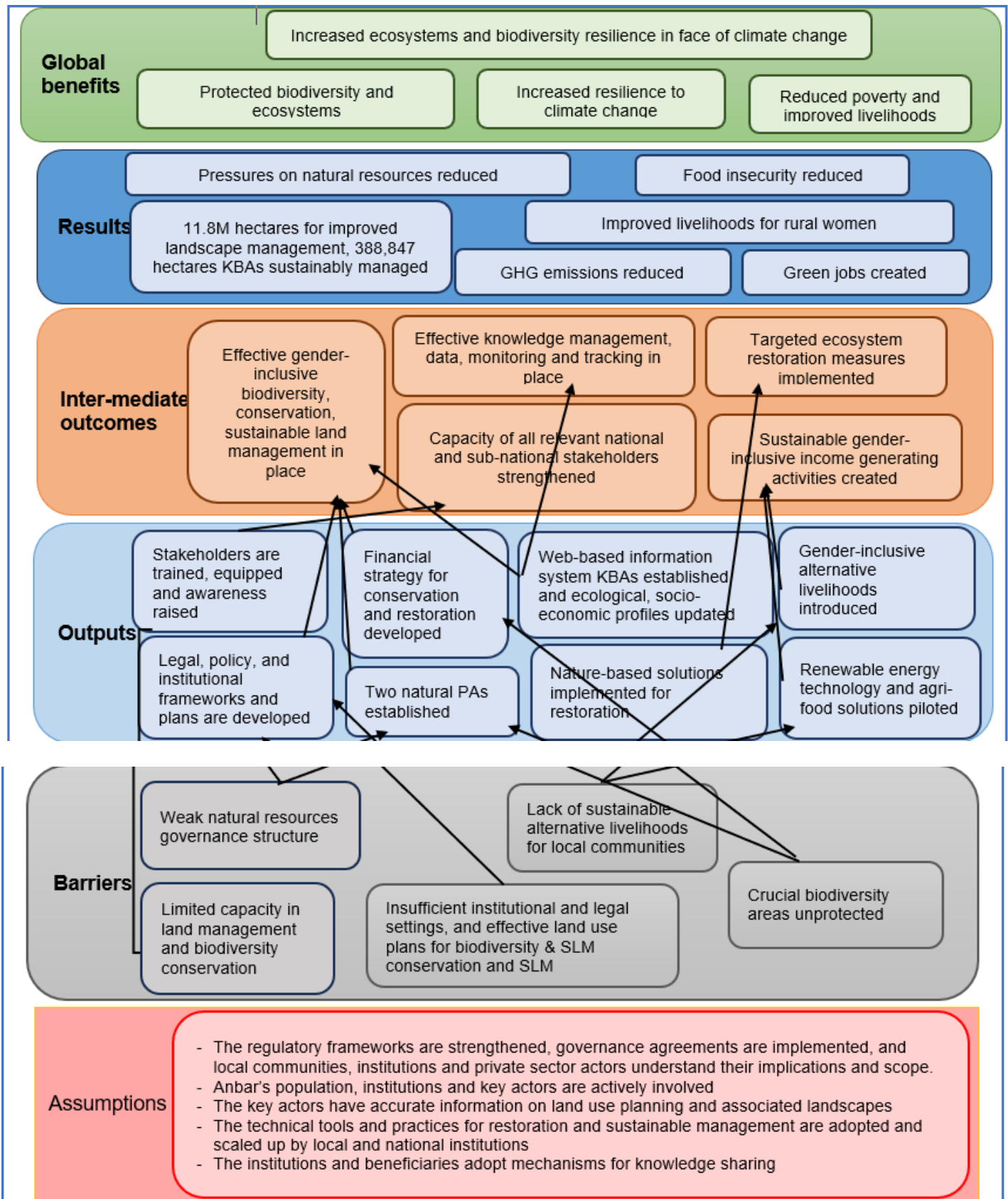
By establishing an enabling policy environment, through establishment, reforms and enforcement of policy, regulatory and legal frameworks that promote, demonstrate and incentivize use and adoption of good land and

natural resource use practices, and deter harmful ones, and through strengthening institutional capacities, creating opportunities for participation and inclusion of those usually left behind in decision-making processes, especially women and youth, a transformative shift can be catalysed and enabled to emerge and institutionalised. On-the-ground interventions to restore biodiversity, ecosystems and landscapes through public-private partnership and community-led solutions could lead to a transformative shift in behaviours, actions and practices that generate positive environmental, social and economic outcomes and benefits at landscape, community and provincial levels. Developing and implementing innovative tools and solutions, such as financing mechanisms to increase investments nature, and the conservation and restoration of ecosystems and landscapes can generate incentives, buy-in and benefits for both people and nature. Investments in integrated land use planning processes and decisions that zone land uses in a manner that make space for nature to thrive – e.g., through protected areas and OECMs, including indigenous and community-conserved areas – and also enable inclusive, and nature-positive actions and practices that recognise that these areas are part of wider mosaic landscapes and form part of a portfolio of land uses that humans engage in to meet their needs, including basic ones such as food, shelter, water and livelihood security.

The project envisions that these interconnected interventions will not only alleviate pressure on natural resources but also boost the ability of ecosystems to generate goods and services that increase productivity (e.g., of agriculture) and enhance climate resilience and adaptive capacity of humans, nature itself and wider landscapes against periodic shocks and stresses. In doing so, the project aims to contribute to the institutionalisation of a transformative shift and trajectory for environmental conservation, social development, and scientific, research and evidence-based decision-making in Anbar, towards protected nature and thriving landscapes, in line with the GEF-8 strategic objectives under the Biodiversity and Land Degradation Focal Areas.

Diagram 1 summarizes the overall project logic, outcomes, outputs, the assumptions necessary for its success, and the barriers the project aims to address.

Diagram 1: Project theory of change



Project impacts:

The project aims to bolster Iraq's natural ecosystem against the challenges of climate change and unsustainable use and weak management. The project is poised to deliver transformative socio-economic impacts that extend beyond mere conservation goals, to regenerate landscapes to also support livelihoods and human well-being, by enhancing food and water security. By strategically targeting key biodiversity areas for intervention, the project aims to revitalize both the land and the communities that inhabit it, through integrated landscape management approaches. The project's gender-inclusive approach ensures that both men and women benefit from conserved and restored landscapes and ecosystems, and participate in jobs, employment and livelihoods opportunities generated by these investments. Moreover, by fostering a harmonious relationship between communities and their environment, the project serves as a proactive measure to mitigate potential conflicts and curb out-migration driven by resource degradation and scarcity.

The project will also contribute to achieving environmental benefits by restoring the significant oases ecosystem in Western Iraq, safeguarding ecosystem services, and improving management of landscape and ecosystems through effective protected areas system and land use planning. It will improve institutional and individual capacities in applying and scaling up biodiversity conservation and sustainable practices through improved policies and public knowledge and awareness of the threats and risks posed by biodiversity loss, climate change and degradation of livelihoods and the economy.

Specifically, the project will:

- Establish two natural protected areas, which will help the Government of Iraq to fulfil national and international commitments under MEAs.
- Develop policy and regulatory frameworks governing PAs and KBAs, develop Integrated Land Use Plans and establish and strengthen an institutional framework for governing and sustainable financing for biodiversity conservation, ILM and restoration of degraded landscapes and ecosystems.
- Update the ecological profiles of pre-identified KBAs in Western Iraq by conducting detailed assessments valuation studies of these sites and developing a GIS-based information system to support decision-making on their conservation and management and monitor progress towards meeting established targets.
- Support capacity building across management institutions, communities, groups, and individuals for protection, conservation, sustainable management and restoration of natural ecosystems, landscapes, and biodiversity for the benefits of nature and people. Notably, the latest training session related to biodiversity and land management in Western Iraq took place in 2009.
- Support the implementation of and demonstrate the role of nature-based solutions as effective tools for restoring nature, building resilience against climate change impacts and for generating socio-economic benefits that can reduce poverty among natural-resource dependent sections of society, especially for women and the rural poor.

Assumptions

To realization of the project's goals hinges on the following assumptions:

- The regulatory frameworks will be strengthened, governance agreements implemented, and local communities, institutions and private sector actors will and do understand their implications and scope. For the project to succeed, it's crucial that relevant regulatory frameworks are not only in place but also effectively enforced. Additionally, governance agreements, especially those involving various stakeholders, must be implemented, and adhered to. Local communities, institutions, and private sector actors should be aware of these regulations and agreements to ensure compliance and cooperation.
- Anbar's population, institutions and key actors will be actively involved. The project's success relies on the participation and commitment of the people living in the Anbar governorate. Their involvement in decision-making, planning, and implementation processes will help build a sense of ownership and responsibility, which is crucial for the sustainability of conservation and restoration efforts.

The key actors do and will have accurate information on land use planning and associated landscapes. Key actors, including local and national institutions, should have access to up-to-date and reliable data - and information related to biodiversity, ecosystems, land use and landscapes in the project area. This information informs land management decisions, will help to identify appropriate conservation and restoration priorities, and to assess the impact of interventions and management efforts.

- The technical tools, technologies and practices for restoration and sustainable management are supported, adopted and scaled up by local and national institutions. Local and national institutions will be trained and equipped to use these technical tools, technologies, and practices. Scaling up these up will ensure broader and more lasting impact at landscape levels.
- The institutions and stakeholders adopt mechanisms for knowledge sharing. The establishment of knowledge sharing mechanisms promotes continuous learning and adaptation. It enables institutions and actors to benefit from each other's experiences and from results and lessons learned from other projects and can improve the effectiveness and efficiency of project interventions over time.

Barriers to achieving the envisioned outcomes

Iraq faces continuing barriers related to conservation of biodiversity and natural ecosystems, that GEF assistance under the GEF-8 project can substantively assist in overcoming. These include:

- Weak natural resources governance institutions and mechanisms, leading to ineffective regulation and management of natural resources. This leads to weak law enforcement, overexploitation of natural resources, habitat degradation, and biodiversity loss.
- Limited capacities, knowledge, expertise and skills in land and natural resource management and biodiversity conservation. Coupled with limited financial resources, this hinders the effective planning, execution, and monitoring of conservation and sustainable management efforts. Inadequate expertise and resources lead to ineffective strategies.
- Outdated and inadequate institutional, policy, legal and regulatory frameworks, and land use plans for biodiversity conservation & SLM. Weak and outdated regulations, inadequate enforcement, and a lack of coordination among stakeholders impede effective conservation and restoration progress. Furthermore, without integrated land use planning that considers biodiversity and SLM, unsustainable practices, habitat fragmentation, and conflicts over resource use prevail. Addressing these challenges requires legal reforms, regulations and their proper enforcement, capacity building, integrated planning, public awareness, and strategic partnerships to ensure successful implementation of response strategies and interventions.
- Key ecosystems, landscapes, and biodiversity are not under protection or given any conservation status. These species and habitats are increasingly vulnerable to destruction, overexploitation, and potential extinction. Protecting these species, habitats, and ecosystems is critical for their continued ecosystems and for enhanced adaptive capacity and resilience of nature and people against climate change. .
- Lack of sustainable alternative livelihoods for local communities. Local communities depend on natural resources for their livelihoods. Without viable alternative income sources that produce long-term climate resilience, the conservation efforts may be met with resistance, as communities may fear losing their primary means of support, that in often cases imply exploitation of natural resources and unsustainable agricultural practices. Solutions to biodiversity loss and degradation of ecosystems and landscapes would therefore have to also include concrete alternative livelihoods opportunities for people, ones that facilitate the generation benefits from conservation and restoration, and access to those benefits by those are poorest and stand to lose in the shift towards more sustainable practices.

Project Components

The strategy to achieve the project objectives and address its barriers consists of 4 components, the components are structured into seven outcomes and 20 outputs.

Component 1: Enabling environment established at national and sub-National levels (Anbar Province) to enhance integrated natural resources management, and facilitate increased investments in biodiversity and ecosystem conservation, sustainable use and restoration This component is designed to support the strengthening of the enabling environment to effectively conserve, sustainably manage and restore biodiversity and ecosystems, and foster coordinated planning, strengthen compliance and alignment with national and international conservation commitments and obligations, and facilitates collaboration among key stakeholders. This component will pursue one Outcome and four Outputs as follows:

Outcome 1.1. Strengthened policies, regulatory and governance frameworks for effective biodiversity conservation, sustainable land management and ecosystems restoration.

Specific outputs include Output 1.1.1 - Review/update legal, policy, and institutional frameworks and establish/strengthen cross-sectoral coordination mechanisms and capacities to enable inclusive and integrated management of biodiversity, critical landscapes, and ecosystems, including integrating priorities set out in the updated NBSAP, LDN Targets and NDCs. As Iraq embarks on a process to update its NBSAP, there is an opportunity to conduct a comprehensive review of existing policies, strategies, and institutional capacities and update/reform where necessary, to ensure that the country can effectively manage its natural resources, including key species of flora and fauna, and the ecosystems and landscapes they inhabit, in a manner that ensures their continued existence. Strategies and interventions proposed for implementation at national and sub-national levels (i.e., in Anbar Province) must be informed by inclusive, participatory and gender-responsive land use planning approaches and processes, including spatial plans and guidelines (Output 1.1.2), and elevate the role of conservation as a land-use strategy. Land use plans and the frameworks and guidelines developed will be done in a manner that recognizes the specific roles and needs of women related to land ownership, access to resources, and decision-making, and will engage local communities and stakeholders in decision-making processes to reflect the diverse needs and interests of different groups, and balance competing demands for land, such as agriculture, urban development, conservation, and infrastructure, ensuring that land is used optimally to meet both current and future needs.

This component will also support Iraq to build on the emerging process at the national level to develop/prepare Biodiversity Finance Plans, under the UNDP-led project financed by the GEF (GEF ID11045), advance the development of a provincial conservation and restoration strategy for Anbar, as well as a finance plan (Output 1.1.3), whose implementation can also be supported by this project, through the innovative finance solutions to protect Anbar's biodiversity and ecosystems, learning from and building on learning from similar initiatives elsewhere in the world and as guided by the UNDP BIOFIN Catalogue of Biodiversity Finance Solutions (Output 1.1.4).

Successful implementation of this component is expected to position Iraq at the national and sub-national levels (in this case Anbar province) to effectively engage in biodiversity conservation and restoration of its degraded ecosystems and landscapes and facilitate a shift towards nature protection in its policies and strategies, as well as the practices of all actors, including businesses, industry, and communities.

Component 2: PA establishment and strengthened management of Anbar Province's key biodiversity areas (KBAs) through comprehensive planning, financing and adaptive co-management approaches

This component is designed to support the establishment of two new PAs and to establish mechanisms and capacities for effective management of these two PAs, as well as three KBAs as habitats and refuge for wildlife and other species of fauna and flora (please see Annex C for a detailed breakdown specific species). Building on work conducted so far to understand the status of biodiversity and ecosystems in Anbar (e.g., [KBA Data \(keybiodiversityareas.org\)](https://www.keybiodiversityareas.org/)), this component will support comprehensive assessments that can yield data and insights into the health status and threats to key biodiversity and ecosystems in the province to inform management decisions, including for PA establishment with regards to extent, boundaries and management interventions. Two outcomes are envisaged, delivered through four outputs:

Outcome 2.1: Ecosystem assessment and valuation of targeted PAs and KBAs, for effective evidence-based management decision-making to strengthen protection and conservation status of species and critical habitats and ecosystems.

Under this outcome, ecological, socio-economic profiles, and biodiversity threat assessments of Anbar's PAs and KBAs will be reviewed and updated, applying the Economics of Ecosystems and Biodiversity (TEEB) and KBA criteria and standards to evaluate and determine ecosystem health and inform priority management measures (Output 2.1.1). The data, results and insights from these assessments will inform the development of technical guidelines and decision support tools to inform design and implementation of conservation, sustainable management and restoration measures and interventions, including where to establish what kind of PAs and for what specific purposes (Output 2.1.2). Output 2.1.3 will support the development of an interactive digital platform and information database for storing, analyzing, and sharing data and information on biodiversity and ecosystems in Anbar, perhaps linked to/interfacing with existing national ones, that practitioners, decision-makers, and the public can use to track and monitor progress and the impact of investments on the ground. Output 2.1.4 will support capacity and skills development and strengthening for personnel of key institutions to collect, analyze, and integrate diverse data types, including spatial, and socio-economic data, to allow for a more holistic analysis and understanding of the dynamics shaping ecosystems and biodiversity and the impact of human activities, and climate impacts. The inclusion of gender-disaggregated data, indicators and targets will ensure that the distinct roles, needs, and contributions of women and the impacts of decisions on them and their interactions with the environment, are taken into consideration in decision-making and design of responses. The data and information from these assessments will also inform updates to policies, regulations and the development of land use plans proposed under Component 1. Output 2.1.4 will support training and capacity building for local communities, CSOs, youth and women's groups, to contribute to monitoring and assessment of ecosystem status and health through citizen-science methods and approaches.

Outcome 2.2: New PAs established, management plans developed and operational capacities in place for effective management of PAs in Anbar Province

Under this outcome, two new protected areas will be established, officially designated, and included in the national PA network, with consideration for gender-responsive community engagement (Output 2.2.1). This work will bring 388,847 ha under protection. A Process Framework, to be developed during PPG as part of the project's safeguards architecture, will determine the process through which communities will be actively engaged in assessing potential access restrictions related to the establishment of these new PAs, and in identifying suitable arrangements and measures to mitigate such impacts. This will support implementation of social and environmental safeguards, and protection of these areas in Anbar from unsustainable development and resource exploitation, and provide opportunities for scientific research, education, and sustainable tourism, contributing to both environmental conservation and local economic growth.

Five site-based management plans will be developed, and key priority actions will be implemented, using an inclusive consultative and participatory approach that considers gender dimensions (Output 2.2.2). These plans will be based on valuation of ecosystems carried out under Outcome 2.1 and include tailored strategies for their sustainable management, optimizing ecological preservation and harmonizing with local needs, and involving diverse stakeholders, including women, indigenous people and marginalized groups.

An Integrated Management Effectiveness Tool (IMET) will be established to track Protected Area Management Effectiveness and to inform management decisions and IUCN Green Listing process in two targeted sites to be designated as PAs (Output 2.2.3). This will provide a systematic and comprehensive way to assess and monitor conservation efforts, offer a standardized framework for evaluating the sites' conservation status and sustainability. Output 2.2.4 will support capacity building and training of PA staff and relevant institutions to enhance capacities and skills for PA management, based on a comprehensive needs assessment.

Component 3: Integrated Landscape Management and enhanced resilience of natural resource-based livelihoods in Anbar Province

This component is designed to foster economic stability by offering alternative livelihood options, reducing vulnerability to environmental shocks, and enhancing the resilience of local communities in the face of climate change.

Outcome 3.1: Rangelands, woodlands, and wetlands under improved practices including in production sectors

Under this outcome, the project will advocate for improved management practices across 11,149,975 ha in the periphery of the 5 KBAs, focusing on degraded forests, rangelands, and wetlands. The initiative will not directly restore this expansive area but will implement and endorse management plans that foster improved environmental conditions across various production sectors. Nature-based solutions, utilizing soil conservation and water harvesting techniques, will be demonstrated to mitigate land degradation and enhance biodiversity protection and landscape resilience, particularly considering climate change (Output 3.1.1). This includes conceptualizing and piloting an “Eco-Village” design, aimed at self-sufficiency through Sustainable Land Management (SLM) and Integrated Natural Resources Management (INRM) in relevant sectors (agriculture, fisheries, and tourism), especially embedding climate-resilient practices. The specific location and direct restoration activities will be identified during the PPG phase. Additionally, community-driven rehabilitation interventions, including tree planting initiatives, will be supported and rolled out, with the active participation of both men and women, to aid in landscape restoration, to enhance, carbon stocks and build landscape resilience against climate change. Training and capacity-building of local entities, community groups, and SMMEs, will be facilitated to engage them in Protected Area (PA) co-management arrangements (Output 3.1.2), ensuring a synergistic integration with Component 1, which is designed to fortify the enabling environment at national and sub-national levels (Anbar Province) to enhance integrated natural resources management and catalyze increased investments in biodiversity and ecosystem conservation, sustainable use, and restoration.

Outcome 3.2: Strengthened gender-inclusive resilience and livelihood security through sustainable land use practices that alleviate pressure on natural resources, enhance productivity, and build climate resilience

Under this outcome, renewable energy technologies aimed at sustainable farming and agri-food solutions, with a focus on women’s access, will be identified and piloted (Output 3.2.1) to reduce reliance on fossil fuel powered technologies and greenhouse emissions from agriculture. These solutions could include: 1) Solar irrigation, which is the most mature application, to improve access to water, thus enabling multiple cropping cycles and increasing resilience to changing rainfall patterns; 2) Renewables-based agro-processing technologies: stand-alone or based on mini-grids, offer an increasingly cost-effective alternative to fossil fuels, one with the added benefits of reducing environmental impact, promoting decentralized processing infrastructure and reducing labor-intensive processing activities; 3) Cold storage and refrigeration for the agri-food chain to increase shelf life, cut losses, and maintain the quality of products from crops, livestock and fisheries; Sustainable bioenergy as a renewable energy resource that can meet needs for electricity, heat and transport fuels within the agri-food sector and beyond; 4) Biomass by-products from agri-food activities can be used to produce energy for processing, storage and cooking.

Support will be provided for diversified, gender-inclusive alternative livelihoods such as eco-tourism, beekeeping, handcrafts, agro-forestry and silvo-pastoral practices and technologies to increase and diversify incomes, especially for women, (Output 3.2.2). Support will also be provided for business development, including value chains and sustainable markets for sustainably sourced and agroecological goods and services, including those linked to conservation and restoration (Output 3.2.3). This support is designed to offer opportunities for sustainable income generation while contributing to the conservation and restoration of natural resources.

Component 4: Knowledge Management, Monitoring, Evaluation, and Social and Environmental Standards Safeguards

This component is designed to ensure the project consistency with UNDP and GEF policies and procedures, including social and environmental safeguards policies and requirements (SES), and that all the GEF and UNDP reporting obligations are met. Lessons, experiences, and knowledge generated by the project across

the different components will also be codified, packaged and communicated at different levels within Iraq, regionally and globally.

Outcome 4.1. Project-generated knowledge and lessons shared, and results and impact communicated and disseminated for wider learning will support the compilation, packaging and sharing of experiences, lessons from the project, through various media within Anbar Province and within Iraq to showcase the results generated by the project investments, to inspire and promote adoption and scaling up of best practices and successful and proven approaches and to inform government decision making and investments related to conservation, sustainable management and restoration of biodiversity, ecosystems and landscapes. Output 4.1.1. will support the development and implementation of strategies for sharing/ exchanging knowledge, lessons and communicating project results and impacts, showcasing benefits for men and women (i.e., gender-disaggregated data). Knowledge exchange will also be fostered through workshops, exchange visits, and continuous learning platforms, including at regional and international levels.

Outcome 4.2 Adaptive management of project activities in line with UNDP and GEF M&E and SES policies realized.

Activities under this Outcome aim to establish a robust monitoring and evaluation system, emphasizing participatory methods and gender mainstreaming. This will ensure timely reporting, prioritize adaptive management based on periodic reviews of project performance and progress (e.g., PIRs, MTR and Quarterly reviews) and as guided by the project governance and quality assurance structures, including the Project Board as per the activities of Output 4.2.1 - Implement project M&E plan and results reported through Project Board, quarterly and annual reports (PIRs), MTR, and TE. Output 4.2.2 - Develop and implement a plan and report on project-level safeguards and risk management measures, including gender action plan and stakeholder engagement plan – will ensure that robust safeguards systems are in place, in line with UNDP and GEF SES policies and standards, including grievance redress mechanisms and risk management plans and mitigation measures. It will also ensure that gender action plans and interventions and stakeholder engagement plans are costed, implemented, monitored, and reported on as part of a continuous project strategy for ensuring inclusion, participation and gender responsiveness of the project.

Stakeholders Engagement

Given the complex operational situation in Iraq, and as requested by the GEF Operational Focal Point (OFP) of Iraq, this project will be executed by UNDP (through the Iraq Country Office) using the Direct Implementation Modality (DIM). Project progress will be managed by the Project Manager, with the support of the Project Management Unit (PMU) and the Project Steering Committee, membership of which will be finalised during PPG phase. During the PPG, a detailed stakeholder analysis will be carried out to identify all relevant project-affected groups and other interested and affected parties, which may include indigenous peoples and/or ethnic minorities. A Stakeholder Engagement Plan will be prepared, including customized strategies for engagement of each category of stakeholder and any groups with special needs and interests. Where indigenous peoples and/or ethnic minorities are confirmed to be present, a specifically tailored engagement plan (or planning framework) that meets the requirements under UNDP’s SES Standard 6 will be prepared. A provisional list of key stakeholders is provided below.

| Stakeholder | Current Mandate / Responsibilities | Expected role in Project Preparation |
|-------------|--|--------------------------------------|
| UNDP Iraq | UNDP Iraq is a major partner of the Government of Iraq (GoI) in its efforts to build resilience and address the vulnerabilities and shocks originating from environmental degradation, natural hazards and climate | Lead agency and Executing Entity |

| | | |
|--|--|-------------------|
| | change. UNDP Iraq has established a dedicated programme team on environment, climate change and energy to build capacities of the Iraqi authorities in tackling the pressing environmental challenges in the country. | |
| Ministry of Environment (MoEnv) | As the highest government entity responsible for environmental protection and in charge of overseeing land management and protected areas, MoEnv will be the executing entity of the proposed project. MoEnv is responsible for the development of protected areas within Iraq, with the aim of safeguarding species and habitats through policy and regulations. | Responsible Party |
| Governorates of Anbar | Governorates have the authority to prepare provincial development plans, as well as to design and implement capital projects to improve service delivery conditions. | Responsible Party |
| Ministry of Planning | Ministry of Planning is responsible for management of public and private activities in all sectors. MoP will provide support and assistance on the design of the program for SLM capacity development and awareness raising on sustainable agricultural practices. Moreover, MoP is the main governmental entity for providing advice and reports to the government of Iraq and has very important resource of data (Central Statistical Organization) | Responsible Party |
| Ministry of Agriculture (MoA) | As the Ministry responsible for management of public and private agriculture sectoral activities with an ongoing project aimed at implementing the national Land Degradation Neutrality (LDN) targets, MoA will provide support and assistance on the design of the program for SLM capacity development and awareness raising on sustainable agricultural practices. Moreover, MoA will support farmers and land users in improving the technology used for agricultural production and livestock keeping, with the aim of increasing capacity for sustainable land management. | Responsible Party |
| Ministry of Culture, Tourism and Antiquities | As the government Ministry responsible for the promotion of ecotourism, Ministry of Culture, Tourism and Antiquities will be involved project aspects related to mainstreaming of biodiversity into tourism. | Responsible Party |
| United Nations Environment Programme (UNEP) | UNEP is a lead agency for implementing a GEF 7 project in Iraq, and the work under this project will be coordinated with UNEP to ensure harmony and consistency in setting up PA management. | Partner |
| Environmental NGOs | Nature Iraq was a major partner to bring out the KBA report and they offer source of scientific information on the biodiversity hot spots in Iraq. A potential partner in delivering the research component given their experience in delivering similar surveys. | Responsible Party |

| | | |
|------------------------------------|---|--|
| Civil Society Organizations (CSOs) | Potential partners for different project activities | Involved in the implementation of related activities |
| Women organizations | Potential partners for different project activities | Involved in the implementation of related activities |
| Private sector | Potential partners for different project activities | Involved in the implementation of related activities |
| Academia | Potential partners for different project activities | Involved in the implementation of related activities |
| Local Communities | Potential partners for different project activities | Involved in the implementation of related activities |

Gender

Post-war rural Iraqi women, heavily reliant on natural resources and ecosystem goods and services, play a pivotal role in biodiversity conservation and sustainable land management, yet their contributions often go unrecognized. The aftermath of the war has also seen a rise in women-led households. The project will emphasize gender-responsive actions throughout its design and implementation, and across all the components. A comprehensive gender analysis during the PPG phase will assess the impacts of biodiversity loss, land degradation, and climate change on women and a Gender Action Plan, to be appended to the Project Document, and integrated into the project's results framework and budget, will be developed. The project will ensure women's participation in leadership, capacity-building programs and equal access to opportunities. The role of women in conservation will be highlighted through case studies, and gender-responsive tools and materials will be incorporated into all planned technical guidance and advice.

Private sector

At the local level, there is limited engagement by the local communities with the private sector on nature-based enterprises. The proposed project will also contribute to the creation of an enabling environment for investment in biodiversity friendly businesses by strengthening the market linkages for sustainable enterprises. Value chain analysis will be conducted for the development of the targeted gender-responsive livelihood options to be identified in the project. Private sector stakeholders will be engaged during the project design phase to identify options for finance solutions that will facilitate the adoption of biodiversity conservation and INRM and SLM practices and support generation of income for these interventions. For instance, eco-tourism in the new PAs offers a strong and viable opportunity for cooperation and collaboration with the private sector. Potential private sector partners will be identified, and partnerships pursued, following due diligence screening applying UNDP's Private Sector Partnerships risk screening tool. Accordingly, the local communities, especially women, indigenous peoples, marginalized groups (to be specifically identified during the stakeholder analysis), and youth, will be trained to establish and operate nature-based businesses and explore income generation opportunities linked to conservation and ecosystem restoration activities.

Knowledge management

The project prioritizes knowledge management, dedicating an entire component to monitoring, evaluation, and knowledge dissemination. An inclusive Knowledge Management System will be established, utilizing diverse

media outlets, including social media, to share best practices and project insights. Stakeholders will be engaged throughout the project design and implementation phases, ensuring their input in the knowledge management and communication plans. The project will also launch an online portal to share innovative learnings and best practices, organize workshops, and provide regular updates to stakeholders. Collaboration with other GEF-financed projects in Iraq will be facilitated through a technical working group, creating a platform for idea exchange and synergy. The Ministry of Environment will coordinate this platform to maximize effectiveness. Ultimately, the project aims to create a comprehensive multimedia knowledge system for biodiversity, positioning Iraq to streamline its reporting for international agreements.

Digital transformation

The project aims to integrate technological solutions to enhance ecosystem management and institutional processes. Instances of digital advancements in ecosystem and biodiversity include the use of drones for ecosystem surveillance, tracking bird migrations with communication tools, and establishing online markets for farmers.

Innovation

Following prolonged periods of war, terrorism, and civil unrest, Iraq's environment has suffered significant degradation, characterized by biodiversity loss and land degradation, compounded by weak institutional capacities to prevent and mitigate these challenges. This will be the first time in Western Iraq, that a project will integrate economic growth, climate change and sustainable natural resource management. This initiative represents a transformative step in post-conflict recovery, emphasizing biodiversity conservation, landscape and ecosystem restoration, and community resilience. Additionally, the project will introduce innovative approaches to natural resource conservation, use and management, including on exploring biodiversity and restoration finance options that have not been tried in Iraq.

Environmental and Social Safeguards

The Social and Environmental Standards (SES) are an integral component of UNDP's quality assurance and risk management approach to programming. A preliminary safeguards risk screening has been carried out during PIF development (See Annex D) and during the PPG, SES risks associated with each of the proposed activities will be more clearly defined, based on information gathered in the baseline assessments and on consultations with stakeholders, and the range of potential impacts of project activities on critical habitats and/or environmentally sensitive areas will be further assessed. Key assessments will be carried out as part of the baseline studies during PPG, as follows: i. Potential risks from project activities on critical habitats and/or environmentally sensitive areas will be assessed, with mitigation measures built into project design wherever possible. If further assessments or plans will be required either under UNDP's SES Policy or national regulatory frameworks, these will be described in the project's Environmental and Social Management Framework; ii. Gender and stakeholder analysis (including determination of the presence of indigenous people and/or ethnic minorities, and vulnerable and marginalized groups or persons); iii. A Process Framework and livelihoods assessment; iv. Security assessment; v. Climate risk/vulnerability assessment). Two targeted management plans (i. Gender Analysis and Action Plan - GAAP; ii. Stakeholder Engagement Plan – SEP) will be prepared and an Environmental and Social Management Framework – ESMF will also be developed during the PPG phase. The preliminary Environmental and Social Safeguards Screening and Rating (currently set as Moderate, but to be confirmed during PPG when more data is available) is presented in annex D.

Coordination and Cooperation with Ongoing Initiatives and Project.

Does the GEF Agency expect to play an execution role on this project?

Yes

If so, please describe that role here. Also, please add a short explanation to describe cooperation with ongoing initiatives and projects, including potential for co-location and/or sharing of expertise/staffing

Due to Iraq's multifaceted challenges, particularly in terms of its governance, security, legal frameworks, and logistical aspects, the project will be executed by UNDP's Iraq Country Office using the Direct Implementation Modality (DIM) over five years. The governance structure in Iraq is notably complex, involving a network of federal, regional, and local levels, each with distinct policies and administrative procedures, which often elongate and complicate approval and implementation processes. The project also needs to navigate through a web of legal and regulatory frameworks related to environmental conservation, land use, and social welfare, which vary across different administrative and territorial jurisdictions, requiring adept legal navigation and compliance management. Additionally, logistical challenges, stemming from varied geographical terrains and potential infrastructural deficits, especially in certain remote or conflict-affected regions, necessitate strategic planning to ensure smooth transportation, supply chain management, and access to project sites. UNDP will lead this process, while working closely with the government counterparts to handle administrative, financial, and technical aspects, ensuring quality, disbursing funds, overseeing contractors, managing procurement, and maintaining information systems to monitor project progress amidst these complexities. Capacity building and skills transfer is an integral part of this DIM arrangements.

Core Indicators

Indicator 1 Terrestrial protected areas created or under improved management

| Ha (Expected at PIF) | Ha (Expected at CEO Endorsement) | Ha (Achieved at MTR) | Ha (Achieved at TE) |
|----------------------|----------------------------------|----------------------|---------------------|
| 388847 | 0 | 0 | 0 |

Indicator 1.1 Terrestrial Protected Areas Newly created

| Ha (Expected at PIF) | Ha (Expected at CEO Endorsement) | Ha (Achieved at MTR) | Ha (Achieved at TE) |
|----------------------|----------------------------------|----------------------|---------------------|
| 388847 | 0 | 0 | 0 |

| Name of the Protected Area | WDPA ID | IUCN Category | Total Ha (Expected at PIF) | Total Ha (Expected at CEO Endorsement) | Total Ha (Achieved at MTR) | Total Ha (Achieved at TE) |
|----------------------------|---------|--|----------------------------|--|----------------------------|---------------------------|
| | | Protected area with sustainable use of natural resources | 388,847.00 | | | |

Indicator 1.2 Terrestrial Protected Areas Under improved Management effectiveness

| Ha (Expected at PIF) | Ha (Expected at CEO Endorsement) | Total Ha (Achieved at MTR) | Total Ha (Achieved at TE) |
|----------------------|----------------------------------|----------------------------|---------------------------|
| 0 | 0 | 0 | 0 |

| Name of the Protected Area | WDP A ID | IUCN Category | Ha (Expected at PIF) | Ha (Expected at CEO Endorsement) | Total Ha (Achieved at MTR) | Total Ha (Achieved at TE) | METT score (Baseline at CEO Endorsement) | METT score (Achieved at MTR) | METT score (Achieved at TE) |
|----------------------------|----------|---------------|----------------------|----------------------------------|----------------------------|---------------------------|--|------------------------------|-----------------------------|
| | | | | | | | | | |

Indicator 3 Area of land and ecosystems under restoration

| Ha (Expected at PIF) | Ha (Expected at CEO Endorsement) | Ha (Achieved at MTR) | Ha (Achieved at TE) |
|----------------------|----------------------------------|----------------------|---------------------|
| 0 | 0 | 0 | 0 |

Indicator 3.1 Area of degraded agricultural lands under restoration

| Disaggregation Type | Ha (Expected at PIF) | Ha (Expected at CEO Endorsement) | Ha (Achieved at MTR) | Ha (Achieved at TE) |
|---------------------|----------------------|----------------------------------|----------------------|---------------------|
| | | | | |

Indicator 3.2 Area of forest and forest land under restoration

| Ha (Expected at PIF) | Ha (Expected at CEO Endorsement) | Ha (Achieved at MTR) | Ha (Achieved at TE) |
|----------------------|----------------------------------|----------------------|---------------------|
| | | | |

Indicator 3.3 Area of natural grass and woodland under restoration

| Disaggregation Type | Ha (Expected at PIF) | Ha (Expected at CEO Endorsement) | Ha (Achieved at MTR) | Ha (Achieved at TE) |
|---------------------|----------------------|----------------------------------|----------------------|---------------------|
| | | | | |

Indicator 3.4 Area of wetlands (including estuaries, mangroves) under restoration

| Ha (Expected at PIF) | Ha (Expected at CEO Endorsement) | Ha (Achieved at MTR) | Ha (Achieved at TE) |
|----------------------|----------------------------------|----------------------|---------------------|
| | | | |

Indicator 4 Area of landscapes under improved practices (hectares; excluding protected areas)

| Ha (Expected at PIF) | Ha (Expected at CEO Endorsement) | Ha (Achieved at MTR) | Ha (Achieved at TE) |
|----------------------|----------------------------------|----------------------|---------------------|
| 11430153 | 0 | 0 | 0 |

Indicator 4.1 Area of landscapes under improved management to benefit biodiversity (hectares, qualitative assessment, non-certified)

| Ha (Expected at PIF) | Ha (Expected at CEO Endorsement) | Ha (Achieved at MTR) | Ha (Achieved at TE) |
|----------------------|----------------------------------|----------------------|---------------------|
| 11,430,153.00 | | | |

Indicator 4.2 Area of landscapes under third-party certification incorporating biodiversity considerations

| Ha (Expected at PIF) | Ha (Expected at CEO Endorsement) | Ha (Achieved at MTR) | Ha (Achieved at TE) |
|----------------------|----------------------------------|----------------------|---------------------|
| | | | |

Type/Name of Third Party Certification

Indicator 4.3 Area of landscapes under sustainable land management in production systems

| Ha (Expected at PIF) | Ha (Expected at CEO Endorsement) | Ha (Achieved at MTR) | Ha (Achieved at TE) |
|----------------------|----------------------------------|----------------------|---------------------|
| | | | |

Indicator 4.4 Area of High Conservation Value or other forest loss avoided

| Disaggregation Type | Ha (Expected at PIF) | Ha (Expected at CEO Endorsement) | Ha (Achieved at MTR) | Ha (Achieved at TE) |
|---------------------|----------------------|----------------------------------|----------------------|---------------------|
| | | | | |

Indicator 4.5 Terrestrial OECMs supported

| Name of the OECMs | WDPA-ID | Total Ha (Expected at PIF) | Total Ha (Expected at CEO Endorsement) | Total Ha (Achieved at MTR) | Total Ha (Achieved at TE) |
|-------------------|---------|----------------------------|--|----------------------------|---------------------------|
|-------------------|---------|----------------------------|--|----------------------------|---------------------------|

Documents (Document(s) that justifies the HCVF)

| Title |
|-------|
|-------|

Indicator 6 Greenhouse Gas Emissions Mitigated

| Total Target Benefit | (At PIF) | (At CEO Endorsement) | (Achieved at MTR) | (Achieved at TE) |
|---|----------|----------------------|-------------------|------------------|
| Expected metric tons of CO₂e (direct) | 17960 | 0 | 0 | 0 |
| Expected metric tons of CO₂e (indirect) | 0 | 0 | 0 | 0 |

Indicator 6.1 Carbon Sequestered or Emissions Avoided in the AFOLU (Agriculture, Forestry and Other Land Use) sector

| Total Target Benefit | (At PIF) | (At CEO Endorsement) | (Achieved at MTR) | (Achieved at TE) |
|---|----------|----------------------|-------------------|------------------|
| Expected metric tons of CO₂e (direct) | 17,960 | | | |
| Expected metric tons of CO₂e (indirect) | | | | |
| Anticipated start year of accounting | 2025 | | | |
| Duration of accounting | 20 | | | |

Indicator 6.2 Emissions Avoided Outside AFOLU (Agriculture, Forestry and Other Land Use) Sector

| Total Target Benefit | (At PIF) | (At CEO Endorsement) | (Achieved at MTR) | (Achieved at TE) |
|---|----------|----------------------|-------------------|------------------|
| Expected metric tons of CO₂e (direct) | | | | |
| Expected metric tons of CO₂e (indirect) | | | | |
| Anticipated start year of accounting | | | | |
| Duration of accounting | | | | |

Indicator 6.3 Energy Saved (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

| Total Target Benefit | Energy (MJ) (At PIF) | Energy (MJ) (At CEO Endorsement) | Energy (MJ) (Achieved at MTR) | Energy (MJ) (Achieved at TE) |
|---------------------------------|----------------------|----------------------------------|-------------------------------|------------------------------|
| Target Energy Saved (MJ) | | | | |

Indicator 6.4 Increase in Installed Renewable Energy Capacity per Technology (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

| Technology | Capacity (MW) (Expected at PIF) | Capacity (MW) (Expected at CEO Endorsement) | Capacity (MW) (Achieved at MTR) | Capacity (MW) (Achieved at TE) |
|------------|---------------------------------|---|---------------------------------|--------------------------------|
|------------|---------------------------------|---|---------------------------------|--------------------------------|

Indicator 11 People benefiting from GEF-financed investments

| | Number (Expected at PIF) | Number (Expected at CEO Endorsement) | Number (Achieved at MTR) | Number (Achieved at TE) |
|--|--------------------------|--------------------------------------|--------------------------|-------------------------|
|--|--------------------------|--------------------------------------|--------------------------|-------------------------|

| | | | | |
|---------------|----------------|----------|----------|----------|
| Female | 112,500 | | | |
| Male | 112,500 | | | |
| Total | 225,000 | 0 | 0 | 0 |

Explain the methodological approach and underlying logic to justify target levels for Core and Sub-Indicators (max. 250 words, approximately 1/2 page)

The project will apply an integrated approach of policy reforms, strengthening landscape management and sustainable application of nature-based solutions for effective climate change and biodiversity conservation and to restore the oasis ecosystem in Anbar Province, Western Iraq. Strengthening land use planning frameworks will enable broader areas beyond the KBAs to be managed in line with sustainable land management best practice and to mainstreaming biodiversity considerations into management of the wider landscape, in line with ILM principles. The project will improve landscape management practices across 11,430,153 ha, which are calculated as the periphery of the 5 KBAs. This is the total area of landscapes under improved practices including in production sectors (i.e. agriculture, rangeland, forestry, and tourism) that will lead to improved environmental conditions.

The declaration of the additional two PAs will support Iraq's commitment to expand area PAs for biodiversity conservation, and to maintain the generation of ecosystem goods and services, for nature, people and climate resilience. The project will add 388,847 hectares to the established PAs in Iraq and strengthen the PA regime to become more effective. The project activities will help to introduce conservation practices to the remaining 3 KBAs and to reduce threats to biodiversity (280,178 ha).

The project will support the population of Anbar province (1,561,407 persons) occupying 137,808 Km² (as of 2020) (5% Iraq's total; IAU 2010) which 48% are living in rural areas and 52% in urban areas. It is estimated that 15% of the Anbar population will be directly benefiting from the project activities, i.e., 225,000 (with over 50% women).

GHGs are mitigated as a result of applying various renewable energy applications to be deployed along farming and agri-food chains for demonstrating the benefits of such solutions and from restoration interventions. The project is expected to avoid 17,960 tonnes of CO₂eq over 20 years. The target will be accurately reviewed and validated during the PPG stage.

Risks to Project Preparation and Implementation

Summarize risks that might affect the project preparation and implementation phases and what are the mitigation strategies the project preparation process will undertake to address these (e.g. what alternatives may be considered during project preparation- such as in terms of consultations, role and choice of counterparts, delivery mechanisms, locations in country, flexible design elements, etc.). Identify any of the risks listed below that would call in question the viability of the project during its implementation. Please describe any possible mitigation measures needed. (The risks associated with project design and Theory of Change should be described in the "Project description" section above). The risk rating should reflect the overall risk to project outcomes considering the country setting and ambition of the project. The rating scale is: High, Substantial, Moderate, Low.

| Risk Categories | Rating | Comments |
|-----------------|----------|--|
| Climate | Moderate | Climate change impacts (e.g. severe droughts; forest fires; increased flooding) may negatively affect project activities for biodiversity conservation and effective SLM practices. Integrated land use plans will include hazard mitigation measures to minimize the impacts of droughts (e.g. through better water management and adoption of drought tolerant crops), to reduce the risk of |

| | | |
|--|-------------|---|
| | | forest fires (through education and improved enforcement regarding the intentional setting of fires), and to reduce the threat of flooding (through improved land management and retention / restoration of vegetative cover). Climate risk assessment will conduct during the PPG phase. |
| Environment and Social | Moderate | Reaching out to women is often challenging in patriarchal societies. The project will develop appropriate strategies to ensure women participation in trainings, workshops and varied project activities. Also, the project will ensure environmental sustainability integrated into the project activities. Environmental screening will be done at the pilot design stage and prior to implementation to ensure that all environmental impacts are identified and assessed appropriately. |
| Political and Governance | Substantial | Insecurity and political unrest may result in considerable delays and postponement of project implementation. Though the current political situation in Iraq is relatively stable, but there is potentiality for a spontaneous upsurge in violence. The project team will provide continuous monitoring of the security and political situation in the country and update the project board on a regular basis, so there is sufficient lead time for adequate response actions and adjustment in project strategy |
| Macro-economic | | |
| Strategies and Policies | | |
| Technical design of project or program | | |
| Institutional capacity for implementation and sustainability | Moderate | Insufficient knowledge about modern technologies and technical approaches, such as GIS, remote sensing, environmental valuation, |

| | | |
|---|----------|---|
| | | and social impact assessment. The project will support training and coordination with the Ministries in order to support the introduction and use of new technology, as well as the transfer of knowledge and skills from the extension services of the Ministries to the staff. In addition, the project will pursue coordination and development of training modules with other ongoing projects. |
| Fiduciary: Financial Management and Procurement | Moderate | Reallocation of committed co-financing from the government to other emerging priorities such as COVID related initiatives. Co-finance is one of the key components of project success. This is always a risk, especially if the Government budget is further affected by future oil price changes. The sources of co-finance will be worked out with the government partners and some lead indicators measuring the flow of co-finance will be established. As a back-up plan, key donors supporting Iraq will be identified and kept them aware about the progress and problems of the project starting from the PPG phase |
| Stakeholder Engagement | Moderate | Rehabilitation of disused and abandoned land surfaces may encounter resistance from landowners (public and private) and political figures. The project will work to reduce the likelihood of this risk occurring by ensuring that initiatives will be designed and implemented with the full participation of stakeholders from the public sector, namely governorates and from the private sector, fostering an understanding of the need for striking the right balance between planned and occurring land use and safeguarding of ecosystems for the |

| | | |
|----------------------------------|----------|--|
| | | <p>services they provide. Insufficient engagement efforts and unclear roles of stakeholders in the execution of the project may result in lack of commitment from local communities and therefore may result in failure of demonstration projects. A stakeholder analysis and assessment will be performed at the PPG stages, taking into full consideration the recent experience of previous projects. The project will strive since its early implementation stages to effectively engage the key stakeholders, especially local communities, with a focus on youth and women, with the aim to value as much as possible their traditional ecological and agriculture knowledge and to assign clear roles as to avoid these kinds of risks.</p> |
| Other | | |
| Financial Risks for NGI projects | | |
| Overall Risk Rating | Moderate | <p>Through the combination of all identified risks, this assessment concludes that this project risk rating is moderate. However, close monitoring of risks (identified or upcoming) will guarantee adequate risk identification, management, and adaptation.</p> |

C. ALIGNMENT WITH GEF-8 PROGRAMMING STRATEGIES AND COUNTRY/REGIONAL PRIORITIES

Describe how the proposed interventions are aligned with GEF- 8 programming strategies and country and regional priorities, including how these country strategies and plans relate to the multilateral environmental agreements.

Confirm if any country policies that might contradict with intended outcomes of the project have been identified, and how the project will address this.

For projects aiming to generate biodiversity benefits (regardless of what the source of the resources is - i.e., BD, CC or LD), please identify which of the 23 targets of the Kunming-Montreal Global Biodiversity Framework the project contributes to and explain how. (max. 500 words, approximately 1 page)

The project, in line with GEF-8 strategic guidance on implementing Integrated Programs, adopts an integrated landscape management approach to holistically address biodiversity, land degradation, and climate change, emphasizing on-ground nature-based solutions. It aligns with three GEF-8 Focal areas: Biodiversity, Land degradation and Climate Change Mitigation.

The project's primary goal is to protect biodiversity and restore degraded ecosystems, generating environmental and socioeconomic benefits, aligning with GEF's vision for a resilient ecosystem and the

'Healthy Planet, Healthy People' framework. Under the Biodiversity Focal area, it addresses Objective 1 (to improve conservation, sustainable use, and restoration of natural ecosystems, particularly the intervention areas on 'Improving Financial Sustainability, Effective Management, and Ecosystem Coverage of Protected Areas' and 'Biodiversity Mainstreaming in Priority Sectors') and Objective 3 (to increase domestic resources for biodiversity). For Land Degradation, the project is aligned with all the objectives of the Focal Area, including Objective 1 (sustainable land management), Objective 2 (landscape restoration), Objective 3 (addressing desertification and drought in drylands), and Objective 4 (enhancing the LDN policy framework). It showcases practices to bolster ecosystems, reduce land degradation, and improve livelihoods. In the Climate Change Focal Area, the project aligns with Pillar I: Promote innovation, technology transfer, and enabling policies for mitigation options with systemic impacts, Objective 1.4, Enhance nature-based solutions with high mitigation potential. .

Alignment with other key international agreements and agendas

While the project will be implemented in one province in Iraq, Anbar Province, it will contribute to efforts of Iraq in meeting its commitment to achieving or contributing to key international agreements and agendas, inter alia the K-M Global Biodiversity Framework, CBD, UNCCD, and the Paris agreement. The lessons learned and the outcomes can be replicated in other provinces.

Kunming-Montreal Global Biodiversity Framework

The project in Western Iraq, particularly in Anbar province, aligns with several targets of the Kunming-Montreal Global Biodiversity Framework. It addresses Target 1 by aiming to enhance ecosystem resilience and contribute to the restoration of key biodiversity zones, thereby increasing the area of ecosystems under improved management. Aligns with Target 2 by integrating biodiversity values into policies, strategies, and practices, ensuring that biodiversity is valued and maintained. The project's commitment to rejuvenating Anbar's oases ecosystem and fostering sustainable land management strategies also resonates with Target 3, which seeks to control and manage invasive alien species. Furthermore, by championing policy reforms and fortifying landscape management, the project aligns with Target 4, which aims to ensure that governments, businesses, and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption. Lastly, by aiding the Iraqi government in establishing new Protected Areas, the project aligns with Target 7, which aims to enhance the adaptive capacity and resilience of ecosystems and communities, particularly in areas vulnerable to the adverse impacts of climate change and other global changes.

Agenda 2030 and the Sustainable Development Goals (SDGs)

The proposed project will also contribute to the achievement of the following Sustainable Development Goals:

SDG 1 End poverty in all its forms everywhere

SDG 2 End hunger, achieve food security and improved nutrition and promote sustainable agriculture

SDG 5 Achieve gender equality and empower all women and girls

SDG 6 Ensure availability and sustainable management of water and sanitation for all

SDG 12 Ensure sustainable consumption and production patterns

SDG 13 Take urgent action to combat climate change and its impacts

SDG 15 Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

Consistency with National Priorities

Nationally, policies prioritize biodiversity conservation, ecosystem services, and sustainable land management. The project aligns with Iraq's NBSAP, emphasizing sustainable ecosystem management and restoration. The NBSAP lists 23 strategic targets, with Target 5 addressing habitat loss. The National Development Plan 2018-2022 focuses on environmental sustainability, emphasizing terrestrial ecosystem protection, aligning with this project. Additionally, the National Environmental Strategy and Action Plan targets land degradation control, desertification combat, and biodiversity preservation, all in line with the proposed project.

D. POLICY REQUIREMENTS

Gender Equality and Women's Empowerment:

We confirm that gender dimensions relevant to the project have been addressed as per GEF Policy and are clearly articulated in the Project Description (Section B).

Yes

Stakeholder Engagement

We confirm that key stakeholders were consulted during PIF development as required per GEF policy, their relevant roles to project outcomes and plan to develop a Stakeholder Engagement Plan before CEO endorsement has been clearly articulated in the Project Description (Section B).

Yes

Were the following stakeholders consulted during project identification phase:

Indigenous Peoples and Local Communities: Yes

Civil Society Organizations: Yes

Private Sector: Yes

Provide a brief summary and list of names and dates of consultations

Consultation process

Consultations began with the Ministry of Environment in 2020, leading to a workshop in Anbar in October 2021 with key officials. Data collection and further discussions occurred in March and August 2022, continuing until the PIF submission in 2023.

Specifically, the inception phase of the project in Western Iraq involved a comprehensive consultation meeting held on 31 March 2022 at the Iraqi Ministry of Environment in Baghdad. Key national stakeholders from various technical departments of the Iraqi government and international experts participated in this discussion. The attendees included high-ranking officials from the Iraqi Ministry of Environment, the Iraqi Ministry of Agriculture, and representatives from the national NGOs, the Iraqi Green Climate Organization. The list of those at the meeting include the following:

- Dr. Jassim Al-Falahi (Technical Deputy Minister – Iraqi Ministry of Environment).
- Dr. Najla Mahmmud (Technical General Director – Iraqi Ministry of Environment).

- Mr. Yousif Moaded (Director of the International Relationships - Iraqi Ministry of Environment).
- Ms. Rawiya Mahmmud (General Director of Desertification and Forestation Department – Iraqi Ministry of Agriculture).
- Mr. Sami Hussain Ali (Director of the Oases project - Desertification and Forestation Directorate - Anbar – Iraqi Ministry of Agriculture).
- Dr. Nadheer A. Fazza (Climate Change Expert-Former head of the Environment Energy and Climate Change EECC Pillar-UNDP Iraq).
- Mr. Mohammed Al-Atoom (International consultant)
- Dr. Mukhtar K. Haba (Director of Iraqi Green Climate Organization IGCO-National NGO)
- Dr. Omar Al-Sheikhly (UNDP-Biodiversity and Ecosystems Expert/national consultant).

In addition, due to the long-years of neglect (since 2010), an in-situ visit to the proposed action sites in Western Iraq (to ground truth and obtain a preliminary recent assessment of the sites of action) was conducted from 27-28 October 2022 (report is in annex). A joint team from Iraqi Ministry of Environment, Iraqi Ministry of Agriculture, and UNDP-Iraq was formed under a ministerial letter #1319 issued on 02 November 2022 from the Iraqi Ministry of Environment to conduct a field visit in Hadith Township, Anbar Governorate, western Iraq. The team was composed of representatives from the following institutions:

- Technical Directorate – the Marshlands and Natural Ecosystems Department (Iraqi Ministry of Environment).
- Technical Directorate – Protected Areas Department (Iraqi Ministry of Environment).
- Natural Ecosystems Directorate/Al-Anbar Environmental Directory (Iraqi Ministry of Environment).
- Environmental Protection and Development Directory-Central Environmental Directory in Baghdad (Iraqi Ministry of Environment).
- Desertification and Forestation Directorate (Iraqi Ministry of Agriculture).
- Local authority of Haditha District:
 - Mayor of Haditha District
 - Representatives of several local community focus groups.
- Environment, Energy, and Climate Change (EECC) Pillar-UNDP-Iraq field experts.

During the PPG phase, a comprehensive stakeholder mapping and analysis will be carried out and extensive stakeholder consultations will occur, resulting in a stakeholder engagement plan detailing roles for Ministerial entities, Governorates of Anbar, private sector and various NGOs, including women's organizations, indigenous peoples and other local communities.

(Please upload to the portal documents tab any stakeholder engagement plan or assessments that have been done during the PIF development phase.)

Private Sector

Will there be private sector engagement in the project?

Yes

And if so, has its role been described and justified in the section B project description?

Yes

Environmental and Social Safeguard (ESS) Risks

We confirm that we have provided indicative information regarding Environmental and Social risks associated with the proposed project or program and any measures to address such risks and impacts (this information should be presented in Annex D).

Yes

Overall Project/Program Risk Classification

| PIF | CEO Endorsement/Approval | MTR | TE |
|-----------------|-----------------------------|-----|----|
| Medium/Moderate | | | |
| Medium/Moderate | | | |

E. OTHER REQUIREMENTS

Knowledge management

We confirm that an approach to Knowledge Management and Learning has been clearly described in the Project Description (Section B)

Yes

ANNEX A: FINANCING TABLES

GEF Financing Table

Indicative Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

| GEF Agency | Trust Fund | Country/ Regional/ Global | Focal Area | Programming of Funds | Grant / Non-Grant | GEF Project Grant(\$) | Agency Fee(\$) | Total GEF Financing (\$) |
|---------------------------------|------------|---------------------------------|---------------------|------------------------------------|----------------------|--------------------------|-------------------|--------------------------------|
| UNDP | GET | Iraq | Biodiversity | BD STAR Allocation: BD-1 | Grant | 2,689,726.00 | 255,524.00 | 2,945,250.00 |
| UNDP | GET | Iraq | Climate Change | CC STAR Allocation: CCM- 1-2 | Grant | 863,242.00 | 82,008.00 | 945,250.00 |
| UNDP | GET | Iraq | Land Degradation | LD STAR Allocation: LD-3 | Grant | 2,169,178.00 | 206,072.00 | 2,375,250.00 |
| Total GEF Resources (\$) | | | | | | 5,722,146.00 | 543,604.00 | 6,265,750.00 |

Project Preparation Grant (PPG)

Is Project Preparation Grant requested?

true

PPG Amount (\$)

150000

PPG Agency Fee (\$)

14250

| GEF Agency | Trust Fund | Country/ Regional/ Global | Focal Area | Programming of Funds | Grant / Non- Grant | PPG(\$) | Agency Fee(\$) | Total PPG Funding(\$) |
|------------------------------|------------|---------------------------------|---------------------|--------------------------------|-----------------------|-------------------|-------------------|--------------------------|
| UNDP | GET | Iraq | Biodiversity | BD STAR Allocation: BD-2 | Grant | 50,000.00 | 4,750.00 | 54,750.00 |
| UNDP | GET | Iraq | Climate Change | CC STAR Allocation: CCM-1-2 | Grant | 50,000.00 | 4,750.00 | 54,750.00 |
| UNDP | GET | Iraq | Land Degradation | LD STAR Allocation: LD-2 | Grant | 50,000.00 | 4,750.00 | 54,750.00 |
| Total PPG Amount (\$) | | | | | | 150,000.00 | 14,250.00 | 164,250.00 |

Please provide justification

Sources of Funds for Country Star Allocation

| GEF Agency | Trust Fund | Country/ Regional/ Global | Focal Area | Sources of Funds | Total(\$) |
|----------------------------|------------|---------------------------------|------------------|--------------------|---------------------|
| UNDP | GET | Iraq | Biodiversity | BD STAR Allocation | 3,000,000.00 |
| UNDP | GET | Iraq | Climate Change | CC STAR Allocation | 1,000,000.00 |
| UNDP | GET | Iraq | Land Degradation | LD STAR Allocation | 2,430,000.00 |
| Total GEF Resources | | | | | 6,430,000.00 |

Indicative Focal Area Elements

| Programming Directions | Trust Fund | GEF Project Financing(\$) | Co-financing(\$) |
|------------------------|------------|---------------------------|------------------|
| BD-1-2 | GET | 2,689,726.00 | 21415242 |

| | | | |
|---------------------------|-----|---------------------|----------------------|
| CCM-1-2 | GET | 863,242.00 | 7138413 |
| LD-3 | GET | 2,169,178.00 | 17346345 |
| Total Project Cost | | 5,722,146.00 | 45,900,000.00 |

Indicative Co-financing

| Sources of Co-financing | Name of Co-financier | Type of Co-financing | Investment Mobilized | Amount(\$) |
|------------------------------|--|----------------------|------------------------|----------------------|
| Recipient Country Government | Ministry of Environment | In-kind | Recurrent expenditures | 12600000 |
| Recipient Country Government | Ministry of Environment | Grant | Recurrent expenditures | 600000 |
| Recipient Country Government | Central Bank and Ministry of Environment | Grant | Investment mobilized | 5200000 |
| Recipient Country Government | Ministry of Agriculture | In-kind | Recurrent expenditures | 12000000 |
| Recipient Country Government | Ministry of Water Resources | In-kind | Recurrent expenditures | 6000000 |
| Recipient Country Government | Governorate of Anbar | In-kind | Recurrent expenditures | 8000000 |
| GEF Agency | UNDP | Other | Investment mobilized | 1000000 |
| GEF Agency | UNDP | Grant | Recurrent expenditures | 500000 |
| Total Co-financing | | | | 45,900,000.00 |

Describe how any "Investment Mobilized" was identified

The "Restoration and Conservation of Key Biodiversity Areas and Ecosystems in Anbar Province" project mobilizes substantial financial support totaling USD 45,900,000 from a mix of public, private, and bilateral donors. The public sector will directly provide resources through the Ministries' environmental conservation projects. Simultaneously, UNDP and bilateral donors will contribute directly to the GEF funded project. This coordinated effort ensures that funds are effectively channeled into the project's objectives. The mobilization of public and other donor investments is an important strategy for Iraq government to promote economic growth, create jobs, and improve the living standards of local communities. It helps to address social and environmental challenges by financing projects on restoration of the ecosystems and land rehabilitation in Anbar province, Western Iraq.

The government support will be in the form of availing logistical support, engaging technical staff and experts in relevant surveys, assessments and technical backstopping in related interventions of the project. The support includes use of physical assets and infrastructure for ecosystem restoration and land rehabilitation activities.

ANNEX B: ENDORSEMENTS

GEF Agency(ies) Certification

| GEF Agency Type | Name | Date | Project Contact Person | Phone | Email |
|------------------------|------------------------|-----------|------------------------|-------|---------------------------------|
| GEF Agency Coordinator | Pradeep Kurukulasuriya | 10/2/2023 | | | pradeep.kurukulasuriya@undp.org |
| Project Coordinator | Adel AbdelKader | | | | adel.abdelkader@undp.org |

Record of Endorsement of GEF Operational Focal Point (s) on Behalf of the Government(s):

| Name | Position | Ministry | Date (MM/DD/YYYY) |
|-----------------------------|---|-------------------------|-------------------|
| Dr. Jasim Abdulazeez Humadi | Deputy Minister for Environmental Affairs | Ministry of Environment | 9/11/2023 |

ANNEX C: PROJECT LOCATION

Please provide geo-referenced information and map where the project interventions will take place

The area of Western Iraq which majorly comprises the official governmental borders of Anbar (Al-Anbar Province) harbors an ancient landscape of grassy highlands, forming a continuous arc through many countries of the northern Mesopotamia, traveling across the open grasslands and penetrating the western borders between Syria, Jordan, and the Kingdom of Saudi Arabia. These remarkable habitats are of fundamental importance to Iraq's environment as a whole and recognized as an important scientific and environmental priority. Accordingly, to profile these homogeneous habitats occupying large portions of the survey area it is difficult to choose which is the most interesting to study. However, besides unique desert and steppe habitats, several biodiversity of different biota of flora and fauna populations which sustains the indigenous local communities are distributed over a very large area. While there is no doubt that conserving and studying these key elements the ecosystems (species/habitat) is important, it is difficult and, in some ways, inappropriate to prioritize small parcels of land for preservation apart from the ecosystem as a whole.

Anbar is the largest province in Iraq (capital Ramadi) and encompassing much of the country's western territory (137,808 Km²). The Euphrates River flows diagonally from the north to the southeast, passing through six of the seven districts: (Al-Qa'im, Anah, Haditha, Hit, Ramadi, Fallujah, and Ar Rutbah district). This area is separated into northern and southern parts by the Euphrates River where "Shamiya" is called describing the area situated on the western bank of Euphrates River and "Badyatt Al-Jezerah" on its eastern bank.

The area was firstly surveyed for environmental purposes in 2009 (Al-Sheikhly et al. 2009; Nature Iraq 2017), after five years from the 2nd Gulf War and the afterwards insurgency, the surveys lasted from two years until summer 2010 and this is the only documented results for the biodiversity and other environmental impacts in the area. Based on the results for the surveys above, Anbar has five identified KBAs out of 82 throughout Iraq and form which only two are listed among those proposed priority 19 sites for protected status in Iraq which are agreed to be declared as Protected Areas (PAs) by the Iraqi government. Furthermore, there are two main natural reserves/wild animals enclosures are run by the Iraqi Ministry of Agriculture, these are Al-Masad and Al-Dhabaa.

However, all of the sites mentioned above are lack of regular environmental monitoring with unknown status since 2014 where ISIS took control on much of these area/sites; therefore, there is a deep gap of information

in regard to the biodiversity status and land degradation needs with enigmatic impact of the climate change profile of Iraq in general. Thus, finding a successful pilot project(s) of best of practices representative to that specific area of western Iraq seemed to be a complicated matter. According to Government of Iraq statistics in 2020 the population of Al Anbar is 1,483,359. The general landscape of the area represents the desert plateau with total area of 208,709 km² (Northern Badya 101339 km²; Southern 76144 km²; Al-Jezera Badya or Badyatt Al-Jezerah 31226 km²) (Al-Khatib 1878). The surface of the desert plateau of the northern and southern Badya gradually descended toward the alluvial plain of Mesopotamia where the altitude ranged from 92-915 m and due to that the direction of most valleys will toward the east. The desert plateau habitat varies from lowlands, seasonal floods, wide holes, sand dunes, stones and rocky cliffs, open steeps and grasslands, and monotonic arid s and open lands which interspersed by many elevated volcanic rocky grounds. This plateau is covered by semi -desert and desert vegetation consists mainly of grasslands which are suitable for cattle grazing and annual or perennial shrubs and bushes (Fig. 1).



Figure 1: General landscape and land cover of Iraq

The climate of Iraq is mainly of the continental, subtropical semi-arid conditions, with the north and north-eastern mountainous regions having a Mediterranean climate. Rainfall occurs during the winter months, from December to February in most parts of the country and November-April in the mountains, with an average day temperature of 16°C dropping at night to 2°C with a possibility of frost. Summers are dry and hot to extremely hot, with a shade temperature of over 43°C during July and August, yet dropping at night to 26°C. Rainfall is highly erratic in time, quantity and locations, and ranges from less than 100mm in the south and southwest parts of the country. The substantial variation in amount and distribution of rainfall increases the risk to rainfed crop production. Roughly 90% of the annual rainfall occurs between November and April, most of it in the winter months from December through March. The remaining six months, particularly the hottest ones of June, July, and August, are dry. Except in the north and northeast, mean annual rainfall ranges between 100 and 170 mm. Mean minimum temperatures in the winter range from near freezing (just before dawn) in the western desert of Iraq. Temperatures rise to a mean maximum of about 15.5°C in the western desert and the northeast, and 16.6°C in the south. During summer, mean minimum temperatures range from about 22.2°C to about 29°C and rise to maximums roughly between 37.7 and 43.3°C. Temperatures sometimes fall below freezing, and as low as -14.4°C at Rutbah in the extreme western desert. Maximum temperatures are more likely to reach 46°C in the summer months, and records of over 48°C from several stations were reported. In recent years, climate change has also negatively impacted large areas of western Iraq by increasing desertification, weakening agricultural development and eradicating livestock grazing, which subsequently led to the severe degradation and lack of natural vegetation, and negatively affected the human and food security of the country. According to the Government of Iraq, 92% of the total area of Iraq is at risk of desertification; 90% of the area of Iraq is located within the dry-semi-dry climatic zone, and high summer temperatures reach more than 50 degrees Celsius. Land degradation, salinization, and declining crop yields due to mismanagement of land resources and lack of inputs, are serious problems, especially in the irrigated lands. The country's rangelands and forest resources are deteriorating mainly because of overstocking what are essentially fragile ecosystems and because of deforestation for fuelwood and charcoal.

Regarding the land degradation, more than 50% of Iraq's land area is desert, and erosion is playing a major role in increasing part of the permanent pasture areas which influence vegetation cover. Moreover, due to poor agricultural practices and over exploitation, much of the cropland is losing its inherent productivity. The direct loss of agricultural land is severely observed around urban centers, where established agricultural land is being lost to alternative uses, including urbanization, industrialization, and transport infrastructure, furthermore, new land is being brought into production through reclamation. The productivity of the reclaimed land, however, is in many cases only a fraction of the old, and new land is being brought into production more slowly than old land is being lost. Particularly in the semi-desert areas, have suffered from severe loss of vegetation as a consequence of nomadic overgrazing, off-road vehicles disturbance, urbanization and construction, and tourist activities. As a result, Iraq faces serious problems of environmental degradation that must be addressed immediately because failure to act now will greatly compound the cost and complexity of later remedial efforts, and because environmental degradation is beginning to pose a major threat to human well-being which could lead to increase poverty especially among the vulnerable casts of local communities. Desert landscapes in Iraq, which comprise much of the Anbar province are extensions of the deserts of Syria and Saudi Arabia in the west and south. Additional desert landscapes lie between the Tigris and Euphrates extending from lower Babil to Thiqr, and areas east of the Tigris from Wasit southward. Average annual rainfall in this area is less than 100 mm but increases towards the north and east to between 100 and 240 mm. The majority of the deserts in Iraq lie within the Sahara-Sindian Desert biome /Arabian Desert and East Sahero-Arabian Xeric Shrublands Ecoregion. The genera Artemisia and Haloxylon are important here and there are relic areas of tropical species that date back to a time of climatic optimum e.g., *Acacia gerrardii* and *Razya stricta*. In addition to being relatively rich with unique plant life, these areas are also important with considerable fauna taxa (mammals, reptiles, and birds) of which many are threatened or vulnerable. Major river ecosystems of Iraq include the Tigris and Euphrates Rivers with a number of their tributaries. Whereas the majority of the Euphrates River is sourced in the upstream, riparian countries of Turkey and Syria, approximately 40% of the waters of the Tigris River arise from within the borders of Iraq (the remainder coming from Turkey & Iran). Lake ecosystems in Iraq are largely formed by dam/reservoir systems as well as depressions that have been used for water storage such as Tharthar and Razzaza Lakes.

Biodiversity and the Importance of Conservation to Species in the Selected Sites

Iraq has remarkable place at the south-eastern corner of the western Palaearctic realm which includes Europe, Asia (except the southern part), and North Africa. Iraq is situated among migration routes of many bird species from cold atmospheres in Siberian platform and Europe toward warm climate in Arabia and Africa. Iraq has also remarkable number of resident and breeding faunal sepecies which they are participating as an important group of its biodiversity. However, the importance of biodiversity of Iraq in general and western Iraq in particular case was first described in 1994 according to bio-statistical studies which accordingly several sites in the area were identified since 2009. The unique biodiversity of the area is attributed to the following: (i) it's remarkable biogeography where two main ecoregions (Mesopotamian shrub desert and the Arabian Desert and East Sahero-Arabian xeric shrublands) as defined by the World Wildlife Funds (2006) are comprised. The former ecoregion has a vulnerable conservation status, whereas the latter is listed as Critical/Endangered. The habitats found in this region are described as existing only in limited parts of the Middle East and Asia; (ii) Anbar province alone accounts for approximately 40–45 % of Iraq's total geographic area; (iii) the area holds three of the largest seasonal streambeds in the Middle East which are of great historical and ecological importance, namely the Wadi Horan (Iraq–Jordan), Wadi Badeat Al Sham (Iraq–Syria) and Wadi Arar (Iraq–KSA); (iv) the area contains four of the biggest water bodies in the Middle East (Tharthar Lake; Habaniyah Lake; Qadissiyah Lake; Razzaza Lake) and these are of great ecological and climatic importance.

The arid steppe and desert plateau of Anbar provides suitable habitats for many globally threatened species such as the IUCN Critically Endangered Sociable Lapwing *Chettusia leucura* which only migrating through areas of western and central Iraq. Many water bodies and desert oases are important staging/resting/refuelling sites for large populations of migrating birds. For example, records obtained from Tharthar Lake on the plains between the Tigris and Euphrates Rivers basin include about 4000 waterfowl including about 900 ducks of

seven species, over 2000 Eurasian coot *Fulica atra*, 23 Common crane *Grus grus* passing through during the migration season in December 1972. The range-restricted desert fauna are living specifically within this area and are rarely found in the other parts of Iraq. The area of western Iraq represents the ancient homeland for two globally threatened species of bird, the Endangered Saker Falcon *Falco cherrug* and the Vulnerable Asian (McQueen) Houbara Bustard *Chlamydotis macqueenii*, which thriving and breed primarily in the steppe region. Furthermore, the area holds approximately 16 birds species classified as globally threatened species according to the International Union of Conservation of Nature (IUCN, 2020) such as White-headed Duck *Oxyura leucocephala*; Red-breasted Goose *Branta ruficollis*; Lesser White-fronted Goose *Anser erythropus*; Marbled Duck *Marmaronetta angustirostris*; Common Pochard *Aythya ferina*; European Turtle Dove *Streptopelia turtur*; Great Bustard *Otis Tarda*; Asian Houbara *Chlamydotis macqueenii*; Northern Bald Ibis *Geronticus eremite*; Sociable Lapwing; Egyptian Vulture *Neophron percnopterus*; Greater Spotted Eagle *Aquila clanga*; Steppe Eagle *Aquila nipalensis*; Asian Imperial Eagle *Aquila heliaca*; Saker Falcon; Basra Reed Warbler *Acrocephalus griseldis*.

There are three main faunal species endemic to the western desert of Iraq which includes (i) the Data Deficient Haditha Mouse-tailed Bat *Rhinopoma hadithaensis* which it was described as a new bat species from western Iraq by Khajuria (1988); (ii) the Critically Endangered Haditha Cave Garra *Garra widdowsoni*; the Critically Endangered Haditha Cave Barb *Caecocypris basimi* where both are found in the substrate casts of the Upper Euphrates River Basin in sinkhole of Sheikh Hadid Shrine in the city of Haditha.

The flat arid/semi-desert areas of western Iraq are also hosting significant wildlife diversity, different species of wild mammals fauna are present mammals present including Golden Jackal *Canis aureus*, the Near Threatened Striped Hyaena *Hyaena hyaena*, Ruppell's Fox *Vulpes rueppellii*, Jungle Cat *Felis chaus*, Wild Cat *Felis silvestris*, the Vulnerable Eurasian Otter *Lutra lutra* has been recently recorded. The Endangered Euphrates Soft-shell Turtle *Rafetus euphraticus* is found in the major streams, lakes, and seasonal marshes distributed along the watercourse of the Euphrates River which has been used as a vulnerability criterion in identification of KBAs in the area; however, its current status and exact population trends are still enigmatic. In addition, the Vulnerable Egyptian Spiny-tailed Lizard *Uromastyx aegyptia* is dominated the desert terrestrial landscape of the area.

Furthermore, several fish species were recorded in the selected sites including one fish species, the Arabian Yellowfin Seabeam *Acanthopagrus cf. arabicus* is found in the Razzaza Lake, which is a marine fish in origin and is stocked at the site by the government to support fishing; however, the identification and the current status of this enigmatic specie sis not fully understood. The alien Red-belly Tilapia *Tilapia zillii* was reported as a major cause of invasiveness. Also, the Upper Euphrates River Basin in western Iraq is known to be an important spawning ground for important economic fish species such as the Vulnerable Mangar *Luciobarbus esocinus* and the Vulnerable Yellowfin Barbell *L. xanthopterus*.

Historically, Anbar has been considered as Iraq' breadbasket, due to broad range of cultivated lands, large expanse of pasture areas and rangelands, with sufficient water supplies form the Euphrates River and surrounding lakes. However, agriculture has been the main provider of jobs and livelihood for the semi-rural population before the war, especially for the women of whom more than 40% earned their income from agriculture.

Key sites in Anbar

1. Haditha Wetlands & Baghdadi (48,274 ha) – A proposed protected area (33.905833N 42.532778E)

According to Key Biodiversity Areas of Iraq book (Nature Iraq 2017), the site has been selected according to the Vulnerability and Irreplaceability KBA criteria, A1-A3 IBA criteria, and A4-B1 Important Plant Areas IPA criteria. This site is a proposed PA by the national PA network.

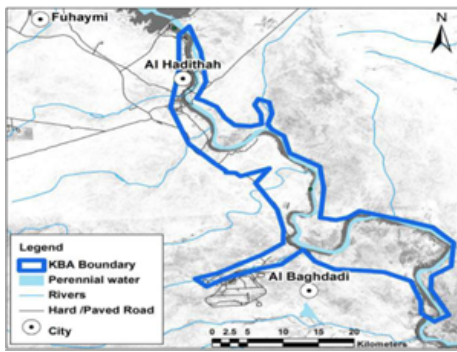
The site encompasses both banks of the Euphrates River in Baghdadi town and contains one of the most biologically important river valleys in Western Iraq, due to its unique habitat hosting important fish spawning areas during the spring months. The habitats surveyed in this area included desert shrublands and sparsely vegetated herbaceous vegetation in sparsely vegetated lands as well as riparian vegetation, reedbed and reedmace beds, and rooted submerged vegetation. The geology of the area is Euphrates limestone, shelly,

dolomitized limestone. The area is characterized by dense date palm orchards on either side of the river, in addition to citrus and other fruit trees. The shores of the Euphrates are grassy and muddy as the river flows towards Ramadi, with occasional rocks rising out of the river in the middle. These are considered an elevated extension of the river matrix, and one of the nesting sites for resident and migrant water birds. There is also occasionally submerged vegetation along the riverbank and some dense reed beds and marsh habitats. Alongside the main highway there are desert and semi-arid habitats, sandy and open areas with rocky cliffs and scattered vegetation. Al-Haqlaniya is situated to the north of the site c. 10 km from the city of Haditha. Date farms and fruit orchards cover large areas along the east bank of the Euphrates but in dramatic contrast to the flat deserts beyond.

One of the oldest parts of Haditha is the shrine of Sheikh Hadid where a sinkhole is located. It is situated on the western bank of Euphrates and represents an important heritage landmark of the site. West of the site is Camp Al-Asad, one of the largest Iraqi military bases in Anbar Governorate, which regularly deploys troops and military vehicles for roadblocks and checkpoints in the surrounding area. An oasis is located on the base that is locally known as Abraham's Well. During 2010, a U.S. military official stationed at the base provided information on the biodiversity of the area which were published in their periodical publications.

Baghdadi's habitat is uniquely representative of Western Iraq and is a strong candidate for a forthcoming PA/nature reserve. Although the Ministry of Environment and Ministry of Agriculture have taken steps towards nominating the site for protected area status and including it in regular ministry visits and surveys, several fundamental issues must be resolved. The major threats identified in the site were (i) over-exploitation, persecution and control of species, hunting and fishing is one of the highest impacts affecting the biodiversity. Waterfowl and game birds such as Black Francolin *Francolinus francolinus* and Asian Houbara are the main bird species targeted by local hunters. The site was once an important area for Arabian Sand Gazelle *Gazella marica* that were previously reported to congregate in large groups drinking from the eastern side of the Euphrates, but because of heavy hunting pressure are now rarely seen or reported. Before 2014, two major animal reserve Al-Massad and Al-Dhaba'a were exist in extreme western Iraq in Al-Rutba district (see Al-Sheikhly, 2012); however, both reserves were vandalized and destroyed by ISIS later and their current status are totally unknown. Electro-fishing was observed at many locations along the Euphrates River and local fishermen indicated that this technique had been imported from southern Iraq where it is widely practiced; (ii) agricultural expansion and intensification is mainly represented by the extensive orchards along the river and by nomadic grazing and was considered a moderate threat; (iii) human intrusions and disturbance as there were many new urbanization projects and tourism activities that are restricted to neighboring towns and villages of Anbar that influence the Euphrates River of Khan Al-Baghdadi; there are also a few new roads and only moderate activities of aircraft and helicopters heading toward Al-Asad Base; (iv) pollutants were mainly from urban wastewater, agricultural effluents, garbage, and noise.

Based on the Key Biodiversity Areas book recommendations, **this site should be declared a national PA** and requires additional, in-depth surveys (including botanical and fish surveys) to fully characterize its biological diversity. Protecting the annual fish spawning grounds, especially the economically valuable species such as *Luciobarbus esocinus* and *L. xanthopterus* is a primary conservation issue. An examination of water quality is also needed. Priority actions include increasing awareness and enforcement of the current Iraqi hunting laws to reduce hunting pressure on threatened species. Pollution also deserves attention to improve sewage and solid waste handling and management to reduce agricultural pollutants. The strong military presence near the site warrants cooperation and communication with civilian and military authorities to ensure impacts on the remaining natural habitats, some of which are contained within the Al-Asad Military base, are minimized and access to important survey areas is allowed. More recently, the Iraqi Ministry of Agriculture in cooperation with UNDP-Iraq is practicing a sustainable agro-economy pilot project to strengthen the sustainability of the ecosystems and empower the local communities; a project that shine light on the promising future of the area of western Iraq in development and sustainability.



2. Tharthar Lake and Al-Dhebaeji Fields (340,573 ha) – A proposed protected area (34.283889°N 43.183056°E)

According to Key Biodiversity Areas of Iraq book, the site has been selected according to the Vulnerability and Irreplaceability KBA criteria, A1-A3 IBA criteria, and B1 Important Plant Areas IPA criteria.

The site, largely dominated by Tharthar Lake, is located on the border between the governorates of Salah Ad-Din (to the east) and Anbar (to the west) and between the Tigris and Euphrates Rivers. Regulators can control outflows from the lake to both these rivers. This area was listed as an Important Bird Area IBA site (IBA007). The habitats that were surveyed in the area included periodically flooded lands, reedbeds, rooted submerged vegetation as well as desert shrublands. The geology of the area is Lower Faris Series (marls, siltstones, gypsum/anhydrites, and limestone bands) and Euphrates limestone (shelly dolomitized limestone). The landscape includes gravel hillsides covered in grass near the lake and a number of flat, sandy near islands near the lake shore that extend out into the middle of the lake, which distinguish this area from the western part of Tharthar. The wide areas of open, arid steppe and cultivated areas of wheat and corn near the Al-Dhebaeji steppes harbor scattered halophytic vegetation and are considered one of the most important grazing areas in Iraq as a whole. While these are invaluable for cattle, they are also considered the main wintering grounds for many threatened species of birds such as Saker Falcon, Asian Houbara, and Sociable Lapwing. The Arabian Oryx *Oryx leucoryx* also formerly occurred.

The major threats identified in the site were (i) agricultural expansion and intensification as there are cultivated fields and irrigation center pivot distributed in the area and around the lake; (ii) over-exploitation, persecution and control of species (e.g., over-fishing), many fishermen using legal fishing nets (neither small mesh-size nets or electro-fishing are allowed) but fishing was still considered a very high threat. The lake was deep, reaching nearly 80m in some areas, which renders illegal fishing procedures such as electro-fishing largely useless. (iii) Water scarcity, drought, and Natural Systems modification; recent information regarding Iraq's long-range water resource planning indicates that Tharthar may no longer receive waters from the Tigris River except during flood conditions and from precipitation and with lower flow salinity will likely increase as the waters that do reach the lake evaporate. This is the result of reduced flows in Iraq overall and water resource allocation decisions; (iv) Pollution, normally this was considered a low threat but there have been a number of oil spills on the Tigris River to the north and when these occur, oil laden waters are diverted into Tharthar Lake to avoid these waters reaching population centers further south.

Given national water resource planning the future for Tharthar Lake itself indicates major ecological changes will be happening within the next decade, with the lake becoming smaller and more saline. This will represent significant socio-economic challenges in the region in addition to major shifts in the biodiversity of the area. For example, the fisheries of the lake will be greatly reduced and potentially eliminated. It is strongly recommended that a broad environmental action plan be developed to address these transitions particularly as they may affect agriculture, fishing and other uses of the area. Stronger fishing regulations and additional fisheries surveys are needed to understand and plan for future changes to the lake. A national oil spill response program is also needed throughout the country and would benefit places such as Tharthar Lake. Finally, the surrounding steppe areas warrants further field surveys, which will require the cooperation with the national Iraqi police, army and local authorities to facilitate access.



3. Habbaniya Lake (45,390 ha) – (33.196667°N 43.460556°E)

Habbaniya Lake is located southeast of Ramadi, the capital of Anbar Governorate, and west of Baghdad. It is a large water reservoir constructed in 1982 and Evans (1994) included it in the original list of Important Bird Areas (IBA016). It receives excess floodwaters from the

Euphrates in the summer through a small canal near Ramadi called Sin Al-Dhuban. The canal passes through Al-Saglawiya and the calcareous Al-Guss hills, which separate the canal from Habbaniya. The excess floodwaters drain out on the southern edge of the lake through the narrow Al-Majarah Canal, which drains to Bahar Al-Milih and the northern part of Razzaza Lake (IQ058) in Karbala Governorate.

The main habitat is the lake itself and its wide, muddy shoreline. While no botanical survey was conducted at the site, species of *Phragmites* sp, *Typha* sp, *Achillea* sp, *Artemisia* sp, *Acacia* sp and *Alhagi* sp were the most widely distributed plants. There is a small elevation gain near the southern edge of the lake, and semi-desert forms the eastern and southwestern front of the lake with xeric and halophytic desert vegetation.

The shore is widely exposed during the wintertime when the water levels are reduced to their minimum level. A few wetlands with submerged aquatic vegetation were observed near Al-Majarah water regulation canal, including a limited number of reed beds. The village of Al-Angoor is located on the southwestern edge of Habbaniya and contains a few people who mainly practice fishing. The Habbaniyah tourism village is one of the most significant landmarks, located on the southeast edge of the lake. The habitat around this area features some dense shrubs and thickets.

During the surveys a total of 49 bird species were recorded. The site also held breeding populations of four Sahara-Sindian Desert biome-restricted species. One adult Ruppell's Fox *Vulpes rueppelli* was observed crossing the road that leads to the site near Al-Angoor Village. Egyptian Spiny-tailed Lizard *Uromastix aegyptia* (Vulnerable) and Desert Cobra *Walterinnesia morgani* were observed. The six important fish species, according to Coad (2010) that are found in the lake are provided here with their catch ratios: *Acanthobrama marmid* (20% of the catch), *Alburnus mossulensis* (10%), *Leuciscus vorax* (appear occasionally in the catch), *Carasobarbus luteus* (20%), *Liza abu* (50%), and *Luciobarbus xanthopterus* (the latter a Vulnerable species appears occasionally in the catch).

Water shortages are causing an increase in salinity, water stagnation and reducing water quality in some parts of the lake. The Habbaniyah tourism village highly impacts the local environment especially as the survey team witnessed new efforts at rehabilitation of the area by the Anbar authorities during 2011. Spring and summer see the highest number of visitors and the most serious impact to the site, with large quantities of solid waste such as cans and plastic debris left behind, which spread rapidly throughout the site and ring the lake edges. Several small villages on the southern and eastern edges of the lake deposit sewage and other waste into the lake. Hunting and trapping of wildlife especially for large mammals, game birds, and raptors such as Saker Falcon and Peregrine Falcon during winter is another high threat (Al-Sheikhly, 2012).

Land near Habbaniya is also used as an air force base. The frequent training flights result in widespread noise pollution and other environmental impacts sufficient to disturb and harm both resident and migrant species. Small farms growing annual crops are limited and restricted to the northern and northwestern edge of the site. A few villages and urban areas can be found on the western edge of the site near Al-Angoor.

Water quality and flow conditions should also be more closely examined. Enforcing Iraq's current hunting laws and raising awareness among local hunters and fishermen in cooperation with local hunting groups or associations in Anbar can help reduce the potential for declines in wintering raptors and other fish and wildlife.



4. Qadissiya Lake (145,230 ha) – (34.3575N 42.073333°E)

Haditha Dam, which creates Qadissiya Lake, is an important strategic facility in northwestern Iraq located within Wadi Haditha in the Euphrates Valley. The towns of Anah and Rawa lie to the northwest. The dam has been functioning since the 1980s, providing electricity to Iraq's western regions. On the eastern side of the lake is an open steppe and barren semi-desert landscape called Abu Dalaia. The delineation for Qadissiya Lake includes an extension into this area where a Sociable Lapwing was satellite-tracked on the 15th and 19th of March of 2010. There was no botanical survey conducted there but wild vegetation consisted of *Acacia sp*, *Alhagi sp*, *Astragalus sp*, *Eucalyptus sp*, *Halaxylon sp*, *Morus sp*, *Phragmites sp*, *Populus sp*, *Typha sp*, and *Zizphus sp*.

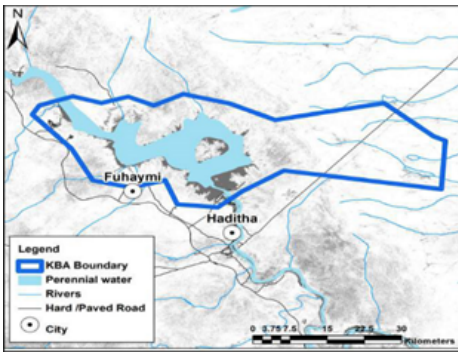
The artificial lake features a muddy shore mixed with sand, gravel and gravel and some pockets of fresh grass and vegetation, while several gravel islands also appear near the eastern lakeshore. The river below the dam is moderately wide (30-40 m) with thick reeds covering the banks, extending to Haditha Wetlands and Baghdadi (IQ050), while a small number of date-palm trees and fruit farms are also distributed along both riverbanks. The wetland area is surrounded by arid steppes and dry sandy slopes. The majority of observations were made on the lake, but the winter 2010 survey focused on an area downstream of the dam due to unfavorable weather conditions. The site remains closely protected by the army, who did not allow the team direct access to the dam area. Other parts of the lake are difficult to access due to poor security conditions, but the summer team was still able to survey much of the lake.

A total of 30 birds species were recorded. In addition, the site had breeding populations of two Sahara-Sindian Desert biome-restricted species, but these did not trigger inclusion under A3 criterion.

Many individuals of Golden Jackal *Canis aureus* were observed and photographed. No fish survey took place.

The site is a unique habitat in western Iraq with a wide spectrum of biodiversity, but very little biological data has been collected so far. The highest threats observed were pollution and the Haditha Dam and management of water to generate electricity for the cities of Haditha, Anah, Rawa, Hit, Al-Qae'm and their vicinities. Huge turbines operate 20 hours a day. As a result, industrial effluents (mainly machine oil and other chemicals) adversely affect water quality in the area near the dam. Garbage and solid waste, mainly non-degradable plastics, were observed at many localities. Also, domestic wastewater and noise pollution from traffic as well as private electricity generators heavily affect the eastern parts of the lake. Hunting was reported and a few boats fishing with nets were observed. The director of the dam indicated that fishing is prevented during the breeding season and the fishermen obey these rules. There is very limited recreational and tourism activity.

More cooperative work and awareness-raising activities with local fishermen to improve fish populations and sustainable fisheries is recommended.



5. Ga'ara (89,558 ha) – (33.501653°N, 40.436954°E)

Ga'ara is a large desert site situated 60 km to the north of Rutba in northwestern Anbar province. The site is a natural depression in the western desert of Iraq, and it surrounded on its southern and eastern parts by elevated rocky ground and cliffs (called Al-Afaeif), which form one of the main landmarks of the area. The two main habitats studied were desert shrublands and herbaceous vegetation steppe lands. During the wet seasons the people of Rutba use part of the area for wheat and sunflower agriculture. Dam construction has been noted in several areas of Ga'ara but the team was not able to obtain any information on these projects.

A total of 24 birds' species were recorded. In addition, the site had breeding populations of six Sahara-Sindian Desert biome-restricted species, but these did not trigger inclusion under criterion A3.

Also, Striped Hyaena *Hyaena hyaena* (Near Threatened) has been reported by locals. Gray Wolf *Canis lupus* attacks on local animal herds have also been reported and considering the desert landscape this suggests the Arabian race *arabs*. Reptiles observed included Egyptian Spiny-tailed Lizard *Uromastyx aegyptia* (Vulnerable); Blanford's Short-nosed Desert Lizard *Mesalina brevirostris*, and Arabian Horned Viper *Cerastes gasperettii*.

Very few human activities influence the site due to its remoteness. The village of Al-Ga'ara consists of a small community. The people there are mainly Bedouin roaming the western desert of Iraq, cultivate wheat during the wet seasons (in spring), but only on a very small scale. The main impact is the hunting of birds, especially raptors, during the migration and the winter but this isolated site seems not to be affected by humans during the hot, dry seasons. More information is needed to understand and control the impacts of dam construction in this region.

Socio-economic

The population of Iraq is approximately 40 million people (as of 2020) characterized by a density of 93 people per sq km in 2021 with ca. 33 percent of it living in rural areas. Iraq was ranked 123rd out of 189 countries and territories in the 2020 UNDP Human Development Index (HDI)". Overall, between 1990 and 2019, Iraq's HDI value increased 20.4%. The economically active population is ca. 28.6% of the total, 79.6% being male and 20.4% female. Unemployment rate is 12.8% nationally (7% of males and 13% of females), 25.1% when referred to youth aged 15-24.

Iraq is an oil upper middle-income country with a Gross National Income (GNI) of USD 4,600 in 2021. Oil extraction is the most important sector of the economy and accounts for 55% of GDP. The agricultural sector accounts for 8.6 percent of the Gross Domestic Product (GDP) including the oil sector - and 32% excluding it.

The official economic growth averaged 7.1% per year over the period 2010-2015 and it declined in the following years up to reaching 4.46% in 2021. But the economic growth in Iraq is mainly driven by the projected ramp-up in oil production, increase in oil-related FDI, structural reforms and implementation of the IMF program. A recent report stated that the Iraqi economy is deeply dependent on global oil prices as 90 % of the Government revenue derives from oil.

Data from 2020 reveal that overall, 18.9% of people in Iraq live below the national poverty line with less than USD 1.9 per person per day. But according to a 2021 release from the Ministry of Planning the poverty rate nationally stands currently at 31.7%, marking a 12 folds increase from 2019.

Conflict and excessive dependence on oil pose significant challenges to Iraq's socioeconomic development. The protracted (last) conflict started in 2003 and subsequent economic crises in Iraq left millions of people food insecure; water shortages and the lack or high cost of agricultural inputs continue to negatively affect the performance of the sector.

With an average rural household size of 6.3 people (2019), rural poverty in Iraq is a direct consequence of the rapid 2.3% population growth (2019), internal conflict and insecurity, climate change, increasing water scarcity and rapid desertification (low environmental sustainability): rural poverty is also driven by the combined effects which have resulted in reduced prospects for viable rain-fed and irrigated agricultural and livestock production, and lack of sustainable income generating opportunities for rural communities.

The Government has formulated a 2018-2022 National Development Plan (NDP) designed to enable the Iraqi economy to take off and start to free itself from a revenue-generating economy dependent on a single resource, oil, to expanding its base to depend on other activities, whether production, service, or distributional. The plan defined the roles of the public and private sectors and civil society in achieving its developmental, economic, human resource, and environmental goals. The vision embodied in the 2018-2022 Plan represents aims to build a diversified and prosperous economy with industry, energy, agriculture and tourism as the main drivers and pillars of development, where the public and the private sector along with civil society are partners in development, and where centralized and decentralized roles complement each other in managing development.

Agriculture and water

Agriculture is a key sector in Iraq's economy and is a major source of livelihood for the poor and food insecure and is the largest source of rural employment. Agriculture is a key sector in Iraq's economy, it accounts for 8.6 percent of the Gross Domestic Product (GDP) including the oil sector - and 32% excluding it. After public service and the trade sector, agriculture still is the main provider of employment in Iraq (20% of employment nationally) and it is a major source of livelihood for the poor and food insecure (as of 2017, agriculture represents the direct livelihood of an estimated 11 % of Iraqi families). Agriculture is certainly the largest source of rural employment.

The production systems include an irrigated-based system in the center and south and a rain-fed-based system predominantly in the north. The irrigated area on the Tigris and its tributaries is 2.4 million ha and that on the Euphrates is 1.1 million ha. In the irrigated system, in addition to cereals, mainly wheat and barley, winter and summer vegetables, corn, rice and fruit trees with predominantly date palm are grown. The rainfed farming system is crop/small ruminant based. Both systems are characterized by low productivity. In particular, the small farming systems are characterized by low crop yields, but also low inputs, such as advanced seed varieties and technology. In the rural areas, small-scale farmers and livestock producers are the most marginalized households with unemployed young men and women as the most vulnerable.

Agriculture production; food processing; and related services including logistics, finance, manufacturing, and technology have large potential to expand and create jobs. The agri-food sector has not been subject to the same level of Government control as other sectors, so it is well positioned to develop new methods and adopt the latest technologies to maximize its competitive potential. Due to current limitations such as soil salinity, drought, and shortage of irrigation water, of the mentioned 11 million ha arable land the estimated average area cropped each year ranges currently from 3-4 million hectares.

The agricultural sector in Iraq consumes 85% of the total surface water demand. Of the areas under irrigation, 62.8% receive water through gravity irrigation projects, 36% pumped from rivers and major channels and 1.2% from ground water aquifers and springs. By 2020, average estimated water demand in Iraq is expected to surpass estimated water availability, with river discharges potentially running dry by 2040.

In 2012, among the agricultural households, roughly 75 % of them engage in crop production as a major source of income, while the remainder rely on livestock or mixed crop and livestock activities. Inland fisheries and poultry raising provide additional and important income sources.

The production systems include an irrigated-based system in the center and south and a rain-fed-based system predominantly in the north. The irrigated area on the Tigris and its tributaries is 2.4 million ha and that on the Euphrates is 1.1 million ha. In the irrigated system, in addition to cereals, mainly wheat and barley, winter and summer vegetables, corn, rice and fruit trees with predominantly date palm are grown. The rainfed farming system is crop/small ruminant based. Both systems are characterized by low productivity. The small farming systems are characterized by low crop yields due to low inputs, such as advanced seed varieties and technology.

Small-scale farmers with a holding size ranging from 2.5 to 7.5 ha account for 35% of total number of farmers (for irrigated lands the figures drop to 4 ha). Medium-sized farmers account for 34% of the total with a holding

size ranging between 7.6 ha and 12.5 ha. In the rural areas, small-scale farmers and livestock producers are the most marginalized households with unemployed young men and women as the most vulnerable. In Muthanna governorate small holders account for 60% of the total farming population.

The land holding system in Iraq is a mixture of owner operator, lease holding and sharecropping arrangements. In the rural areas of the four poorest governorates, small-scale farmers and livestock producers are the most marginalized households with unemployed young men and women the most vulnerable.

Iraq's agri-food sector has already established agriculture value chains that allow for high value addition. The country's immediate priority is to identify and invest in interventions that will increase efficiency, competitiveness, and sustainability of existing value chains. Three value chains in particular show high potential to expand employment and boost economic growth: poultry, tomatoes, and date palms. Agriculture production; food processing; and related services including logistics, finance, manufacturing, and technology have large potential to expand and create jobs. The agri-food sector has not been subject to the same level of Government control as other sectors, so it is well positioned to develop new methods and adopt the latest technologies to maximize its competitive potential.

Due to current limitations such as soil salinity, drought, and shortage of irrigation water, of the mentioned 11 million ha arable land the estimated average area cropped each year ranges currently from 3-4 million hectares.

Based on FAO data, the production of cereals dropped from 4.27 million tons in 2011 to 3.2 million tons in 2015 (-25%), while vegetable production dropped from 3.7 million tons in 2011 to 1.2 million tons (-67%) in the same period. However, Iraq cereal production fluctuated substantially in recent years, it tended to increase through 1969 - 2018 period ending at 4.29 million metric tons in 2018. Overall, most agricultural produce seems to have decreased in a range between 20 and 60%.

In recent times, livelihoods based on livestock raising have been severely affected by the decline in barley production due to desertification and climate change, with drought exacerbating the conditions, especially in the rainfed zone. Due to unfavorable climatic conditions, nearly all agriculture in the country (ca. 70%) relies on irrigation. Water resources are mainly surface water in Iraq, deriving from the Tigris and its tributaries and Euphrates (an estimated 75 billion cubic meters per year).

The Tigris and Euphrates are the main water resources in Iraq, and both originate in Turkey and converge to form the Shatt Al-Arab which drains into the Arabian Gulf. More than 90% of Euphrates water comes from outside Iraq, while 50% of the Tigris water comes from within the country. The total length of the running rivers is about 4,773 km, with the Tigris and Euphrates accounting for 1160 km and 1418 km inside Iraq, respectively. Because both rivers originate from Turkey, the water supply from these major rivers in Iraq is heavily dependent on Turkey's water management policies.

ANNEX D: ENVIRONMENTAL AND SOCIAL SAFEGUARDS SCREEN AND RATING

(PIF level) Attach agency safeguard screen form including rating of risk types and overall risk rating.

Title

Rio Markers

PIMS 9697 Iraq_GEF8_Anbar Province SESP

ANNEX E: RIO MARKERS

| Climate Change Mitigation | Climate Change Adaptation | Biodiversity | Land Degradation |
|---------------------------|---------------------------|-----------------------|-----------------------|
| Significant Objective 1 | Principal Objective 2 | Principal Objective 2 | Principal Objective 2 |

ANNEX F: TAXONOMY WORKSHEET

Only the relevant taxonomy tags appear in the table below. Full Taxonomy table is uploaded to Portal as Annex F.

| Level 1 | Level 2 | Level 3 | Level 4 |
|---|--|---|-----------------------------|
| Influencing models | | | |
| | Transform policy and regulatory environments | | |
| | Strengthen institutional capacity and decision-making | | |
| | Convene multi-stakeholder alliances | | |
| | Demonstrate innovative approaches | | |
| Stakeholders | | | |
| | Indigenous Peoples | | |
| | Private Sector | | |
| | | SMEs | |
| | | Individuals/Entrepreneurs | |
| | Beneficiaries | | |
| | Local Communities | | |
| | Civil Society | | |
| | | Community Based Organization | |
| | | Non-Governmental Organization | |
| | | Academia | |
| | Type of Engagement | | |
| | | Information Dissemination | |
| | | Partnership | |
| | | Consultation | |
| | | Participation | |
| | Communications | | |
| | | Awareness Raising | |
| | | Education | |
| Capacity, Knowledge and Research | | | |
| | Capacity Development | | |
| | Knowledge Generation and Exchange | | |
| | Targeted Research | | |
| | Learning | | |
| | | Theory of Change | |
| | Innovation | | |
| | Knowledge and Learning | | |
| | | Knowledge Management | |
| | | Innovation | |
| | | Capacity Development | |
| | | Learning | |
| | Stakeholder Engagement Plan | | |
| Gender Equality | | | |
| | Gender Mainstreaming | | |
| | | Beneficiaries | |
| | | Women groups | |
| | | Sex-disaggregated indicators | |
| | Gender results areas | | |
| | | Access and control over natural resources | |
| | | Participation and leadership | |
| | | Access to benefits and services | |
| | | Capacity development | |
| | | Awareness raising | |
| Focal Areas/Theme | | | |
| | Biodiversity | | |
| | | Protected Areas and Landscapes | |
| | | | Terrestrial Protected Areas |

| | | | |
|--------------------|-------------------------------|----------------------------------|--|
| | | | Community Based Natural Resource Management |
| | | Mainstreaming | |
| | | | Tourism |
| | | Biomes | |
| | | | Wetlands |
| | | | Tropical Dry Forests |
| | Forests | | |
| | | Forest | |
| | | | Drylands |
| | Land Degradation | | |
| | | Sustainable Land Management | |
| | | | Restoration and Rehabilitation of Degraded Lands |
| | | | Ecosystem Approach |
| | | | Community-Based NRM |
| | | | Sustainable Livelihoods |
| | | | Income Generating Activities |
| | | | Sustainable Pasture Management |
| | | | Sustainable Forest/Woodland Management |
| | | | Improved Soil and Water Management Techniques |
| | | Land Degradation Neutrality | |
| | | | Land Cover and Land cover change |
| | Climate Change | | |
| | | Climate Change Adaptation | |
| | | | Climate Resilience |
| | | | Ecosystem-based Adaptation |
| | | | Community-based Adaptation |
| | | | Livelihoods |
| | | Climate Change Mitigation | |
| | | | Renewable Energy |
| Rio Markers | | | |
| | Paris Agreement | | |
| | Sustainable Development Goals | | |
| | Climate Change Mitigation 1 | | |
| | Climate Change Adaptation 2 | | |