GEF-6 PROJECT IDENTIFICATION FORM (PIF)

PROJECT TYPE: Full-sized Project
TYPE OF TRUST FUND: GEF Trust Fund

PART I: PROJECT INFORMATION

Project Title:	Revitalising Oasis Agro-ecosystems through a Sustainable, Integrated and Landscape Approach in the Draâ-Tafilalet Region (**OASIL**)		
Country(ies):	Morocco	GEF Project ID:[1]	9537
GEF Agency(ies):	FAO	GEF Agency Project ID:	641869
Other Executing Partner(s):	Ministry of Environment, Ministry of Agriculture and Maritime Fisheries, ANDZOA and INRA	Submission Date:	29 August 2016
GEF Focal Area(s):	Multi-focal areas	Project Duration (Months)	60
Integrated Approach Pilot	IAP-Cities ☐ IAP-Commodities ☐ IAP-Food Security ☐	Corporate Program: SGP ☐	
Name of parent program:	N/A	Agency Fee ($)	819,950

A. INDICATIVE FOCAL AREA STRATEGY FRAMEWORK AND OTHER PROGRAM STRATEGIES

Objectives/Programs (Focal Areas, Integrated Approach Pilot, Corporate Programs)	**Trust Fund**	**(in $)**	
		GEF Project Financing	**Co-financing**
BD-3 Program 7	GEFTF	2,548,402	8,797,000
LD-1 Program 1	GEFTF	4,256,164	23,579,000
CCM-1 Program 1	GEFTF	526,484	2,997,000
CCM-2 Program 4	GEFTF	1,300,000	5,897,000
Total Project Cost		**8,631,050**	**41,270,000**

B. INDICATIVE PROJECT DESCRIPTION SUMMARY

Project Objective: Revitalise oasis agro-ecosystems in the Drâa-Tafilalet Region, in order for them to be productive, attractive, and healthy and to sustain and make more resilient the livelihoods of the local communities.

Indicators: (i) Improved and sustainable sources of income for vulnerable households living in and relying on oasis agro-ecosystems; (ii) # ha of oasis agro-ecosystems sustainably managed in an integrated and participatory manner; (iii) # of tons of CO_{2e} mitigated through project activities over a 20-year period
Indicative target: (i) 15 000 households; (ii) 60 000 ha; (iii) 1,5 million tons of CO_{2e}

Project Components	**Financing Type**	**Project Outcomes**	**Project Outputs**	**Trust Fund**	**(in $)**	
					GEF Project Financing	**Co-financing**
1. **POLICY DIALOGUE**: Support policy dialogue at the national and regional levels on the sustainable management of oasis agro-ecosystems	TA	1.1. The understanding of oasis challenges and opporutnies of the government and other national stakeholders is enhanced in order to promote the sustainable management of oasis agro-ecosystems through national strategies and development plans *Indicator: 'La charte des oasis durables' signed by*	1.1.1. Awareness raising campaigns are organized targetting policy makers from multiple sectors at the national level on critical factors and innovative approaches to ensure the sustainability of oasis agro-ecosystems 1.1.2. A multi-sector platform/information system with data and best practices for	GEFTF	300,000	4,050,000

[1] Project ID number will be assigned by GEFSEC and to be entered by Agency in subsequent document submissions.

		key government stakeholders *Indicative target: 1 charte* 1.2. BD, Sustainable Land and Water Management (SLWM) and climate-smart approaches are mainstreamed into the future regional development plans of the Draâ-Tafilalet Region, assisting the advanced regionalization process *Indicator: # of regional development plans incorporate biodiversity, climate change and SLWM considerations* *Indicative target:TBC*	integrated and sustainable management of oasis agro-ecosystems is enhanced to inform decision-making at the national and regional levels 1.1.3. A declaration (*Charte des oasis durables*) is developed in a multi-stakeholder process to inform sector policies and development strategies and plans 1.2.1. Training programme developed and implemented for increased capacity of the National Extension Agency (ONCA) agents to incorporate BD, Sustainable Land and Water Management and climate change mitigation approaches as well as improved climate-resilient agro-sylvo-pastoral practices in plans and policies			
2. **PLANNING AND MONITORING:** Improvement of NRM and SPI planning and monitoring systems at regional and local levels	TA/Inv	2.1. Knowledge and information on the state and sustainable management of natural resources (water, land, biodiversity) in oasis agro-ecosystems are improved *Indicator:# of institutes/actors at national, regional and local levels using improved NRM and SPI information and information systems* *Indicative target:TBC*	2.1.1 Participatory water accounting and auditing is conducted at regional level 2.1.2. Land degradation assessment is conducted at the regional level 2.1.3. Catalogues on local seed varieties, plant and animal genetic resources and their multiple usage and benefits (nutrion value, soil carbon fixation, climate resilience, water efficiency, …) and databases on state of degradation/loss/erosion of agro-biodiversity, climate resilient agricultural practices, and the rangeland management practices pertinent to the project intervention area are completed	GEFTF	1,600,000	12,058,000

		2.2. Sustainable and integrated oasis agro-ecosystem plans are developed in a participatory manner using a landscape approach and considering the multiple dimensions of oasis agro-ecosystems and livelihood options (agriculture, livestock, natural resouces management, water infrastructure, land degradation protection measures, tourism) *Indicator: # of sustainable and integrated oasis agro-ecosystem management plans developed* *Indicative target: TBC (1 per oasis agro-ecosystem in selected sub-drainage basins)*	2.1.4. Natural resources information systems are reinforced and improved using spatial analysis (GIS systems) at the regional level 2.1.5. Oasis typology and mapping based on bio-physical and socio-economic factors (ecosystemic and livelihood approaches) are elaborated 2.2.1. The sustainability of each oasis type is assessed in a participatory manner 2.2.2. Sustainable and integrated management and investment plans for selected pilot oasis types are developed in a participatory manner			
3. **DEMONSTRATION:** Oasis agro-ecosystems are restored, safeguarded and sustainably managed through an integrated landscape approach	Inv	3.1. Sustainable and integrated oasis agro-ecosystem management and investment plans are implemented in pilot oasis ecosystems in at least 2 sub-drainage basins *Indicator: # of ha under effective agricultural, rangeland and pastoral management* *Indicative target: 60 000 ha (eg. improved irrigation, agricultural diversification, rangeland seeding, fodder shrubs plantations, watershed protection)* *Indicator: # of ha directly contributing to biodiversity conservation and sustainable use*	3.1.1. Training, technical assistance and knowledge exchange for capacity development of local oasis agro and agro-pastoral communities in order to enable sustainable management and sustainable production intensification of oasis agro-ecosystems 3.1.2. Selected good agricultural practices are implemented in pilot oasis agro-ecosystems as identified in the plans 3.1.3. Selected traditional and innovative low-emission technologies are restored and/or	GEFTF	5,870,050	22,116,948

		Indicative target: 15 000 ha (e.g. establishment of "mise en défense" areas for strategic feeding and enhanced ecosystem resilience)	introduced in pilot oasis agro-ecosystems, as identified in the plans 3.1.4. Selected land degradation protection measures are implemented in pilot oasis agro-ecosystems, as identified in the plans 3.1.5. Agro-biodiversity is conserved *in situ* and used in a sustainable way			
		3.2. Livelihoods and income of oasis smallholders are more resilient, diversified and strengthened *Indicator: % increase of average annual household income from (sample oasis households in project area):* - **CROP AND LIVESTOCK PRODUCTION** - **NEW AND ADDITIONAL INCOME SOURCES** *Indicative target:20% increase*	3.2.1. Sustainable value chain development of a selection of agro-pastoral products from oasis agro-ecosystems is supported 3.2.2. The diversification of rural livelihoods is supported			
4. Project monitoring and evaluation and knowledge management	TA	4.1. Project progress and results are monitored and evaluated throughout project implementation *Indicator: An M&E plan developed and implemented* *Target: 1 M&E plan* 4.2. Project results and information disseminated *Indicator: A communication strategy developed and implemented* *Target: 1 strategy*	4.1.1. Monitoring and evaluation indicators developed and collected during project implementation 4.1.2. Project Progress reports prepared 4.1.3. Mid-term and final evaluations conducted 4.2.1. Project website developed 4.2.2. Project communication products developed 4.2.3. Technical project reports prepared and disseminated 4.2.4. Project results and activities disseminated in national and international events	GEFTF	450,000	2,045,052
			Subtotal		8,220,050	40,270,000
			Project Management Cost (PMC)	GEFTF	411,000	1,000,000

Total Project Cost		**8,631,050**	**41,270,000**

C. INDICATIVE SOURCES OF CO-FINANCING FOR THE PROJECT BY NAME AND BY TYPE, IF AVAILABLE

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Amount ($)
Recipient Government	MAPM/ADA	Grants	29,970,000
Recipient Government	ANDZOA	Grants	9,600,000
Recipient Government	INRA	Grants	1,000,000
GEF Agency	FAO	In-kind	200,000
GEF Agency	FAO	Grants	500,000
Total Co-financing			**41,270,000**

D. INDICATIVE TRUST FUND RESOURCES REQUESTED BY AGENCY(IES), COUNTRY(IES) AND THE PROGRAMMING OF FUNDS

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	(in $)		
					GEF Project Financing (a)	Agency Fee (b)[b)]	Total (c)=a+b
FAO	GEFTF	Morocco	BD	N/A	4,374,886	415,614	4,790,500
FAO	GEFTF	Morocco	LD	N/A	4,256,164	404,336	4,660,500
Total GEF Resources					**8,631,050**	**819,950**	**9,451,000**

E. PROJECT PREPARATION GRANT (PPG)

Is Project Preparation Grant requested? Yes ☒ No ☐ If no, skip item E.

PPG AMOUNT REQUESTED BY AGENCY(IES), TRUST FUND, COUNTRY(IES) AND THE PROGRAMMING OF FUNDS

Project Preparation Grant amount requested: $200,000				PPG Agency Fee: $19,000			
GEF Agency	Trust Fund	Country/ Regional/Global	Focal Area	Programming of Funds	(in $)		
					PPG (a)	Agency Fee (b)	Total c = a + b
FAO	GEFTF	Morocco	BD	N/A	100,000	9,500	109,500
FAO	GEFTF	Morocco	LD	N/A	100,000	9,500	109,500
Total PPG Amount					**200,000**	**19,000**	**219,000**

F. PROJECT'S TARGET CONTRIBUTIONS TO GLOBAL ENVIRONMENTAL BENEFITS
Provide the expected project targets as appropriate.

Corporate Results	Replenishment Targets	Project Targets
Maintain globally significant biodiversity and the ecosystem goods and services that it provides to society	Improved management of landscapes and seascapes covering 300 million hectares	***15 000 Hectares***
Sustainable land management in production systems (agriculture, rangelands, and forest landscapes)	120 million hectares under sustainable land management	***60 000 Hectares***
Support to transformational shifts towards a low-emission and resilient development path	750 million tons of CO_{2e} mitigated (include both direct and indirect)	***1,482,488 metric tons of CO_{2e} ****

*Estimate has been made using the EX-Ante carbon-balance tool (EX-ACT, version 7). A fact sheet is attached to the PIF.

PART II: PROJECT JUSTIFICATION

1. *Project Description.*

1.1. Why oasis ecosystems?

Oases are important socio-agro-ecosystems providing economic, ecological, social and cultural services throughout the world's drylands. Moroccon oasis agro-ecosystems cover a total area of 115 563 km^2 (15% of the country's surface), and are home to over 1.7 million people (5% of the population). As a refuge for biodiversity, climate regulation, and agricultural products, they are the last line of defence against a progressing Sahara desert.

The resilience of these once sustainable and sustainably managed agro-sylvo-pastoral ecosystems has been challenged by a number of recent transformations, directly and indirectly putting pressure on the natural resources oasis agro-ecosystems nurture and rely on.

1.2. Root causes of degradation

These transformations include: (i) antropogenic changes (demographic dynamics, such as an exodus of rural youth and a sedentarisation of traditionally transhumant pastoralist communities); (ii) consequently the loss of traditional agro-sylvo-pastoral production systems, practices and tools, but also a deficit of manpower to work the land; (iii) climate change and its impacts (such as increased pest and forest fire risks, droughts and flash-floods); and (iv) a progressive modernization and changing lifestyles (resulting for instance in growing per capita water consumption and excessive water pumping, growing carbon footprint, agricultural production intensification). These changes lay at the basis of rapidly eroding oasis agro-ecosystems, putting the very survival of the oases at stake, while also increasing the pressure on the ecological integrity and sustainability of its surrounding land, including protected area systems on the South slope of the Atlas Mountains in the case of the proposed FAO-GEF project.

The oasis populations are currently immersed in a vicious cycle of ecological degradation and impoverishment. As a result of the degrading ecosystem, the oases no longer provide sufficient means of subsistence and the oasis populations are forced to resort to seasonal migration and have an increased dependence on remittencees, which results in the abandonment of practices adapted for the oases, and leading to a loss of environmental services – resulting in a continuous cycle of poverty.

1.3. Description of the oasis agro-ecosystems in the Draâ-Tafilalet

The situation in the selected project area, the Draâ-Tafilalet region, is no different. This newly created region (re-regionalisation process of Morocco was completed in 2015) is varied, with the Middle Atlas in the North and the High Atlas in the South, alluvial plains and depressions as well as stony deserts (Hamadas). This area represents more than two thirds of Moroccan oasis ecosystems and constitutes a large zone of the Biosphere Reserve of the Oasis in Southern Morocco. It represents a wide range of bioclimatic areas, from the humid Mediterranean area to the hyper-arid Sahara. The Draâ-Tafilalet region has 1,635,008 inhabitants (4.7% of the national population according to an estimate in 2014) on an area of 86 142 km^2. These are significant figures, considering that the utilized agricultural area (SAU) – nearly exclusively oases – only covers 2% of this space and that the remaining 98% is nearly entirely desert area. The density per hectare of SAU greatly surpasses the

700 inhabitants per km^2, living in a worsening economic situation. The region does not live off of its own economic base but benefits from remittencees, representing approximately 60% of the region's monetary income.

1.4. Global environment problems in the oasis agro-ecosystems in the Draâ-Tafilalet

The environmental heritage, wich is the major wealth of the productive activities in the Moroccan oasis agro-ecosystems, has been weakened by recurrent periods of drought, and is subject to an arid climate and is being further degraded due to irrational modes of exploitation, including unsustainable modernization, overgrazing and excessive water pumping. This degradation process affects the integrity of the agro-ecosystems and could eventually lead to the decline in goods and services, which the local population relies on for sources of income, and subsequently lead to the deterioration of the standards of living and the sociocultural destabilization of the local communities.

Water scarcity: The survival of the oases depends entirely on water resources. Sustainable water resources management in oasis agro-ecosystems is crucial to ensure their capacity to provide services such as food production and sustain rural livelihoods. A vulnerability assessment developed in the framework of the project *Adaptation to Climate Change in Morocco for Resilient Oasis* (PACC-ZO) in 2011 shows that the water sector is highly vulnerable in oases in the Draâ-Trafilalet Region. Water resources are becoming scarce as a result of climate variability (droughts, floods, erratic rainfall) as well as socio-economic pressures (agricultural intensification, groundwater depletion, pollution). Additionally, the effects of climate change (temperature increase, changes in rainfall patterns) will put more pressure on water resources. Therefore it is fundamental to shift towards a more sustainable and adaptive management of water resources.

Land degradation: Major land degradation problems in Morocco's oasis agro-ecosystems are salinity and sand encroachment (UNCCD NAP). According to studies carried out by ORMVA-Tafilalet (1982) and Khardi (1998), 35% of the soils of oasis suffer from salinity (4 à 6 g/l), and 18% suffer from high salinity (> 16 g/l). Soil salinity is partly a result of excessive water pumping and hotter and dryer climate conditions, limiting the natural recharge of the watertable. The excessive and irrational use of the acquifer for irrigation has been linked to the increased propagation of the Bayoud fungus, impacting on average 36 000 date palm trees per year (3.5% of the date palms).

The Draâ-Tafilalet region is exposed to the Chergui and Sirocco winds from the South, and 30 000 ha of land in Ouarzazate and Zagora and 250 000 ha of land in Errachidia are being threatened by sand encroachment (DDF, 1998).

These land degradation threats translate into reduced agriculturual productivity and decreasing land availability for agricultural use (SAU per person increased from 0.32 ha/person in 1960 to 0.35 ha/person in 1990 because of deforestation for agricultural land expansion, but is projected to decrease to 0.22 ha /person because of water stress - CBD 5th National Report, 2015). Human and climate induced land use change is also a cause of modified soil organic carbon and overuse of water resources (and increasing soil salinity), expansion of agricultural land, and degradation of oasis agro-ecosystem have led to soil organic carbon loss.

Agro-biodiversity: Morocco counts 407 taxa of plant species with agricultural interest, including edible plants, medicinal and aromatic plants, pastoral plants, ornamental plants, industrial plants and crop wild relatives. Morocco is a recognised centre of genetic diversity for a number of cultivated species and their wild relatives, including *Avena spp.* (20 species), *Medicago spp.* (16 species), *Lupinus spp.*, *Trifolium spp.*, *Aegilops spp.*, *Hordeum spp.*, *Triticum spp.*, *Vicia spp.*, *Olea spp.*, *Pistacia spp.*, *Prunus spp.*[2]

Oasis agro-ecosystems are agro-biodiversity hotspots. The ingenious agricultural system and the dominating presence of the Phoenix dactylifera (date palm - more than 453 cultivars) and its local varieties Mejhoul, Jihel, Bouittob, Aziza and Boufeggous constitute an important phylogenetic basis locally and nationally.[3] Other cultivated species, such as *Olea europaea* (olive tree, of the variety 'Picholine marocaine') and *Lawsonia*

[2] http://www.fao.org/wiews-archive/Morocco/Paper6.jsp

[3] MoA/INRA, 2011

inermis (henne) are found in oasis agro-ecosystems, as well as barley, faba bean, turnips, carrots, squash, fig, walnut, almond, pomegranate, and peach among others.

These valuable sources of diversity are now at risk of extinction. The CBD 5th National Report suggests that fragmentation, habitat loss, pollution, water management, invasive species, over-exploitation and climate change are the main drivers of biodiversity loss. For oasis agro-ecosystems in particular, the abandonment of traditional (2 or 3-tier) agro-sylvo-pastoral practices, and the expansion of monocultures of high-value date palm varieties (Mejhoul) accelerate the agro-biodiversity erosion in oasis agro-ecosystems. Cereals and pulses have been identified as the groups that suffer most from genetic erosion because of the wide adoption of improved varieties at the expense of local/wild crops and varieties and because of the disappearance of *Pennisitum typhoides* (pearl millet) and *Panicum milliaceum* (proso millet).

MOROCCO

	Moroccan
	Beldi
	Blonde des Plateux d'Oulmes et des Zaers
	Meknes Black Pied
	Jebli
	Khaouri
	Marmouri
	Sahraqui
	Attaouia
	Berber
	Yahyaouia
	Barbe
	Ait Barka
	Ait Haddidou
	Ait Mohad
	Aknoul
	Beni Ahsen
	Beni Guil
	Beni Meskine
	Berbere
	D'Man
	Doukkala
	Harcha
	Marmoucha
	Rehamna-Sraghna
	Sardi
	Souss
	South Moroccan
	Tadla
	Timhadite
	Tounfite
	Tousint
	Zaian
	Zemmour
	Zemrane
	Zoulay
	Moroccoan Beldi
	Habachi
	Moroccan Pigeon
	Moroccoan Beldi

D

The World Watch List for Domestic Animal Diversity 2000 for Morocco shows a considerable lack of data in order to draw conclusions on the risk level of extinction (dash in right column) for the registered breeds in the global databank for farm animal genetic resources., About 30% of all farm animal breeds worldwide are at risk of extinction[4].

Morocco is also a hotspot for diversity of domestic animals; a number of breeds and animal populations are found here, including the *D'Man sheep* breed of the Southern Oases[5] (famous for its unique prolificity), the *Siroua* sheep[6] (a native breed largely ignored though locally known for the quality of its wool), and the local cattle breed *Tidili* living in Southern Moroccan oases or mountains. In addition, the *Saharan yellow bee*, localized in the sub-Saharan regions, especially in the oasis, has been ranked among the top world bees because its features in particular: softness, prolificacy, precocity, the extraordinary ability to collect nectar and easy acclimatization in any climate, including harsh winters. This species is however threatened by the risk of extinction. Genetic erosion of at least a number of these native breeds can be explained partially by the lack of characterization of population genetic variability, and the use of native breeds in crossbreeding programmes to improve their productivity.[7]

[4] http://www.lrrd.org/lrrd22/8/bouj22154.htm
[5] http://www.fao.org/docrep/009/t0071e/T0071E07.htm
[6] http://boujenane.com/phocadownload/Small%20ruminant%20breed%20in%20Morocco.pdf
[7] http://www.lrrd.org/lrrd22/8/bouj22154.htm

Climate change: Oasis agro-ecosystems are faced with a number of climate change challenges, exacerbating risks of water scarcity and extreme weather events. A study conducted by the Ministry of the Environment, Water, and Mines on the future scenarios of the oasis areas in the 2021-2050 horizon in terms of climate change yielded the following results (2015-2020 National Sustainable Development Strategy): (i) a decrease in total winter rainfalls and a decline in the number of wet days and heavy precipitation events; (ii) the magnitude of cumulative winter precipitation will be between 10% and 40% depending on the region and the number of wet days and heavy precipitation events will go from 5% to 30%; (iii) the magnitude of extreme winter weather will decrease over a large part of the zone; (iv) the zone will heat up during all seasons; and (v) elevated temperatures, especially in summer, will increase by 1°C to 2.2°C.

In terms of climate change mitigation, efforts focus on reducing emissions from the energy sector (Morocco's iNDC, 2015)[8] through economy-wide actions based on strategies and sectoral action plans (agriculture, water, waste, forests, energy, industry and housing). The agriculture sector potentially contributes 26% to the iNDC reduction target. Among the sectorial strategies and targets to implement the iNDC, there is the *Plan Maroc Vert* (Morocco Green Plan), which focuses on: (i) modernizing the agricultural sector to make it more competitive and integrated in the global market to create wealth over the entire value chain; (ii) taking into account the agricultural sector in all its sociological and territorial components by incorporating human development objectives as a key requirement; (iii) improving the promotion of natural resources and their sustainable management; and (iv) defining the necessary policies to support sustainable growth. Recognising the country's priorities and the fact that soil degradation and the distruction of the biological potential of oasis agro-ecosystems potentially contribute to atmospheric CO_2-enrichment[9], climate change mitigation efforts will support the demonstration, upscaling and replication of low-emission agricultural technologies and practices (e.g. solar pumping), as well as the restoration of oasis agro-ecosystems to re-establish their full carbon storage potential.

1.5. Morocco's response? (baseline context and projects)

Between 2002 and 2004, the ***Department of Planning*** (Département d'Aménagement du Territoire) conducted a study for the definition of a national oasis planning and development strategy, with the final objectives to protect resources, restore production and valorize oases. The strategy was specified into four oasis basin-specific programmes, i.e. the ***Programme Oasis Tafilalet (POT)***, the ***Programme Oasis of the South (POS)***, the Programme of local and integrated development of the Figuig Oasis (POF) and the ***Programme Oasis Draâ (POD)***. These programmes are coming to a close, and it was within the context of these programmes that a large number of successful projects and initiatives were initiated in oasis agro-ecosystems.

In 2010, the National Agency for the Development of the Oasis and Argan Zones (***Agence Nationale pour le Développement des Zones Oasinnes et de l'Arganier - ANDZOA***) was created as an agency of the Ministry of Agriculture and Maritime Fisheries (*Ministère de l'Agriculture et de la Pêche Maritime – MAPM*) to support the implementation of the Morocco Green Plan. ANDZOA is mandated to preserving productive, attractive and competitive oasis ecosystems through its 2014 Development Strategy for Oasis and Argan Zones.

Oasis agro-ecosystems have been identified as one of the priority areas in a number of national and regional plans and strategies, including the ***2015-2020 National Sustainable Development Strategy (SNDD)***, which is a strategy to green the main productive sectors in the country, creating jobs and growth without increasing the pressure on natural resources. The SNDD recognizes oases as poor, poorly equipped and highly fragile areas that need particular support and attention. The strategy foresees to strengthen their governance and oasis protection programmes. This includes: (i) better oases governance for their sustainable management; (ii) enact a law to protect and value oases; (iii) restore and protect 54 000 ha of date palms (3 million trees); (iv) accelerate the implementation of the National Programme on Rural Sanitation (*Programme National*

[8] Morocco's Mitigation Contribution includes an unconditional target of 13% reduction in GHG emissions by 2030 compared to BAU; and a conditional target of 19% reduction achievable under certain conditions, which would bring the total GHG reduction to 32% by 2030 compared to BAU. It has an economy-wide approach to achieve this target, including the energy sector, industrial processes, agriculture, waste and LULUCF. For the agriculture sector, it considers the following approaches: eneteric fermentation and manure management; cropping systems and land-use for agriculture.

[9] Xiaoyu, Yugang, Lijuan, Geping, Yan and Xi, 2013, 2013, *Effect of Land Use History and Pattern on Soil Carbon Storage in Arid Region of Central Asia*

d'Assainissement Rural – PNAR) to preserve water resources; and (v) densify the argan forest cover, restoring 200 000 ha. It also has a strong focus on climate change adaptation, the adoption of oasis-specific agricultural practices, the strengthening and promotion of artisanal activities and the development of oasis and Sahara tourism. The cost of implementation of the full 2015-2020 SNDD has been estimated at USD 9.9 billion (97 billion MAD, or 2% of GDP), of which the Moroccon Government makes USD 2.9 billion (28 billion MAD) available. 2 national funds will be established for the financial management of the 2015-2020 action plan of the SNDD, one sustainable development fund and one climate change fund.

Within the context of the SNDD, the Adaptation Fund approved the ***Climate Change Adaptation Project in Oasis Zones (PACC-ZO)*** (USD9.97M, implementing entity Agence de Développement Agricole, 2015-2020). The objective of the proposed project is to help reduce the vulnerability of people and oasis agro-ecosystems in Morocco to climate change by increasing the adaptive capacity of local actors, increasing the resilience of the target ecosystem and by disseminating knowledge management. Actions will include improved management of soil and water resources, as well as the use of resistant varieties of palm trees and training sessions for the stakeholders. This objective will be achieved through the following five components: (i) improving adaptive capacities of the water sector; (ii) diversifying income sources and improving the living conditions of populations vulnerable to climate change in the targeted areas; (iii) improving the ecosystems' resilience in response to climate change and variability; (iv) improving stakeholder awareness through the management and exchange of knowledge; and (v) strengthening the capacities of participants in the design and implementation of adaptation measures.

The development of the oasis agro-ecosystems is also supported through a number of sector strategies, policies and plans, including the 2009 Green Marocco Plan (***Plan Maroc Vert - PMV***), which constitutes the Moroccan government's agricultural policy, with the goal of making agriculture an important driver of economic growth by 2020. The two pillars of the PMV cover (I) high-productivity modern agriculture; and (II) support for traditional agriculture. Pillar II of the PMV has been devised to provide solidarity-based support to small scale farming with a view to improving the income of the most precarious farmers, through three project categories: (i) reconversion projects; (ii) intensification projects; and (iii) diversification projects. Moreover, the PMV is linked to safeguarding natural resources in order to promote sustainable agriculture by: (i) implementing projects within the context of improving the agricultural sector's resilience to future climate change as well as preserving biodiversity; (ii) integrating technology capable of adapting to climate change on matters relating to genetic improvement, recourse to water/soil conservation techniques and good agricultural practice; and (iii) implementing a National Programme for Water Savings Economising in Irrigation.

The main investment projects are identified in 16 Regional Agricultural Plans (*Plans Agricoles Régionaux – PARs*). These projects altogether aim to: increase production levels of the identified sectors; improve the conditions and quality of the commercialization of production; increase the level of valuation of irrigation water. With the new re-regionalisation, 12 new PARs will be developed for the period 2016-2020.

More details on the baseline projects and programmes can be found in the table on pages 15-16.

1.6. Barriers

Despite the efforts described above, oasis agro-biodiversity is eroding rapidly, water and land resources are degrading and production systems are emitting GHGs, not fully capturing their sink potentials. Oasis agro-ecosystems remain poor and fragile systems. There are at least 3 reasons for this:

At the policy level

1) **Governance model**: With the exception of a few projects with satisfactory results (for instance in the context of the Programme Oasis Tafilalet), development investments into oasis agro-ecosystems have a strong sector focus. An ecosystem approach would allow for a more holistic approach to development and offer an alternative to the traditional productivistic approach that has dominated recent investments in oases. This sector approach has also resulted in a rather narrow definition of oases, i.e. the area under date palm production. Both the narrow definition and the productivistic sector approach has favoured the recent expansions of modern date

palm plantations. These 'modern oases' are competing with traditional systems as they share land and water resources. The productivistic sector approach has unintentionally contributed to an accelerated use and progressive overexploitation of land and water resources, without sufficiently offering recharge measures. The project introduces an ecosystem based approach. The oasis is redefined as oasis agro-ecosystem and therefore fully accounts for the multiple interactions between the 2 or 3 tiers in traditional oases, the multiple benefits and positive feedbacks from the agro, sylvo and pastoral production systems, the interactions between the cultivated land (perimètre irrigué - SAU) and the surrounding pastureland, and more.

2) **One-size-fits-all**: The dominant sector focus approach used in oasis development programs mainly focuses on date palm production and insufficiently takes into account the diversity of oasis agro-ecosystems that exists. As a result, many development plans for oasis agro-ecosystems do not take into account the specificities of the single systems, and there is a tendency to have a one-size-fits-all development plan for oases, regardless of their socio-economic, biophysical and vulnerability factors. Therefore, the project suggests to elaborate a participatory and comprehensive typology study based on biophysical (i.e source of water or location), productive (i.e main crops and livestock) and socio-demographic dynamics (i.e poverty, gender, access to markets). The resulting oasis agro-ecosystem types will be the basis for the following project activities, including the participatory identification of project intervention sites, and the participatory sustainability assessments and planning processes.

At the management level

3) **Need for increased and adapted capacity**: As traditional systems are progressively being lost, modernisation makes its way focusing on increased productivity of a monoculture, the oasis population is becoming less familiar with sustainable production intensification, natural resource management and sustainable land and water management practices, tools and approaches. Traditional knowledge and know how are being lost and become insufficient to offer adequate responses to a rapidly changing context (e.g. due to climate change). Capacities are needed at the regional and local levels in order to restore the resilience of oasis agro-ecosystems. Therefore, the project puts emphasis on capacity development at differents levels, particularly to better plan and monitor, but also to successfully deploy NRM and SPI tools and practices within the targeted oasis agro-ecosystems.

1.7. The GEF alternative

Despite heavy investment and interest in oasis development, further efforts are needed to ensure that agricultural intensification is matched by a concerted focus on making it sustainable. The package of engineering and technology solutions aimed at the intensification of oasis productive systems and the expansion of the agricultural frontier of oasis landscapes, falls short in adequately understanding and addressing the multiple environmental pressures on the oasis natural resources base, affecting hydrological functions and agro-ecosystem services. These one-size-fits-all interventions, sometimes conceived outside of the socio-cultural context of the people concerned and their practices, have resulted in adverse negative effects exacerbating abiotic conditions and hindering sustinable development.

Without a GEF intervention, continued survival of highly diversified oasis agro-ecosystems is at stake, threatened by various factors such as the abandonment of the traditional cultivation and farming systems; conversion of land and habitat in and around traditionally managed fields to alternative uses such as unsustainable intensive farming, plantations; and the displacement and dilution of traditional varieties cultivated in these systems.

With the aim of revitalizing oasis agro-ecosystems, the project intends to promote an ecosystem and integrated approach to natural resources management focusing on the broader oasis landscape, inclusive of the traditional palm grove sytems, the extended oasis agricultural land as well as, other competing land use systems i.e informal settlements due to sedentarization of transhumant pastoralists. By introducing an ecological landscape approach the project wishes to redefine oasis agro-ecosystems by classifying them according to their unque hydrologic, topographic, geological and socio-economic settings while redirecting investments to adequately address context specific environmental pressures and socio-economic needs.

The project will be implemented through the following four components, eight main outcomes will be attained:

Component 1: Support policy dialogue at the national and regional levels on the sustainable management of oases agro-ecosystems.

Specific Issues:

Although there has been an increase in overall and general capacity to address and mainstream climate change in sector policies, development plans and strategies, limited capacity on landscape and integrated management to ensure long term sustainability of oasis agro-ecosystems has been developed. For example, there is little specific understanding of how climate change, progressing agro-biodiversity erosion (monocultures) and increased water stresses may affect oasis communities, how it will affect the interactions between the multiple tiers of the traditional palm grove system and the interactions between the cultivated land (irrigated area) and the surrounding pastureland. Finally, although it is known that improved ecosystem management and integrated natural resources management will increase sustainability and resilience, the knowledge on how to do this, notably on planning at the ecosystem level (rather than focusing on sector), is very limited. Financial resources and appropriate instruments and platforms to support and create national dialogue on integrated and sustainable management of oasis agro-ecosystems while raising awareness on the unique value of oasis ecosystems is needed.

GEF alternative:

This component will provide technical assistance and build capacity among regional and national government authorities on innovative cross-sectoral and multistakeholder processes for landscape and ecosystem based management of agro-oasis systems and on how to plan, implement and mobilize resources to mainstream biodiversity, sustainable land and water management in sectoral policies and programs targeting oasis development. This will contribute to enabling the environment for transformational change towards revitalized, maintained and improved oasis ecosystems. In order to facilitate the mainstreaming of most effective biodiversity, sustainable land and water management and climate-smart strategies and practices into the future regional development plans of the Draâ-Tafilalet region, activities will focus on building the technical capacity of the National Extension Agency (ONCA) on integrated and landscape management as well as, establishing and/or strengthening existing cross-sectoral information systems/ and or platforms for informed decision- making. Building on the momentum of COP 22, and on the declared intention by the Government of Morocco to build a regional Coalition on Oasis, this component will also support the development of a declaration on the integrated and sustainable management of oasis ecosystem (Charte des oasis durables) to inform sector policies and development strategies and plans linked to oasis development.

Component 2: Improvement of NRM and SPI planning and monitoring systems at regional and local levels

Specific Issues:

The Draâ – Tafilalet region of Morocco contains a large number of diverse oases agro-ecosystems, however the exact spatial configuration of these agro-ecosystems is sometimes blurred or limited to include only the traditional palmgrove system. Research on these oases is also hindered by the lack of a classification system for these oases. This knowledge gap will be addressed by deriving a typology of oases based on the multiple dimensions of oases agro-ecosystems and livelihoods options (agriculture, livestock, natural resouces management, water infrastructure, land degradation protection measures, tourism). The characterizion of oasis systems into typologies intends to deepen and extend understanding of systems interactions. The project will also support the creation of participatory sustainable and integrated oasis agro-ecosystem plans to ensure that current investments in each target oasis type adequately addresses specific environmental pressures and socio-economic needs to oasis communities in the broader oasis landscape.

GEF alternative:

Under this component, support towards data collection for improved participatory planning and monitoring of the state of natural resources (water, land, biodiversity) and on the socio-economic conditions of oasis communities in selected typologies of oasis, will be provided. A suite of gender sensitive, multi-stakeholder and participatory approaches such as participatory water accounting and auditing will be promoted, land

degradation assessments and updating of local databases and catalogues on seed variaties, plant and animal genetic resources, climate resilient agricultural practices and the best rangeland management practices pertinent to the project intervention, will be conducted. Morover, this component intends to strengthen natural resources information systems by promoting the use of spatial analysis (GIS systems) at the regional level. Data collected at the local and regional level will in turn inform the information platform established under component 1 to initiate and facilitate the national dialogue process on sustainable management of oasis ecosytems

Finally, the GEF financing will support the development of sustainable and integrated natural resources management plans for each oasis type in two selected sub-drainage basins. The management plans intend to capitalize on onoing efforts and investments while redirecting the focus on maintainance of land and water resources and ecosystem services to support the sustinable intensification of agricultural, rangelands, and forest oasis landscapes.

Component 3: Oasis agro-ecosystems are restored, safeguarded and sustainably managed through an integrated landscape approach

Specific Issues:

Great efforts are being made by the national government to support sustainable agricultural practices in fragile oasis agro-ecosystems through a multitude of programs/projects. However, interventions tend to lack an integrated and ecosystem approach targeting isolated agricultural systems without taking into account the greater agro ecological context and broader oasis landscape.

GEF alternative:

Under this component the project will focus on reversing the trend of ecosystem degradation to revitalize oasis ecosystems from a social, economic and environmental point of view, through the implementation of locally adapted sustainable and integrated oasis agro-ecosystem management and investment plans (developed under component 2). The plans will be pilot tested in selected oasis sites in two sub-drainage basins. Interventions will focus on broading the knowledge base of local communities to implement natural resources management and sustainable production intensification practices, methods and tools. The GEF financing will capitalize on the PMV and support actions that will redirect the issue of biodiversity, soil and water to the centre of producer's interests. The plans will also promote the use of good agricultural practices. These are practices that have multiple benefits, including carbon benefits[10], biodiversity, land and water conservation, while also ensuring positive returns to peoples lives (e.g. through more nutritious diets) and livelihoods. Traditional technologies will be restored and/or promoted, such as: (i) cleaning of the palm tufts, (ii) composting, (iii) rehabilitation of traditional irrigation systems (Khettara), (iv) the set up of underground and/or hillside dams to promote groundwater recharge and therefore improved flow rates of khettaras and collective wells, (v) construction of flood structures to protect the oasis against flood damage, (vi) agro-forestry systems including introduction of fruit trees for more diversified diet, (vii) naturally assisted regeneration of highly degraded

[10] In an ongoing study carried out by FAO on key sustainable climate technologies in the Moroccan agrifood sector (FAO/EB, 2016), twelve low-emission technologies have been identified and analysed. These are (i) conservation agriculture, (ii) efficient field machinery, (iii) drip irrigation, (iv) solar/wind powered water pumping, (v) grazing management, (vi) manure as soil amendment, (vii) livestock dairy breeds on improved diets, (viii) efficient water boilers, (ix) efficient cold storage, (x) biogas from manure and agri-residues, (xi) renewable energy systems and (xii) small dams. Most of these options can be considered as relevant technologies to the oasis agro-ecosystem. Indeed various technologies and options might be appropriate for mitigating emissions within the context of this project such as (i) new or improved technologies for utilizing alternative energy sources with lower or no GHG emissions (such as renewable energy); (ii) recycling and composting; (iii) agriculture mitigation options (such as improved fertilizer application and cultivation methods, agro-forestry within the rain fed agricultural lands, agricultural tree crops, soil carbon sequestration by increasing the time and amount of crop residues left on the soil surface; catch crops and green manure, crop residue management, reducing and optimising the use of fertilisers, preventing and reducing soil compaction, extending the perennial phase of crop rotations, and conservation tillage; polyculture, maintenance of genetic resources of plant varieties and animal breeds, using legume-based rotations or organic agricultural systems to reduce N fertilizer applications, pollination and treatment tool); and (iv) behavioural change for improved energy efficiency (installing more energy efficient equipment and reducing machinery fuel use, greater efficiency of farm buildings/greenhouse buildings and building thermal integrity, as well as installing small-scale renewable energy such as solar and Buildings technical options: using solar energy for building equipment).

rangelands, and (viii) rehabilitation of traditional practices and institutions well adapted to climate change such as the Agdals. Innovative low-emission technologies will be introduced in a number of oasis agro-ecosystems, selected in a participatory fashion from a menu of options, including (i) conservation agriculture, (ii) drip irrigation, (iii) solar and/or wind powered pumping, (iv) manure as soil amendment, and (v) biogas from manure and agri-residues. The multiple benefits evidenced by research of each proposed low-emission technology will be taken into account.

Technology / practice	Water implications	Energy implications	Land and food security implications	Social implications (incl. employment)	Relevance for climate change adaptation
Conservation agriculture					HIGH
Drip irrigation				n/a	MODERATE
Solar/wind powered water pumping					LOW
Manure as soil amendment					HIGH
Biogas from manure and agri-residues					MODERATE

Overall positive impact
Overall impact is neither positive nor negative
Overall negative impact

Exerpt from the preliminary overview of overall positive and negative implications of the technologies and practices considered in the draft report *Monitoring Adoption of Key Sustainable Climate Technologies in the Agrifood Sector – Morocco* (FAO, European Bank)

In addition, the project will support local producers and seed growers in enhancing seed diversity and knowledge, and increasing seed availability and production to improve local varieties and maintain a broad genetic base for in situ conservation.

Finally the GEF financing will support the diversification of rural livelihoods by strengthening the capacity of local communities in integrating selected agro-pastoral products from oasis agro-ecosystems (e.g. dates, truffles, aromatic and medicinal plants, local goat cheese, dried meat, dried vegetables) to the market. With project support appropriate knowledge will be transferred to local authorities and producer organizations on sustainable harvesting and product marketing at national and international level.

Component 4: Project monitoring and evaluation and knowledge management.
This component will identify and disseminate lessons learned, best practices, and support awareness raising through and beyond the project's area. The project's performance monitoring will rely essentially on the project M&E system. The M&E system will specify the impact, outcome and output indicators, the activities to be performed, the methodology, and clarify the roles and responsibilities of partners and stakeholders. The monitoring and evaluation system will include outcome and output indicators of the PMAT, BD tracking tool and CCM traking tool relevant to the LD, BD and CCM objectives targeted by the project. Specific outcome and output indicators (which will be gender sensitive), targets and baseline will be established during the full proposal preparation stage. Best BD, LD and CCM practices will be screened based on the following indicators: environment friendliness, potential to reduce the impacts of climate risks, economic viability, sustainability, social acceptability, gender sensitivity, income generation, enterprise diversification, seasonal relevance and community's need. The GEF funds will be used to carry out an independent mid-term and a final evaluation, and to disseminate good practices and lessons-learned for up-scaling by the partners and stakeholders to ensure the project's sustainability.

1.8. Incremental cost reasoning
The GEF financing will support the initiatives and efforts initiated by the government to promote sustainable agriculture and improve agricultural production in oasis ecosystems and will provide incremental value by reinforcing a landscape and integrated natural resources managment approach to increase the multiple benefits

and services derived from selected oasis ecosystems. Through interventions aimed at preserving water and soil resources, and at the same time valuating bio diverse crops and products, the project will reverse land degradation trends and promote biodiversity and contribute to climate change mitigation by demonstrating, upscaling and replicating low-emission agricultural technologies and practices e.g. solar pumping, as well as the restoration of oasis agro-ecosystems to re-establish their full carbon storage potential.
The project will receive co-financing from different sources, as depicted in the following table. This information provides an estimate of co-financing amounts and will be updated during the project preparation phase.

Summary Overview of all Relevant Baseline Activities

Project/Program name	**Lead executing agency /total budget / timing**	**Baseline project description**	**Co-financing amount and incremental value**
Contract-programme Dates (CP - Dates) (within the framework of the PMV)	CP Dates: executed by ANDZOA Total funding: ~ USD80M Period: 2010-2020 The project covers sixteen provinces including Drâa- Tafilalet (65,000 Ha) over a period of 10 years.	ANDZOA is very active in the region and has numerous projects, including a major integrated development initiative for increased date palm, saffron and rose water production in the Oases Belt and several projects on community natural resource management. One such project engages in the promotion of local agricultural oases products and the planting of 1 million date palms by 2020.	Co-financing: USD 6M + USD 3.6 M = USD 9,6M Despite some notable achievements under these initiatives, none of the models advocated have adopted a systematic approach to tackling the "root-causes" of environmental degradation in the region or sought a fundamental 'de-coupling' of a traditional economic development model with a new one that is built around a truly sustainable utilization of the region's natural capital base.
Project to support the Economic Interest Groups for the development of the date value chain in the Oases of Morocco (PAGIE)	PAGIE: executed by ANDZOA Total funding: ~ USD24M Period: 2016-2020		The proposed project will cover the incremental cost associated to redefining how environmental protection and mitigation measures can be integrated with socioeconomic development strategies in the context of a changing biophysical environment and new conceptualization of "sustainability." Component 1 of the project is critical as regards to putting in place the requisite frameworks and policies that are compatible with this new vision while other components will operationalize the visions in oasis agro-ecosystems.
Plan Maroc Vert (PMV), Pillar II (31 projects)	MAPM/ ADA/ Regional Agricultural Directorate Draa Tafilalet Total MAPM funding for PMV II (including CP –datte palms and PAGIE) : ~USD 250M Period: 2010 -2020 The operational budget of the new Regional Government of Drâa-Tafilalet cannot be estimated at this stage and will be confirmed during the PPG phase.	ADA assures the implementation of the Plan Maroc Vert. The two pillars of the PMV cover (I) high-productivity modern agriculture; and (II) support for traditional agriculture. Pillar II of the PMV has been devised to provide solidarity-based support to small scale farming with a view to improving the income of the most precarious farmers. The main investment projects are identified in 16 Regional Agricultural Plans (Plans Agricoles Régionaux – PARs). These projects altogether aim to: increase production levels of the identified sectors; improve the conditions and quality of the commercialization of production;	Co-financing: PMV II ~USD 20 M While PMV Pillar II projects have achieved some progress in terms of awareness, no adequate financial incentives or financing mechanisms are in place that could provide a compelling economic argument to switch to more sustainable water and land management practices on collective lands as well as to shift the balance in agricultural production in favor of diversity rich approaches. The proposed project will complement PMV Pillar II initiatives by pioneering a more integrated, ecological and low-carbon development model for sustainable production intensification

		increase the level of valuation of irrigation water. With the new re-regionalisation, 12 new PARs will be developed for the period 2016-2020.	via targeted support for improved landscape planning and environmental governance; and the restoration and conservation of the region's natural capital base with a focus on high-biodiversity in critical watersheds of oasis agro-ecosystems.
Climate Change Adaptation in the Oases Regions (PACC- ZO)	Total MAPM/ADA funding for PACC-ZO : ~ USD 9,97 M Period: 2015-2019	ADA is also the executing agency for PACC-ZO (implemented by ANDZOA) whose objective is to help reduce the vulnerability of people and oasis agro-ecosystems in Morocco to climate change by a blend of interventions on the conservation of arable lands, water and soils, the promotion of resilient agricultural practices, increasing the capacity of local actors, and on knowledge dissemination.	Co-financing: PACC-ZO ~ USD 9,97 M The proposed project will be incremental to PACC-ZO activities, as it intends to place emphasis on capacity development at different levels, particularly to better plan and monitor, but also to successfully deploy NRM and SPI tools and practices to conserve and promote the sustainable use of genetic diversity of cultivated plants and their crop wild relatives within the targeted oasis agro-ecosystems.
Network of laboratories for date palm tissue culture	INRA Total funding: the annual budget of INRA is ~ USD 968 M, 70% funded by the Ministry of Research	Within the framework of the PMV, the network was established from an agreement between INRA, MAPM and six private laboratories. While INRA's laboratories ensure sufficient production of basic burgeoning strains for commercial propagation, private laboratories are responsible for large-scale multiplication and mass production of in-vitro plants. The INRA laboratories produce from 20000 to 40000 active strains of date palms per year. The laboratories also provide the modern scientific equipment to develop the technologies like molecular marker and DNA sequencing of date palm to identify date varieties and analysing genetic diversity. INRA its research on the control of Bayoud disease, date palm characterisation, techniques of date palm cultivation and date valorisation by technological procedures.	Co-financing: USD 1 M The proposed project intends to cover the incremental costs associated to strengthening the capacity of the agricultural development, extension and research communities and institutions that are needed for in-situ conservation of a diverse cultivated crops and their crop wild relatives, so that agricultural biodiversity is embedded in sustainable intensification.

FAO Country Programme Framework (CPF) Donor : FAO	Period: 2013-2016 / new CPF under development Total budget: US$13.5M	FAO's technical assistance at the country level is focused on support to policies and strategies for sustainable development, in particular the Green Morocco Plan, the Fisheries Plan, the National Charter for the Environment and Sustainable Development, the National Water Strategy and the National Forestry Programme. Within the framework of the CPF, 57 projects were registered in 2015, focusing on three major areas: i) Development for all, without exclusion of vulnerable groups and women, including the agriculture and marine fisheries sector as the engine of economic and social development; ii) Sustainable management of natural resources and improved living standards for rural people, with an emphasis on vulnerable populations, in the context of adaptation to climate change; ii) Promotion of regional cooperation, including South-South cooperation.	Co-financing: USD 0.7M The project will be complementary to FAO efforts in the country by introducing an ecological landscape approach to redefine oasis agro-ecosystems by classifying them according to their unique hydrologic, topographic, geological and socio-economic settings while redirecting investments to adequately address context specific environmental pressures and socio-economic needs. By recognizing the fact that soil degradation and the destruction of the biological potential of oasis agro-ecosystems potentially contribute to atmospheric CO_2-enrichment, the project intends to cover the incremental costs of associated with the demonstration, upscaling and replication of low-emission agricultural technologies and practices (e.g. solar pumping), as well as the restoration of oasis agro-ecosystems to re-establish their full carbon storage potential.

1.9. GEBs

Land degradation

The project will be contributing to improved sustainable management of landscapes in a pilot area covering 60 000 ha, of which 15 000 ha are improved and sustainable land management of croplands (the SAU of the oasis agro-ecosystems) and 45 000 ha are the improved and sustainable land management of pastures, surrounding and strongly interacting with the SAU of the oasis agro-ecosystems.

Pilot activities will be implemented in 2 watersheds (sub-drainage basins) to be identified during the PPG phase. Therefore the direct impact will be felt in an area equal to 60 000 ha, while the indirect impact - through upscaling and mainstreaming into regional policies and plans – will be in the whole area of the region, totaling 8 043 386 ha.

Biodiversity

The project will aim at improving and changing agro-pastoral production practices to be more biodiversity friendly. The project will prioritise actions to conserve and to promote the sustainable use of the endemic CWR of agricultural species, for which Morocco, and particularly the oasis ecosystems South of the Atlas, is a genetic reserve location of global significance (centre of diversity)[11]:

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Genus	Cultivated species (scientific and common names)	Crop wild relative	Sources
Avena spp.	Avena sativa L. - oat	12 named CWRs: Avena agidiriana B.R. Baum & G. Fedak, Avena atlantica B.R. Baum & G. Fedak, Avena barbata Pott ex Link, Avena canariensis B.R. Baum Rajhathy & D.R. Sampson, Avena clauda Durieu, Avena hirtula Lag., Avena longiglumis Durieu, Avena lusitanica (Tab.Morais) B.R.Baum, Avena maroccana Gand., Avena matritensis B.R.Baum, Avena prostrata Ladiz., Avena sterilis L.	Main source: CWR Diversity website and Vincent, H. et al. (2013) A prioritized crop wild relative inventory to help underpin global food security. Biological Conservation 167: 265–275. Other sources include: Baum, B.R. (1977) Oats: Wild and Cultivated, a Monograph of the Genus Avena L. (Poaceae). Monogr. 14, Canada Dept. of Agriculture, Ottawa.; Rothman, P.G. (1984) Registration of four stem rust and crown rust resistant oat germplasm lines. Crop Sci 24:12-17
Brassica spp.	Brassica rapa L. - Turnip	Brassica barrelieri (L.) Janka, Brassica fruticulosa Cirillo, Brassica fruticulosa Cirillo subsp. mauritanica (Coss.) Maire, Brassica gravinae Ten., Brassica maurorum Durieu, Brassica rapa L. subsp. oleifera (DC.) Metzg, Brassica oxyrrhina Coss.	Main source: CWR Diversity website Other sources include: USDA, ARS, National Genetic Resources Program (2011). Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland.; Chandra, A., Gupta, M. L., Banga, S. S. and Banga, S. K. (2004), Production of an interspecific hybrid between Brassica fruticulosa and B. rapa. Plant Breeding, 123: 497-498.
Ficus spp.	Ficus carica L. - Fig	14 named CWRs in oasis agro-ecosystems of Morocco alone	Hafid Achtak et al., 2010, Traditional agroecosystems as conservatories and incubators of cultivated plant varietal diversity: the case of fig (Ficus caricaL.) in Morocco (https://bmcplantbiol.biomedcentral.com/articles/10.1186/1471-2229-10-28); Assessment of plant genetic resources for water-use efficiency (WUE): managing water scarcity. A. Bari, Bioversity International

Medicago spp.	Medicago sativa L. - Alfalfa	Medicago marina L.	Vincent, H. et al. (2013) A prioritized crop wild relative inventory to help underpin global food security. Biological Conservation 167: 265–275.; Germplasm Resources Information Network - (GRIN) [Online Database] - USDA, ARS, National Genetic Resources Program.; Small E. & Jomphe N. (1989). A Synopsis of the genus Medicago (Leguminosae). Canadian Journal of Botany 67:(11) 3260-3294; Small, E. (2011) Alfalfa and Relatives: Evolution and Classification of Medicago. NRC Research Press, CABI Publishing, UK.; http://www.omicsonline.com/open-access/sustainability-of-the-moroccan-oasean-system-case-study-middle-draa-valley-2229-8711.1000170.pdf
Lens spp.	Lens culinaris Medik. - Lentil	Lens ervoides (Brign.) Grande, Lens lamottei Czefr., Lens nigricans (M. Bieb.) Godr.	Main source: CWR Diversity website and Vincent, H. et al. (2013) A prioritized crop wild relative inventory to help underpin global food security. Biological Conservation 167: 265–275. Other sources include: Ferguson M.E. et al. (2000). A re-assessment of the taxonomy of Lens Mill. (Leguminosae, Papilionoideae,Vicieae). Bot. J. Linnean Soc. 133(1): 41-59; A. Tullu, L. Buchwaldt, M. Lulsdorf, S. Banniza, B. Barlow, A. E. Slinkard, A. Sarker, B. Tar'an, T. Warkentin, A. Vandenberg, 2005. *Sources of Resistance to Anthracnose (Colletotrichum truncatum) in Wild Lens Species*
Olea spp.	Olea europaea L. - Olive	Olea europaea L. subsp. europaea L. and Olea europaea L. subsp. maroccana (Greuter & Burdet) P. Vargas et al.	Main source: CWR Diversity website and Vincent, H. et al. (2013) A prioritized crop wild relative inventory to help underpin global food security. Biological Conservation 167: 265–275. Other sources include: USDA, ARS, National Genetic Resources Program (2011). Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland.
Pistacia spp.	Pistacia vera L. - Pistachio	Pistacia atlantica Desf., Pistacia atlantica Desf. subsp. atlanticaDesf., Pistacia lentiscus L., Pistacia terebinthus L., Pistacia terebinthus L. subsp. terebinthusL., Pistacia × saportae Burnat	Main source: CWR Diversity website and Vincent, H. et al. (2013) A prioritized crop wild relative inventory to help underpin global food security. Biological Conservation 167: 265–275. Other sources include: USDA, ARS, National Genetic Resources Program (2011). Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland.
Prunus spp.	Prunus avium L. - Sweat cherry	Prunus cerasus L., Prunus mahaleb L.	Main source: CWR Diversity website and Vincent, H. et al. (2013) A prioritized crop wild relative inventory to help underpin global food security. Biological Conservation 167: 265–275. Other sources include: USDA, ARS, National Genetic Resources Program (2011). Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland.; WCSP (2011). World Checklist of Selected Plant Families. Facilitated by the Royal Botanic Gardens, Kew.

Triticum spp.	Triticum aestivum L. - wheat	9 named CWR including: Aegilops geniculata Roth and Aegilops ventricosa Tausch	Main source: CWR Diversity website and Vincent, H. et al. (2013) A prioritized crop wild relative inventory to help underpin global food security. Biological Conservation 167: 265–275. Germplasm Resources Information Network - (GRIN) [Online Database] - USDA, ARS, National Genetic Resources Program Other sources include: Van Slageren, M.W. (1994). Wild wheats: a monograph of Aegilops L. and Amblyopyrum (Jaub. & Spach) Eig (Poaceae). ICARDA/Wageningen Agricultural University Papers 94(7). i-xiv, 1-512.; Germplasm Resources Information Network - (GRIN) [Online Database] - USDA, ARS, National Genetic Resources Program.; https://www.researchgate.net/publication/269876564_Towards_a_comprehensive_characterization_of_durum_wheat_landraces_in_Moroccan_traditional_agrosystems_Analysing_genetic_diversity_in_the_light_of_geography_farmers'_taxonomy_and_tetraploid_wheat_domes
Vicia spp.	Vicia faba L. - Faba bean	Vicia narbonensis L.	Main source: CWR Diversity website and Vincent, H. et al. (2013) A prioritized crop wild relative inventory to help underpin global food security. Biological Conservation 167: 265–275. Other sources include: Genes in the Field: On-farm Conservation of Crop Diversity, Stephen B. Brush, International Plant Genetic Resources Institute, International Development Research Centre (Canada)

The proposed work undertaken will promote the conservation and sustainable use of agricultural biodiversity in the traditional production landscapes, while contributing to local peoples' livelihoods as well as environmental secure the ecological integrity and sustainability of protected areas on the southern slope of the Atlas Mountains, particularly the *Biosphere Reserve of the Oasis in Southern Morocco*. Reducing the pressures on the Biosphere, the project will contribute indirectly to the protection of the following species of global significance: high-altitude forests including *Juniperus thurifera*, *J. phoenicea*, *Quercus rotundifolia*, *Arenaria pungens* etc.; Acacia forests dominated by Acacia raddiana and A. ehrenbergiana; desert steppes with *Fredolia aretioides*, *Haloxylon articulatum*, *Gymnocarpos decander* etc.; Rocky habitats (cliffs and screes) including *Warionia saharae*, *Perralderia coronopifolia*, *Trichodesma calcaratum* etc.; Sand dune habitats with *Aristida pungens*, *A. plumosa*, *A. tenutana*, *Lotus jolyi* etc.

The project will support the achievement of the following Aichi targets:

- Target 7 *By 2020 areas under agriculture (aquaculture and forestry) are managed sustainably, ensuring conservation of biodiversity.* (in 5th NBSAP 2015, this is realized through GHIAS labeling);
- Target 15 *By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.* (in 5th NBSAP, through the Stratégie d'aménagement et de développement des oasis au Maroc); and
- Target 18 *By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.*

The second of the seventeen proposed Sustainable Development Goals is to "End hunger, achieve food security and improved nutrition, and promote sustainable agriculture". Specifically, the project will contribute directly to Sustainable Development Goal 2.5 by 2020 maintain genetic diversity of seeds, cultivated plants, farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at national, regional and international levels, and ensure access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge as internationally agreed.

Climate change mitigation
Carbon benefits from the project have been estimated using the EX-ACT tool, version 7. The overall benefits amount to 1,482,488 t CO_{2e} for a 20 year period. This translates into a 1.2 t CO_{2e} per ha per year. A detailed account of the assumptions used to complete the EX-ACT tool can be found in Annex 1 and the fully completed tool in Annex 2. Carbon benefit estimates from the introduction of low-emission agriculture technologies have not been calculated, as both the technology and the scale of its use in the project area will be identified in a participatory way during project year 1, when the oasis agro-ecosystem management plans are being designed.

1.10. Innovation, sustainability and potential for scaling up
The project's innovativeness lies on the fact that it will be the first of its kind to take an ecosystem and integrated approach to oasis management focusing on natural resources management and sustainble production intensification. It will also be the first to attempt to develop management plans for oasis agro-ecosystems that take into account the specificities of the single systems based on comprehensive typology study at the regional level.

This project provides the means by which local innovation and best practices can be identified, documented and shared. It will seek to increase the linkages between local communities to ensure that communication and learning occurs horizontally rather than following a more traditional top-down method.

Finally, this project seeks to create a platform of cooperation between research, government and communities to support and maintain the sustainable management of oases, as places of great ecological and cultural value. The advocacy strategy, while not innovative in itself, will seek to highlight the uniqueness of the oasian ecosystems, and their place in the broader global environment and socio-economic context.

The sustainability strategy is based on a dual approach: ensuring ownership and commitment of local communities and the national government, and strengthen the capacity to better plan and monitor, but also to successfully deploy NRM and SPI tools and practices within the targeted oasis agro-ecosystems.

The project intends on fostering a collaboration between and among oases communities. The potential for scaling up the project's approach will be encouraged through the dissemination of tested models for planning at the ecosystem level, lessons learned and experiences in implementating dynamic conservation of oases, and to raise awareness and ensure that the local communities and stakeholders understand and adopt the NRM, SWLM, and SPI approaches and tools.

2. *Stakeholders.* Will project design include the participation of relevant stakeholders from civil society organizations (yes ☐ /no☐) and indigenous peoples (yes ☐ /no☐)? If yes, identify key stakeholders and briefly describe how they will be engaged in project preparation.

The participation and involvement of stakeholders in the project will be key during the project formulation and implementation. A stakeholder engagement strategy will be prepared to identify the key stakeholders in the different phases of the project from formulation to implementation, to establish the objectives of stakeholder engagement and monitor their involvement.

During its implementation, the project will engage in a continuous conversation with different stakeholders and will facilitate the exchanges among multiple groups to contribute to policy debates related to the

sustainable management and conservation of oasis agro- ecosystems. Relevant stakeholders will participate in the definition and mapping of the oasis typology and sustainability assessment, as well as in in the discussion and implementation of successful approaches and strategies.T he involvement of stakeholders will be facilitated through consultations and the use of participatory methodologies and tools.

Project stakeholders include national, regional and local governmental institutions from different Ministries (Ministry of Energy, Mining, Water and the Environment, Ministry of Agriculture and Marine Fisheries/ADA, Regional and Provincial Directorates of Agriculture/DRA-DPA, Regional Offices for the Agricultural Development of Ouarzazate and Tafilalet/ORMVAs, Agency for the Development of Oases and the Argan zones /ANDZOA, the National Office for Agricultural Extension Services/ONCA, Ministry of Urbanism and territorial planning, Ministry of Tourism.), research institutions (INRA), the National Office for Food Security and Safety (ONSSA), local communities, including traditional customary institutions (Jmaa), Non-Governmental organizations and the private sector (mainly composed by Economic Interest Groups/GIE of small-scale producers).

Civil society, through NGOs and local associations and professional organizations, farmers, women, the unemployed, younth, etc., will play an important role during the sizing of actions and identification and selection of pilot sites.

Ruptures between the traditional forms of land management and the resources they comprise and modern practices are continually growing. These disruptions have been caused mainly by a decline in complementarities between forest and rangeland within the mountains and adjacent plains, plateaus and oasis. The ecosystem approach adopted by the project will allow targeting various stockholders among witch the traditional as well as modern local organizations both within the oasis (traditional systems for water partition at the oasis and modern associations of water use) as for rangeland management (agdals, pastoral organizations, pastoral cooperatives).

In fact, the great diversity of this area is due not only to the various gradients of physical and ecological parameters, but also to thousands of years of co-evolution of this ecosystem and its different components including flora, fauna and humans.

3. Gender Equality and Women's Empowerment. Are issues on gender equality and women's empowerment taken into account? (yes ☒ /no☐).
The current situation of women in Moroccan oasis evolves towards search for greater autonomy, both at individual level, as well as family and community levels, particularly through an improvement in their income. New forms of social organizations are emerging, such as women associations and cooperatives, generating new productive activities to increase their margin of economic and social maneuver (access to credit, sale of local products, literacy programs, education and training).

Women play a key role in the management, organisation and resilience of oasis agro-ecosystem. Women living in oases handle all the domestic work and most of the livestock care making a significant contribution to agricultural activities. Women are also responsible for the education of children, for the caring of the elderly in the family as well as, for maintaining social relations with neighbors and relatives. In terms of agricultural activities, women support weeding operation, packaging harvesting of agricultural product and their transport to the storage site. Some women, among the poorest farmers, assist their husbands or replace them in the installation of crops and irrigation operations. In parallel with daily domestic, agricultural and livestock, women in oasis have cumulated skills in the packaging, processing and storage of many products (butter, dry vegetables, dry meat, dates). Women's know-how about medicinal and aromatic plants (recognition, use, preparation) is undeniable and needs to be safeguarded and promoted.

Caught between the harsh social conservatism and the need to survive in a harsher environment, the oasis woman has always been a local development leading actor, certainly ignored, but whose contribution remains essential. Regognizing the leading role women have in oasis management, the project will directly involve

women in all phases of project design and implementation (if needed, women will be involved in the participatory planning process separately). Some of the project outputs will be directly geared towards women for a more empowered and resilient community with equal voices for men and women. For instance, the management plans will put a particular emphasis on women issues, on the tasks and responsibilities they cover and their needs. Alternative livelihood options that will be explored will make the same considerations and ensure the project brings benefits to women and men alike. Furthermore, during the PPG phase, gender-sensitive indicators will be developed.

4 Risks.

Risk	Rating	Risk Mitigation measures
Institutional risk: Decrease in project ownership and support from governmental agencies	L	The government agencies (MOE, MAPM, ADA, ANDOZA, INRA, ORMVAT) will be fully involved in the project preparation and are expected to be fully involved in project implementation through the project management unit and the project steering committee. FAO will provide technical assistance. The project design takes into consideration the need of achieving results in the short-term to show the importance of project objectives, results, and activities to local and national governmental agencies.
Operational risk: Limited capacity of local/national institutions for implementing project activities	M	The limited capacity of the national, local and oases dependent communities will be addressed through targeted training and capacity-building activities. Training activities of local personnel will also be part of all aspects of the work and the relevant institutions will be encouraged to expand the staff base if it is weak in particular areas.
Institutional risk: Low involvement and participation of local institutions in planning and monitoring mechanisms.	M	The Project will encourage local participation, empowerment and ownership by supporting multi-stakeholder processes for the development of sustainable agro-ecosystem management plans and for the coordination of project activities.
Social risk: Lack of participation of beneficiaries	L	Awareness-raising workshops on the negative impacts of climate change, land degradation and loss of biodiversity in oasis systems will be conducted directly involving local institutions and communities. The project will promote a suite of participatory and gender sensitive approaches that intends to place communities at the driving seat of planning and monitoring processes.

5. Coordination.

The project will seek to coordinate with implementing and executing agencies of a range of ongoing initiatives related to sustainble management and monitoring of oasis ecosystems in Morocco so as to identify opportunities and facilitate mechanisms for achieving synergies with such relevant GEF-supported projects, as well as with projects supported by other donors mentioned below. This will include other FAO activities in the region, to ensure that best practices are incorporated into project's approaches. The coordination will focus

on exchanging lessons learned and sharing technical expertise and will be established through partnership agreements and joint work plans.

- *Integrating Climate Change Adaptation in the implementation of the PMV* (PICCPMV). This is a World Bank project financed by the SCCF and implemented over 4 years. The objective of the PICCPMV is articulated around two components aimed at strenghthening the capacity of public and private institutions and small farmers on climate change adaptation strategies. While the PICCPMV addresses the additional cost of mainstreaming climate change adaptation in the Plan Maroc Vert (PMV), the proposed project (OASIL) will address the incremental costs to achieve global environmental benefits in the attempt to make more sustinable the benefits of PMV Pillar II

- *Conservation of biodiversity and mitigation of land degradation through adaptive management of agricultural heritage systems in Morocco*. This is a FAO- GEF project that will be implemented over the period 2016-2019. The project aims at enhancing the sustainable management of the traditional oasis systems with a focus on biodiversity conservation and sustainable land management through the promotion of once valued oases agricultural practices, including conserving ancient efficient irrigation and water management systems, farming and sheep breeding practices, and customary community participatory management practices for natural resources. The project targets 5 pilot oasis systems in Morocco, one of them (Imilchil) is in the Draâ- Tafilalet region. Joint workplans and a mechanism for systematic exchange of information between the two projects will be established.

- *Conservation and Adaptive Management of Globally Important Agricultural Heritage Systems* (GIAHS). This is a FAO-GEF project with global coverage. The concept of Globally Important Agricultural Heritage Systems (GIAHS) was launched under the auspices of the FAO in 2002 with funding from IFAD, GTZ, and in partnership with UNESCO and the UN University . It aims to enhance the understanding of traditional knowledge, systems, culture, biodiversity, food security and livelihoods of the custodians. The project was successful in piloting the dynamic conservation and adaptive management approach for oases agricultural heritage in countries such as Algeria, Tunisia and Morocco. For instance, in Algeria, the Wali passed the Wilaya decree establishing 4,900 ha of protected area in El-Ougla site, and National People's Assembly confirmed their support through the National Programme for Agricultural Development. It is expected that this project will contribute to the identification of oases of potentially global significance that could be recognized and supported through GIAHS. It will be important to coordinate with the GIAHS initiative as it will contribute to identify oases that could be recognized and supported as GIAHS and also because it was successful in the past in piloting the dynamic conservation and adaptive management approach for oases agricultural heritage in Morocco.

- *Adaptive Management and Monitoring of the Maghreb's Oases Systems*. This is a FAO-GEF project with regional coverage (Morocco, Tunisia, Mauritania) aimed at enhancing, expanding and sustaining the adaptive management and monitoring of the Maghreb oasis ecosystem. The project focuses on two main levels of activities: (1) to support country level information systems on oasian degradation trends, as well as monitoring systems that will enhance the national and regional monitoring and management of oasis ecosystems, and (2) linking and harmonizing initiatives at a local level while sharing knowledge on best adaptive management practices. It will be important to coordinate with this regional project for stock-taking of lessons learnt and data sharing.

- *A circular economy approach to agro biodiversity conservation in the Souss-Massa Drâa Region of Morocco*. This is a UNDP- GEFproject that will be implemented over the period 2014-2019. This project seeks to ensure the promotion of an agricultural sector resilient to the impact of climate change and a low carbon economy. Activities include multiple aspects from the reutilisation of non-conventional water resources to the adoption of good agricultural practices that can resist climate change. The proposed project will establish a partnership agreement with the executing agency, UNDP, to share experiences in relation to the labelling of local production and mainstreaming biodiversity conservation in the market mechanisms.

- *Participatory Control of Desertification and Poverty Reduction in the Arid and Semi-Arid High Plateau Ecosystems of Eastern Morocco* (MENARID). This project falls under the wider umbrella of the GEF's MENARID Programme which aims at combating desertification and protecting ecosystems functions. The proposed project will complement the activities under MENARID through knowledge sharing and regular exchanges of experiences related to strengthening the enabling environment for SLM as a way of reducing desertification and land degradation.

- *Land Degradation Assessment and Monitoring for Sustainable Land Management Decision Support and Scaling up of Best Practices (LADA Phase II).* LADA is a FAO-GEF project with global coverage that aims at improving the capacities of the member countries of the UNCCD to assess and report on the status of their land resources and to adopt climate change resilient Sustainable Land Management (SLM) measures. The proposed project will seek coordination with LADA for sharing of best practices.

- *Integrated water resources management in Morocco.* This is a GIZ Project that will be implemented over the period 2008- 2018. The project concentrate on four main components: improving the monitoring and control systems in water management planning; protecting groundwater resources ; promoting the reuse of wastewater ; reinforcing the participation of the various actors to enhance water resources planning and management. The proposed project will seek coordination with the GIZ initiative for the implementation of Component 2 and Component 3 activities.

6. Consistency with National Priorities. Is the project consistent with the National strategies and plans or reports and assessements under relevant conventions? (yes ☒ /no☐). If yes, which ones and how?

The project will contribute to Morocco's engagement towards the implementation of the Rio conventions through its focus on sustainable agriculture and land management, on the conservation and rehabilitation of key ecosystems and on the nexus between development objectives and environmental sustainability. In particular, the project proposal is aligned with the 5th NBSAP of Morocco (2015) as already evidenced in earlier sections of this document.

The project will contribute to the nation-wide effort to curb the GHG emission curve, as outlined in the iNDC (2015 – see sub-section1.4 in this document). The project is further consistent with priorities identified in the NCs to the UNFCCC, particularly the Third National Communication (May 2016).This latter not only underlines the potential important contribution of the agriculture sector to achieving GHG emission reduction targets, but also underlines the fragility and vulnerability of oasis ecosystems to the impacts of climate change.

The project also establishes direct linkages with the recent initiative of the High Commissariat for Water, Forests and Desertification Control (HCEFLCD) related the updating and implementation of the National Action Plan to combat desertification (PANLCD).The aim of such initiative is to include the adaption of the NAP to a specific homogeneous areas while taking into account the objectives of the ten-year strategy (2008-2018) of the UNCCD and interactive aspects with other Rio Conventions (UNFCCC, CBD) including the effects of climate change. Morocco is a participating country in the Land Degradation Neutrality Setting Programme, though a national report has not been finalized yet. Given the key cross-sectoral influence of the land sector, the process of setting national LDN targets is anchored in the national portfolio for implementing the SDGs. It leverages both on the national processes for the implementation of the other Rio Conventions and on the interventions of multiple development partners at the country level.

The proposed project establishes direct and clear linkages with the new Green Morocco Plan (Plan MarocVert) whose primary goal is a competitive upgrading of the agriculture sector through modernization, greater integration into the world market and the creation of wealth along the whole value chain, while assuring a sustainable management of natural resources. The project builds on the 2nd pillar of the Plan Maroc Vert by targeting mainly smallholders focusing on the reduction of poverty by significantly increasing the income of the most vulnerable farmers, particularly in mountain and marginal zones. The Plan Maroc Vert supports two

types of projects within its second pillar: i) Intensification projects (improving existing advances in animal and plant sectors by supervising the farmers to enable them to have better techniques and significantly improve their productivity and the value of their production); and ii) Diversification projects (support for the promotion of special local products or "produits de terroir" (honey, medicinal plants, etc.).

The project also builds on and works towards the objectives of the 2020 Strategy for Sustainable Rural Development by contributing to the increase in agricultural production, the increase in opportunities for agricultural employment and income, and the reduction in anthropogenic environmental degradation.

Recently the Ministry of Agriculture and Fisheries developed a very ambitious transregional program in pre-Saharan and Saharan zones of Morocco aiming the sustainable development of pastoral areas, through the rehabilitation and sustainable management of pastoral resources, organization and capacity building of pastoralists, promotion of the various local products associated with rangelands, as well as the regulation of transhumance flows and the development of socio-economic infrastructures.

The project is also relevant to the objectives of the Morocco's National Poverty Reduction Strategy which is represented through the National Human Development Initiative (NHDI) which was launched by the Kingdom of Morocco with the aim of reducing poverty, vulnerability and social marginalization.

The project is perfectly in line with "National Charter for Environment and Sustainable Development" piloted by the Ministry delegated to the Minister of Energy, Mining, Water and Environment, for the environment. Lately the Ministry of Interior initiated a national dialogue to "explore the future prospects of collective lands within a participatory approach, involving all stakeholders." Organized under the theme "collective land: for sustainable human development", this national debate aims to conceive with various stakeholders and partners, consensual and participatory future vision, which may integrate changes underway in order to meet the expectations of different stakeholders. With this respect juridical and institutional reforms relating to this issue are needed.

Among innovative outcomes of this project it is necessary to mention the fact that this region correspond to the new territorial organisation of the Moroccan administration. Indeed the project of advanced regionalisation has been implemented recently in 2015.

7. Knowledge Management

Knowledge generation and management is integrated throughout the project's components. Component 1 will help support decision makers at the national level mostly to get acquinted with and familiar with the particular issues faced by different typologies of oasis agro-ecosystems and the sustainable and integrated development solutions that can be offered. Decision-makers at both national and regional level, through increased awareness and a knowledge base accessible through a platform/information system is believed to help mobilise actors are multiple levels and feed a policy dialogue on challenges and potentials of oasis agro-ecosystems that cuts across stakeholders and sectors. Component 2 closely dialogues with the first component, and will provide the data and knowledge on the state and sustainable management of natural resources in oasis agro-ecosystems to make informed planning decision for sustainable and integrated oasis management and monitor progress, particularly at the regional and local levels. Component 2 will also provide information and insight to the local planning process on the most successful pathways towards sustainable development of the selected oasis agro-ecosystem. Component 3 incorporates broadening the knowledge base of local communities in order to implement NRM and SPI practices, methods and tools, while Component 4 will identify and disseminate lessons learned, best practices, and support awareness raising through and beyond the project's area. Exchanges among project beneficiaries will be encouraged through study tours, forums and workshops, and the project will use best available technologies and partnerships with key national and international partners to ensure lasting capacity building.

PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)

A. RECORD OF ENDORSEMENT[12] OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S):

(Please attach the Operational Focal Point endorsement letter(s) with this template. For SGP, use this SGP OFP endorsement letter).

NAME	POSITION	MINISTRY	DATE *(MM/dd/yyyy)*
BENYAHIA Mohamed	Le Directeur de Partenariat de la Communication, et de la Cooperation	Minister of Energy , Mining , Water and the Environment	03/25/2016

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF policies[13] and procedures and meets the GEF criteria for project identification and preparation under GEF-6.

Agency Coordinator, Agency name	Signature	Date *(MM/dd/yyyy)*	Project Contact Person	Telephone	Email
Gustavo Merino (Mr.), Director, Investment Centre Division, Food and Agriculture Organization of the United Nations (FAO)		29 August 2016	Michael Hage (Mr.), FAO Representative in Morocco Maude Veyret-Picot (Ms.), Natural Resources Officer, GEF Unit		FAO-MA@fao.org ; Michael.Hage@fao.org Maude.veyretpicot@fao.org
Jeffrey Griffin (Mr.), Senior Coordinator, GEF Coordination Unit, Investment Centre Division, FAO				+39 06 570 55680	GEF-Coordination-Unit@fao.org; Jeffrey.Griffin@fao.org

C. ADDITIONAL GEF PROJECT AGENCY CERTIFICATION (APPLICABLE ONLY TO NEWLY ACCREDITED GEF PROJECT AGENCIES)

For newly accredited GEF Project Agencies, please download and fill up the required **GEF Project Agency Certification of Ceiling Information Template** to be attached as an annex to the PIF.

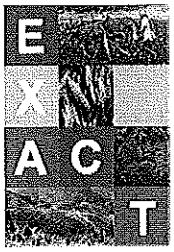
[12] For regional and/or global projects in which participating countries are identified, OFP endorsement letters from these countries are required even though there may not be a STAR allocation associated with the project.

[13] GEF policies encompass all managed trust funds, namely: GEFTF, LDCF, and SCCF

Food and Agriculture Organization of the United Nations

Annex 1

EX-ACT brief: Ex-Ante GHG Appraisal of the Revitalising Oasis Agro-ecosystems through a Sustainable, Integrated and Landscape Approach in the Draâ-Tafilalet Region, Morocco



About EX-ACT: The *Ex Ante* Carbon-balance Tool aims at providing *ex-ante* estimations of the impact of agriculture and forestry development projects on GHG emissions and carbon sequestration, indicating its effects on the carbon balance.

EX-ACT website: ***www.fao.org/tc/exact***
Contact: ***EX-ACT@fao.org***

Introduction

This *EX-ACT Brief* concisely presents the results of the ex-ante GHG assessment of the *Revitalising Oasis Agro-ecosystems through a Sustainable, Integrated and Landscape Approach in the Draâ-Tafilalet Region, Morocco*. It was prepared for submission as annex to the project identification form. The brief intends to quantify main project GHG impacts by project component and transparently document the input data of agricultural field activities and areas on which the assessment is based. It thus allows subsequent GHG assessments at mid-term and project finalization stages to update area target and monitor ongoing achievements of GHG benefits. The results of the EX-ACT brief may likewise be used to target potential, more comprehensive GHG monitoring activities under the project to the most relevant priority project components from a GHG point of view.

The EX-ACT appraisal used Tier 1 level of specification and is based on area targets of sustainable land management provided by the project appraisal team.

Project Activities

The EX-ACT tool utilizes area estimates of improved land management and production practices at project end as input data and compares them to an alternative baseline scenario that would materialize in absence of the project. The current analysis adopts the continuation of the status-quo as the baseline scenario. In the absence of refined field data it is thus conservatively assumed that in absence of the project land degradation processes would not further intensify beyond current stages. This decision avoids that strong claims of mitigation benefits are made on a basis without the provision of justifying field data. The analysis below describes the impacts that are achieved by direct project activities.

Table 1: Direct project activity targets with GHG mitigation impacts

Project activity	Direct project target (ha)
Avoiding siltation of oasis cropland (land loss due to sand encroachment) E.g. construction of structures to fix sand dunes, naturally assisted regeneration of highly degraded rangelands surrounding oases croplands, etc.	2,000
Avoiding siltation of pasture land (land loss due to sand encroachment) E.g. set up of underground and/or hillside dams to promote groundwater recharge, etc.	6,000
Cropland rehabilitation E.g. composting, conservation agriculture, rehabilitation of traditional irrigation systems, construction of flood structures to protect the oasis against flood damage, etc.	13,000
Grassland rehabilitation E.g. rehabilitation of transhumance routes, fencing, naturally assisted regeneration of highly degraded rangelands, agro-forestry systems, etc.	39,000
Total	**60,000**

Results

Considering the above activity scenario, the *Revitalising Oasis Agro-ecosystems through a Sustainable, Integrated and Landscape Approach in the Draâ-Tafilalet Region, Morocco* project will

provide direct total mitigation benefits of roughly 1.5 million t CO_2-eq over a period of 20 years. This is equivalent to annual mitigation benefits of 1.2 t CO_2-eq per hectare.

Major parts of the estimated carbon sequestration benefits under the analysis stem from increased soil carbon levels as a consequence of the rehabilitation process. Estimates could be refined during project design (PPG) and/or project implementation by utilizing improved data on current degradation states and measurements of actual achieved improvements. As part of this ex-ante assessment the average soil carbon levels as reported by the IPCC for warm temperate dry area have been used instead, as detailed in the EX-ACT methodology.

Project Name	*Revitalising oasis agro-eco*	Climate	*Warm Temperate (Dry)*	Duration of the Project (Years)	*20*
Continent	*Africa*	Dominant Regional Soil Type	*HAC Soils*	Total area (ha)	*60000*

Components of the project	Gross fluxes Without	With	Balance	Share per GHG of the Balance All GHG in tCO2eq CO_2			N_2O	CH_4	Result per year Without	With	Balance
	All GHG in tCO2eq Positive = source / negative = sink			Biomass	Soil	Other					
Land use changes											
Deforestation	0	0	0	0	0		0	0	0	0	0
Afforestation	0	0	0	0	0		0	0	0	0	0
Other LUC	609,451	0	-609,451	-70,407	-536,433		-2,610	0	30,473	0	-30,473
Agriculture											
Annual	5,700	-304,950	-299,250	0	-299,250		0	0	-285	-15,248	-14,963
Perennial	0	0	0	0	0		0	0	0	0	0
Rice	0	0	0	0	0		0	0	0	0	0
Grassland & Livestocks											
Grassland	0	-573,788	-573,788	0	-573,788		0	0	0	-28,689	-28,689
Livestocks	0	0	0				0	0	0	0	0
Degradation & Management	0	0	0	0	0		0	0	0	0	0
Coastal wetlands	0	0	0	0	0		0	0	0	0	0
Inputs & Investments	0	0	0			0	0	0	0	0	0
Fishery & Aquaculture	0	0	0			0	0	0	0	0	0
Total	603,751	-878,738	-1,482,488	-70,407	-1,409,471	0	-2,610	0	30,188	-43,937	-74,124
Per hectare	10	-15	-25	-1.2	-23.5	0.0	0.0	0.0			
Per hectare per year	0.5	-0.7	-1.2	-0.1	-1.2	0.0	0.0	0.0	0.5	-0.7	-1.2

Table 2: Ex-ante Carbon-balance of direct project impacts on 60,000 ha

Annex 2 EX-ACT complete file

EX-ACTv7_Morocco_OASIL_direct.xlsx

Annex 3 Preliminary commitment letters by national partners.

Letter # 1: MAPM

المملكة المغربية
Royaume du Maroc

وزارة الفلاحة والصيد البحري
Ministère de l'Agriculture et de la Pêche Maritime

1129
n° DF/DF

Rabat, le : 17 JUIN 2016

LE MINISTRE DE L'AGRICULTURE ET DE LA PECHE MARTIME

A

MONSIEUR LE REPRESENTANT DE LA FAO AU MAROC

Objet : Lettre de cofinancement - Projet «Revitalising Oasis Agro-ecosystems through a Sustainable, Integrated and Landscape Approach in the Draâ-Tafilalet Region (OASIL) ».

Dans le cadre du Projet «Revitaliser les agroécosystèmes des Oasis à travers une approche intégrée et durable dans la Région de Daraâ-Tafilalet» (OASIL), j'ai l'honneur de vous confirmer que **le cofinancement pris en charge par le Ministère de l'Agriculture et de la Pêche Maritime** concernera les dépenses liées à l'exécution de 31 projets Pilier II en cours de mise en œuvre dans la région de Daraâ-Tafilalet.

A titre indicatif, le coût global prévisionnel de ces projets Pilier II, sur lesquels les actions du projet OASIL vont se greffer, serait d'environ **2 Milliards de DH** sur la durée totale des dits projets.

Tout en souhaitant l'aboutissement de ce projet et en vous exprimant mes vifs remerciements pour votre précieuse collaboration, je vous prie de croire, Monsieur le représentant, en l'assurance de ma considération distinguée.

Pour le Ministre de l'Agriculture
et de la Pêche Maritime
Le Directeur Financier

Signé : Fehd Al-Houssein BOUAB

DIRECTION FINANCIERE
B.P : 607 - Chellah - Rabat
Tél. : 0530 10 31 82 / 31 83 Fax : 0537 76 15 57

مديرية المالية
صندوق البريد : 607 شالة - الرباط
الهاتف : 0530 10 31 82 / 31 83 الفاكس :

Letter # 2: ANDZOA

Programmes et projets en cours de réalisation par l'ANDZOA et ses partenaires

Programme	Source du financement	Composantes du projet cofinancées	Répartition estimée en %	Montant estimé ($)
Contrat Programme palmier dattier (2010-2020)	Etat Marocain 65 % La profession 35 %	1-Soutien au dialogue politique au niveau national et régional sur la gestion durable des écosystèmes oasiens	-	770 millions USD
		2-Planification et suivi : amélioration des systèmes de planification et de suivi aux niveaux régional et local	-	
		3-Démonstration : restauration protection et gestion durable des écosystèmes oasiens grâce à une approche intégrée	90	
		4-Suivi et évaluation du projet et gestion des connaissances	10	
Projet d'Appui des Groupements d'Intérêt Economique pour le Développement de la Filière Phoenicicole au niveau des Oasis Marocaine (PAGIE) (2016-2020)	CTB 60% MAPM 40 %	1-Soutien au dialogue politique au niveau national et régional sur la gestion durable des écosystèmes oasiens	10	24 millions USD
		2-Planification et suivi : amélioration des systèmes de planification et de suivi aux niveaux régional et local	40	
		3-Démonstration : restauration protection et gestion durable des écosystèmes oasiens grâce à une approche intégrée	40	
		4-Suivi et évaluation du projet et gestion des connaissances	10	
Projet d'Adaptation aux Changements Climatiques dans les Zones Oasiennes PACZO (2015-2019)	Fonds d'adaptation 60 % Etat Marocain bénéficiaires 40 %	1-Soutien au dialogue politique au niveau national et régional sur la gestion durable des écosystèmes oasiens	20	9,97 millions USD (Contribution FA)
		2-Planification et suivi : amélioration des systèmes de planification et de suivi aux niveaux régional et local	35	
		3-Démonstration : restauration protection et gestion durable des écosystèmes oasiens grâce à une approche intégrée	35	
		4-Suivi et évaluation du projet et gestion des connaissances	10	

Programme	Source du financement	Composantes du projet cofinancées	Répartition en %	Montant ($.)
Projet de partenariat de l'ANDZOA (2016-2020)	ANDZOA 40 % Partenaires 60%	1-Soutien au dialogue politique au niveau national et régional sur la gestion durable des écosystèmes oasiens	5	60 Millions USD
		2-Planification et suivi : amélioration des systèmes de planification et de suivi aux niveaux régional et local	5	
		3-Démonstration : restauration protection et gestion durable des écosystèmes oasiens grâce à une approche intégrée	85	
		4-Suivi et évaluation du projet et gestion des connaissances	5	
Etudes (2012-2020)	ANDZOA 90 % Partenaires 10%	1-Soutien au dialogue politique au niveau national et régional sur la gestion durable des écosystèmes oasiens	-	1Million USD
		2-Planification et suivi : amélioration des systèmes de planification et de suivi aux niveaux régional et local	-	
		3-Démonstration : restauration protection et gestion durable des écosystèmes oasiens grâce à une approche intégrée	-	
		4-Suivi et évaluation du projet et gestion des connaissances	-	
Autres projets de coopération (2016-2020)	ANDZOA 30 % Fondation OCP et autres 70 %	1-Soutien au dialogue politique au niveau national et régional sur la gestion durable des écosystèmes oasiens	-	1 million USD
		2-Planification et suivi : amélioration des systèmes de planification et de suivi aux niveaux régional et local	-	
		3-Démonstration : restauration protection et gestion durable des écosystèmes oasiens grâce à une approche intégrée	100	
		4-Suivi et évaluation du projet et gestion des connaissances	-	

Letter # 3: Regional Directorate of Agriculture of Draa- Tafilalet.

ROYAUME DU MAROC

DIRECTION REGIONALE DE L'AGRICULTURE
DE DRAA- TAFILALET

Errachidia

DEST : MONSIEUR LE REPRESENTANT DE LA FAO AU MAROC

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RABAT

N/ Ref. 335 /DPAD/

Date : 2 0 JUIN 2016

EXPD : LE DIRECTEUR REGIONAL DE L'AGRICULTURE DE DRAA- TAFILALET

OBJET: **"Revitalising Oasis Agro-ecosystems through a Sustainable, Integrated and Landscape Approach in the Draâ-Tafilalet Region (OASIL)"**

Dans le cadre du projet cité en objet, J'ai l'honneur de vous confirmer que le cofinancement pris en charge par le Ministère de l'Agriculture et de la Pêche Maritime concernera les dépenses liées à l'exécution de 31 projets Pilier II en cours de mise en oeuvre dans notre région sur lesquels les actions du projet OASIL vont se greffer, avec un montant globale estimé à 2 Milliards de dirhams sur la durée totale des dits projets.

Veuillez agréer, Monsieur le représentant, l'expression de ma haute considération.

Le Directeur Régional de l'Agriculture
Région DRAA-TAFILALET

Signé: Mohamed BOUSFOUL

Letter # 4: INRA

المعهد الوطني للبحث الزراعي
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Institut National de la Recherche Agronomique

N° 408 INRA/DS /DERN

Rabat, le 24 JUIN 2016

Le Directeur de l'Institut National de la Recherche Agronomique

A

Monsieur Le Représentant de la Fao Au Maroc

Objet : Lettre de cofinancement- Projet «***Revitalising Oasis Agro-ecosystems through a Sustainable, Integrated and Landscape Approach in the Draâ-Tafilalet Region (OASIL)*** ».

Dans le cadre du Projet «Revitaliser les agroécosystèmes des Oasis à travers une approche intégrée et durable dans la Région de Daraâ-Tafilalet » (OASIL), j'ai l'honneur de vous confirmer que le cofinancement pris en charge par l'Institut National de la Recherche Agronomique concernera les dépenses liées à l'exécution des douze projets de recherche dans le cadre du programme de recherche moyen terme (PRMT) en cours de réalisation par nos chercheurs sur le palmier dattier et l'espace oasien.

A titre indicatif, le coût global prévisionnel de ces projets, sur lesquels les actions du projet OASIL vont se greffer, serait d'environ ***1 000 000 USD*** sur la durée totale du PRMT.

Tout en souhaitant l'aboutissement de ce projet et en vous exprimant mes vifs remerciements pour votre précieuse collaboration, je vous prie de croire, Monsieur le représentant, en l'assurance de ma considération distinguée.

Le Directeur de l'Institut National de la Recherche Agronomique

BADRAOUI Mohamed