



ADAPTATION FUND

AFB/PPRC.14/7
4 March 2014

Adaptation Fund Board
Project and Programme Review Committee
Fourteenth Meeting
Bonn, Germany, 18-19 March 2014

Agenda Item 6 d)

PROPOSAL FOR MOROCCO

Background

1. The Operational Policies and Guidelines (OPG) for Parties to Access Resources from the Adaptation Fund (the Fund), adopted by the Adaptation Fund Board (the Board), state in paragraph 45 that regular adaptation project and programme proposals, i.e. those that request funding exceeding US\$ 1 million, would undergo either a one-step, or a two-step approval process. In case of the one-step process, the proponent would directly submit a fully-developed project proposal. In the two-step process, the proponent would first submit a brief project concept, which would be reviewed by the Project and Programme Review Committee (PPRC) and would have to receive the endorsement of the Board. In the second step, the fully-developed project/programme document would be reviewed by the PPRC, and would ultimately require the Board's approval.

2. The Templates approved by the Board (OPG, Annex 4) do not include a separate template for project and programme concepts but provide that these are to be submitted using the project and programme proposal template. The section on Adaptation Fund Project Review Criteria states:

For regular projects using the two-step approval process, only the first four criteria will be applied when reviewing the 1st step for regular project concept. In addition, the information provided in the 1st step approval process with respect to the review criteria for the regular project concept could be less detailed than the information in the request for approval template submitted at the 2nd step approval process. Furthermore, a final project document is required for regular projects for the 2nd step approval, in addition to the approval template.

3. The first four criteria mentioned above are:

1. Country Eligibility,
2. Project Eligibility,
3. Resource Availability, and
4. Eligibility of NIE/MIE.

4. The fifth criterion, applied when reviewing a fully-developed project document, is:

5. Implementation Arrangements.

5. It is worth noting that since the twenty-second Board meeting, the Environmental and Social (E&S) Policy of the Fund was approved and consequently compliance with the Policy has been included in the review criteria both for concept documents and fully-developed project documents. The proposals template was revised as well, to include sections requesting demonstration of compliance of the project/programme with the E&S Policy.

6. In its seventeenth meeting, the Board decided (Decision B.17/7) to approve "Instructions for preparing a request for project or programme funding from the Adaptation Fund", contained in the Annex to document AFB/PPRC.8/4, which further outlines applicable review criteria for both concepts and fully-developed proposals.

7. Based on the Board Decision B.9/2, the first call for project and programme proposals was issued and an invitation letter to eligible Parties to submit project and programme proposals to the Fund was sent out on April 8, 2010.

8. According to the Board Decision B.12/10, a project or programme proposal needs to be received by the secretariat no less than nine weeks before a Board meeting, in order to be considered by the Board in that meeting.

9. The following project concept titled “Climate changes adaptation project in oasis zones” was submitted by the *Agence pour le Développement Agricole* (ADA), which is the National Implementing Entity of the Adaptation Fund for Morocco. This is the second submission of the project concept document. It was first submitted as a concept during the twenty-second Board meeting and the Board decided to:

(a) Not endorse the project concept, as supplemented by the clarification response provided by Agence pour le Développement Agricole (ADA) to the request made by the technical review;

(b) Suggest that ADA reformulates the proposal taking into account the observations in the review sheet annexed to the notification of the Board’s decision, as well as the following issues:

- (i) In addition to soil and water engineering efforts to reduce the vulnerability of the agricultural sector in Moroccan oases, the proponent should consider the development of alternative sources of incomes such as craft and tourism, as piloted with youth and women, to enhance the adaptive capacity of communities and reduce pressure on water resources;*
- (ii) The promotion of varieties of date palms that are resistant to the “Bayoud” virus, as specified in the text of the proposal, should be included in the project activities under component 2, and examples of species to be used for the biological control of siltation (under activity 2.2.2) should be provided;*
- (iii) The cost effectiveness of the project should be demonstrated more clearly, including information on the target areas, the size of farmer lands and number of beneficiaries;*
- (iv) Existing technical standards for the building of dams, irrigation systems, or ground water use, should be provided. Any work that could trigger an environmental impact assessment (EIA) should be outlined, and the national laws on EIAs should be specified.*
- (v) Detailed information on on-going agriculture/oasis-related initiatives by the government, multilateral or bilateral partners should be provided. Complementary adaptation and oasis-related projects in the country should also be described, and the “business as usual” or baseline activities provided, to demonstrate the added-value of the project and its adaptation reasoning;*
- (vi) A learning and knowledge management subcomponent should be added to the project. Activities described in the dedicated section in the document are not found in the description of the project’s activities and components;*

(vii) It is not clear which stakeholders have been consulted. A list should be provided. Furthermore, existing local non-governmental organizations (NGOs) and civil-society organizations (CSOs), as well as communities should be consulted, to increase coordination of actions on the ground and ensure sustainability;

(viii) The proponent should clarify which of the implementing entity fees or the execution costs are requested under “operating charges”; and.

(c) Request ADA to transmit the observations under sub-paragraph (b) to the Government of Morocco.

(Decision B.22/7)

10. The present submission was received by the secretariat in time to be considered in the twenty-third Board meeting. The secretariat carried out a technical review of the project proposal, assigned it the diary number MAR/NIE/Agri/2013/1, and completed a review sheet.

11. In accordance with a request to the secretariat made by the Board in its 10th meeting, the secretariat shared this review sheet with ADA, and offered it the opportunity of providing responses before the review sheet was sent to the PPRC.

12. The secretariat is submitting to the PPRC the summary and, pursuant to decision B.17/15, the final technical review of the project, both prepared by the secretariat, along with the final submission of the proposal in the following section.

13. To conclude, ADA has submitted a Project Formulation Grant Request, which is also available as an addendum to this document.

Project Summary

Morocco – Climate changes adaptation project in oasis zones

Implementing Entity: ADA

Project/Programme Execution Cost: USD 872,950

Total Project/Programme Cost: USD 8,315,990

Implementing Fee: USD 781,060

Financing Requested: USD 9,970,000

Project/Programme Background and Context: Moroccan oases experience degradation due in particular to climate change, compounded by population and urban pressure. This deterioration, in recent years, has taken alarming proportions and is leading to an increasingly threatening desertification. A dozen of southern Morocco Oases has already lost more than 40% of their crop area: 208 Ha of agricultural land were silted in Errachidia area. The gradual disappearance of favorable farming conditions of oases, led to the decline in the income of the population, which is a big issue for the majority of the southernmost oasis societies.

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 two components:

- Component 1: Capacity Building for different actors,
- Component 2: Implementation of adaptation measures based on improving and empowering the management of water resources and soil conservation.
- Component 3: Income generating activities for the young and women,
- Component 4: Knowledge Management.

Component 1: Capacity Building for different actors (USD 390,000)

The project will support technical staff from government and local NGOs to access analyze and use information related to climate in combination with the oases ecosystems. It will also support communities in determining participatory adaptation measures allowing them to generate environmental and socio-economic benefits. Therefore workshops, training courses and information sessions for local stakeholders (institutional, associations of agricultural water users, professional first and second degree organizations, etc.) will be organized. Capacity building will involve both informative aspects and awareness on environmental and economic situations related to oasis and desertification issues, technical aspects of installation and project management, governance and territorial approach. For individuals, capacity building will aim at changing attitudes and behaviors, improving knowledge, skills and performance. In the case of institutions (public, private, civil society), it will cover all areas to improve their performance and help them define organizational frameworks, coordination of cooperation and convergence.

Component 2: Implementation of adaptation measures based on improving and empowering the management of water resources and soil conservation (USD 7,000,000)

Water scarcity is a major problem in oasis areas, conditioned upstream by both persistent and recurrent drought by upgraded irrigation systems. The degradation of Moroccan palm groves has greatly accelerated during the last 10 years, for both anthropogenic and climatic reasons, losing nearly three-quarters of their palms. Therefore, the project will aim at rationalizing water resources by: i) Improving the efficiency of existing irrigation resources, including the most appropriate to oases systems and the ancestral systems including khetaras and spreading of floodwaters, and ii) Improving the rate of water storage both on surface and underground, through development and full rehabilitation of irrigation schemes. In addition, resources will be optimized through a better use and management of resources through capitalization of existing systems, and building new systems, and also developing water infrastructure to improve the rate of resources gathering and limit downstream losses.

Component 3: Income generating activities for the young and women (USD 550,000)

The project will also aim to improve the living standards of local populations by taking various support measures around the most promising sectors in the oasis agriculture, for young people and women; and therefore, limiting the rural exodus through fighting desertification and poverty. Promoting pilot activities with young people and women would help to create sources of incomes related to economic sectors that do not put pressure on natural resources (water and soil). These pilot projects will include craft activities, tourism, promotion of mining materials, medicinal and aromatic plants.

Component 4: Knowledge Management (USD 375,990)

The project will undertake efforts for the consolidation and capitalization of knowledge and capitalization of results of other interventions on adaptation to climate change. Therefore, data on climate change at the oasis area will be updated. In addition, Internships and visits will be organized for actors. These actions will focus on risk management, hydro meteorological management, findings & facilitating tools, groupware, monitoring, analysis of climate information, use of methodological tools and development of modules of adaptation.



ADAPTATION FUND

ADAPTATION FUND BOARD SECRETARIAT TECHNICAL REVIEW OF PROJECT/PROGRAMME PROPOSAL

PROJECT/PROGRAMME CATEGORY: Regular-sized Project Concept

Country/Region: **Morocco**Project/Programme Title: **Climate changes adaptation project in oasis zones**AF Project ID: **MAR/NIE/Agri/2013/1**

NIE/MIE Project/Programme ID:

Requested Financing from Adaptation Fund (US Dollars): **9,970,000**Regular Project/Programme Concept Approval Date: **n/a**Anticipated Submission of final RP document (if applicable): **n/a**Reviewer and contact person: **Daouda Ndiaye**Co-reviewer(s): **Daniel Gallagher**NIE/MIE Contact Person: **Hamid Felloun**

Review Criteria	Questions	Comments on 20 January 2014	Comments on 13 February 2014
Country Eligibility	1. Is the country party to the Kyoto Protocol?	Yes.	
	2. Is the country a developing country particularly vulnerable to the adverse effects of climate change?	Yes. Morocco is an arid country, vulnerable to drought and flood.	
Project Eligibility	1. Has the designated government authority for the Adaptation Fund endorsed the project/programme?	No.	
	2. Does the project / programme support concrete adaptation actions to assist the country in addressing adaptive capacity to the adverse effects of climate change and build in climate resilience?	Yes.	

	3. Does the project / programme provide economic, social and environmental benefits, particularly to vulnerable communities, including gender considerations, while avoiding or mitigating negative impacts, in compliance with the Environmental and Social Policy of the Fund?	Yes. However, additional information on how the project will avoid or mitigate negative impacts, in compliance with the Environmental and Social Policy of the Fund, is requested. CR1	CR1: Addressed.
	4. Is the project / programme cost effective?	Not demonstrated. More information is needed on the selected scope and approach. The cost effectiveness should also be demonstrated from a sustainability point of view. CR2.	CR2: Addressed.
	5. Is the project / programme consistent with national or sub-national sustainable development strategies, national or sub-national development plans, poverty reduction strategies, national communications and adaptation programs of action and other relevant instruments?	Yes.	
	6. Does the project / programme meet the relevant national technical standards, where applicable, in compliance with the Environmental and Social Policy of the Fund?	Yes.	
	7. Is there duplication of project / programme with other funding sources?	No.	
	8. Does the project / programme have a learning and knowledge management component to capture and feedback lessons?	Yes. Component 5 is dedicated to knowledge management activities.	

	9. Has a consultative process taken place, and has it involved all key stakeholders, and vulnerable groups, including gender considerations?	Yes.	
	10. Is the requested financing justified on the basis of full cost of adaptation reasoning?	Yes.	
	11. Is the project / program aligned with AF's results framework?	Yes.	
	12. Has the sustainability of the project/programme outcomes been taken into account when designing the project?	Yes.	
	13. Does the project / programme provide an overview of environmental and social impacts / risks identified?	Yes. However, please use the AF request for funding template. CAR1	CAR1: Addressed.
Resource Availability	1. Is the requested project / programme funding within the cap of the country?	No. The total requested funding (project and PFG combined) amounts to 10,030,000 USD, which is above the 10,000,000 USD cap. CAR2	CAR2: Addressed.
	2. Is the Implementing Entity Management Fee at or below 8.5 per cent of the total project/programme budget before the fee?	Yes, it has been set at 8.5% of the total budget. However, please provide the exact corresponding amount in the project financing table. CAR3.	CAR3: Addressed.
	3. Are the Project/Programme Execution Costs at or below 9.5 per cent of the total project/programme budget (including the fee)?	Yes, it has been set at 9.5% of the total budget. However, please provide the exact corresponding amount in the project financing table. CAR4.	CAR4: Addressed.
Eligibility of IE	4. Is the project/programme submitted through an eligible Implementing Entity that has been accredited by the Board?	Yes, ADA is the National Implementing Entity for Morocco.	

Implementation Arrangements	1. Is there adequate arrangement for project / programme management?	n/a (Not required at Project Concept stage).	
	2. Are there measures for financial and project/programme risk management?	n/a (Not required at Project Concept stage).	
	3. Are there measures in place for the management of for environmental and social risks, in line with the Environmental and Social Policy of the Fund?	n/a (Not required at Project Concept stage).	
	4. Is a budget on the Implementing Entity Management Fee use included?	n/a (Not required at Project Concept stage).	
	5. Is an explanation and a breakdown of the execution costs included?	n/a (Not required at Project Concept stage).	
	6. Is a detailed budget including budget notes included?	n/a (Not required at Project Concept stage).	
	7. Are arrangements for monitoring and evaluation clearly defined, including budgeted M&E plans and sex-disaggregated data, targets and indicators?	n/a (Not required at Project Concept stage).	
	8. Does the M&E Framework include a break-down of how implementing entity IE fees will be utilized in the supervision of the M&E function?	n/a (Not required at Project Concept stage).	
	9. Does the project/programme's results framework align with the AF's results framework? Does it include at least one core outcome indicator from the Fund's results framework?	n/a (Not required at Project Concept stage). <i>Please note that as of the 14th AFB meeting, fully developed project/programme proposals are required to provide a table indicating alignment of project/programme objectives with the AF results framework. A template will be available on the AF website.)</i>	
	10. Is a disbursement schedule with time-bound milestones included?	n/a (Not required at Project Concept stage).	

**Technical
Summary**

The project seeks to reduce climate change and human vulnerability of oasis agro ecosystems in Morocco by increasing the adaptive capacity of local actors and by disseminating knowledge management. The project will implement concrete adaptation measures to climate change in Moroccan oases areas, including the rehabilitation of irrigation canals and related structures, the rehabilitation of “khetaras” (traditional irrigation galleries), the enhancement of groundwater recharge through small and medium-sized dams, biological control of siltation, promotion of pilot activities with young people and women would help to create sources of incomes related to economic sectors that do not put pressure on natural resources, as well as capacity building and knowledge management activities. The intervention zones of the project are those of the administrative regions of Souss Massa Draa (province 'Ourzazate, Zagora and Tinghir) and Melnés Tafilalet (province of Errachidia and Figuig). The number of beneficiaries is expected to be about 40,000 people.

The initial technical review found that the activities of the project were adequate to address the climate change adaptation challenges it was aiming at tackling. However, a few clarification and corrective action requests were made, including submission of an endorsement letter, use of the Adaptation Fund latest template request for project/programme funding including compliance with the Environmental and Social Policy of the AF, submission of exact amounts of execution costs and implementing entity fees, and further demonstration of the project cost effectiveness.

The revised proposal submitted by the proponents has adequately addressed the clarification requests (CRs) and corrective action requests (CARs) made.

The following observations are made, to be taken into account at the fully-developed proposal stage:

- a) The fully-developed proposal should include a participatory assessment of potential social and environmental risks and impacts of the project's activities, providing for each E&S principle, a justification of no further assessment requirement for compliance with the E&S Policy, or a justification of further assessment that may be needed, including Environmental Impact Assessments;
- b) The fully-developed proposal should elaborate more on how the sustainability of the project outcomes will be ensured, at the economic, social, environmental and institutional levels;

	<p>c) A comprehensive consultation process should be demonstrated at the fully-developed proposal stage, to include the inputs from all stakeholders, particularly the most vulnerable communities and marginalized groups.</p> <p>d) The fully-developed proposal should demonstrate that the project will be implemented in synergy and collaboration with all relevant initiatives and programmes in a similar sector and/or its areas of intervention. The types of collaboration and synergies sought should be clearly outlined and reflected in the execution arrangements of the project.</p>
Date:	February 13, 2014.



Royaume du Maroc

ROYAUME DU MAROC



Ministère de l'Agriculture
et de la Pêche Maritime



وكالة التنمية الفلاحية
AGENCE POUR LE DEVELOPPEMENT AGRICOLE



ADAPTATION TO CLIMATE CHANGE

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Project of Adaptation to Climate Change – Oases Areas



February 10th, 2014



ADAPTATION FUND

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Project of Adaptation to Climate Change- Oases Areas

PROJECT/PROGRAMME PROPOSAL TO THE ADAPTATION FUND

Acronyms

- ADA : Agency for Agricultural Development
- ANDZOA : National Agency for Development of Oases Zones and Argan Trees
- AUEA : Association of Agricultural Water Users
- CTB : Belgian Technical Cooperation
- CT : Work Center
- DPA : Provincial Direction of Agriculture
- GIE : Economical Interest Group
- GIEC : Intergouvernemental panel on Climate change
- INDH : National Initiative of human development
- MAPM : Ministry of Agriculture and Maritime Fisherie
- ONCA : National Agricultural Council Office
- ORMVA : Regional Office of Agricultural Development
- PMV : Moroccan Green Plan

PART I: PROJECT/PROGRAMME INFORMATION

Project/Programme Category : Regular
Country/ies : Morocco
Title of Project/Programme : Project of Adaptation to Climate Change– Oases Zones-
PACC-ZO
Type of Implementing Entity : NIE
Implementing Entity : Agricultural Development Agency
Executing Entity/ies : National Agency of Development of Oases zones and Argan
Trees (ANDZOA)
Amount of Financing Requested: 9 970 000 (in U.S Dollars Equivalent)

Project/Programme Background and Context:

In Morocco, the observations of the past three decades (1976 - 2006) show warning signs of the likely effect of expected climate change:

- Frequency and intensity of droughts,
- Unusual devastating floods, reduction of snow covers in the Rif and Atlas mountains, changes in spatial and temporal distribution of rainfall with an overall decrease in rainfall amounts,
- High summer temperatures.

Some of these events have already been expensive to Morocco on social, economic and environmental levels.

Morocco suffers more recurrent and severe droughts combined with a growing water demand. The country has gone through forty years of drought with excessive temperature changes that have marked the past century. During the twenty years (1980 - 2000), two droughts of four years and one of three consecutive years took place and severely affected agricultural productivity (loss of more than 50% of yield).

During the last three decades (1976 - 2006), Morocco has also experienced random fluctuations of precipitation and casual succession of dry and wet years, leadings to an overall decrease in collected rainfall. This decrease is differing from one region to another, between -3% and -30%.

Morocco has also experienced the last two decades an increasing frequency of weather phenomena at great risk of flooding. Torrential rainfall with floods caused extensive damage in the province of Errachidia in August 2006 (Merzouga region) in the east in May 2007 and most recently in October 2008, again in the province of Errachidia (regions of Gourrama and Boudnib) and in the north of the country (Tangier, Tetouan, Nador, ...).

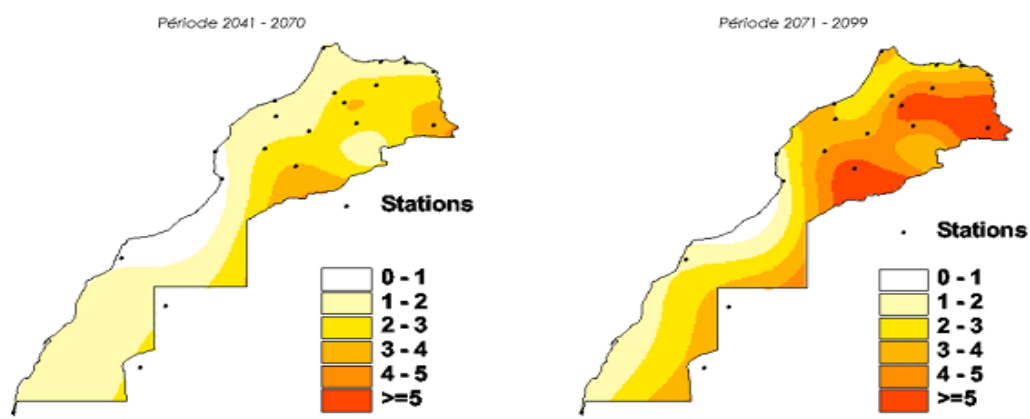
Analysis of climate Data from Morocco during the past quarter century reveals a high variability of climate in the country, with warming trends and rainfall deficit. Overall, the air temperature in Morocco during all seasons has increased by an average of 0.6 to 1.4 ° C depending on each region, over the past 40 years. This increase was especially effective since the '80s and '90s (during which global warming has increased the frequency of droughts).

The development of climate scenarios for Morocco in the IPCC methodology gave the following results:

- A clear trend towards an increase in the average annual temperature between 0.6 ° C and 1.1 ° C by 2020.
- A tendency to reduction of the average annual rainfall of about 4% in 2020 compared to 2000.
- An increase in the frequency and intensity of frontal and convective storms in northern and western Atlas Mountains.
- A disorder of seasonal rainfall (winter rains concentrated in short periods).
- A reduction in duration of snow covers (migration altitude of 0° C isotherm and an accelerated snowmelt.)

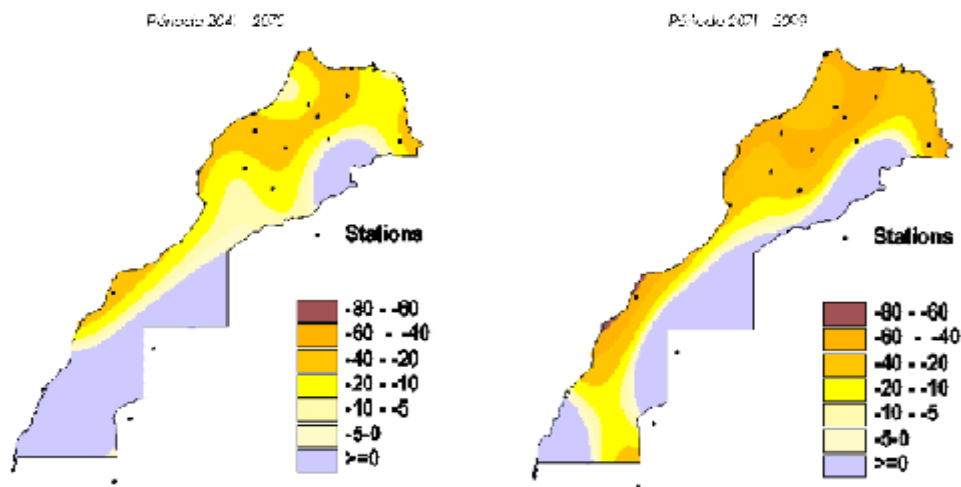
Climate projections provide throughout the twenty-first century a worsening situation, as shown in the following temperature and precipitation maps that are compared to the period 1961-1990.

Figure 1: Projected changes of annual average temperature (° C) in 2080/2090 compared to 1980/1990



Source : http://www.minenv.gov.ma/PDFs/CLIMAT/changements_climatiques.pdf

Figure 2: Projected changes of average annual precipitations (° C) in 2080/2090 compared to 1980/1990



Source : http://www.minenv.gov.ma/PDFs/CLIMAT/changements_climatiques.pdf

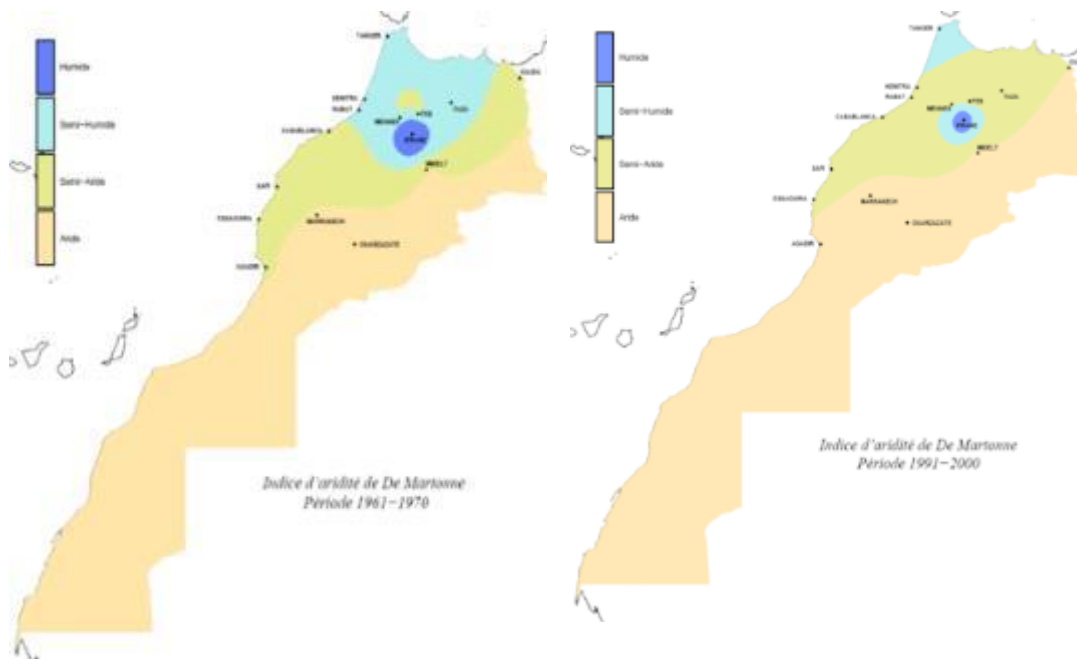
Climate projections of the Initial National Communication in Morocco to the UNFCCC (2001) show, for 2020, a continuing upwards trend in the average annual temperature between 0.6° C and 1.1° C, a tendency to reduction of the average annual rainfall of about - 4% compared with 2000. Also, an increase in the frequency and intensity of frontal and convective storms in the north and the west of the Atlas Mountains, an increase in the frequency and intensity of droughts in south and east, a disruption of seasonal rainfall (winter rains concentrated over a short period of time), a reduction in the duration of snow covers and a snow removal (migration altitude of 0 ° C isotherm and accelerated snowmelt).

These projections are confirmed by the results of the Second National Communication (in process of finalization) that give a global climate change projections for average annual temperatures, average temperature increases of 0.6 ° C, 1.8 ° C and 3.2 ° C respectively for the horizons 2015, 2045 and 2075. Heat waves are expected to increase in frequency and severity across the country. For annual averages of rainfall, projections show a decrease of -6%, -13% and - 19% for 2015, 2045 and 2075.

The recent prospective study of the impact of climate change on crop yields in Morocco by the end of the 21th century, led by the Ministry of Agriculture and Maritime Fishing (MAPM) and the World Bank (WB) in collaboration with the National Institute of Agronomic Research (INRA), the United Nations Food and Agriculture Organization (FAO) and the National Directorate of Meteorology (DMN) confirms future climate projections on Morocco and indicates that aridity will gradually increase due to the decrease in rainfall and increase in temperature (see Figure 3). The increasing aridity will have a negative impact on crop yields, especially from 2030; therefore, rain-fed will be particularly affected by climate change. It is also apparent from this study, that technological progress (improvement of agricultural yields in arid and semi-arid conditions), irrigation (water management at the farm plot, the

watershed and the region) and use of agricultural land according to their vocation are key ways to climate change adaptation.

Figure 3: Climate Growth in arid and semi-arid through north in 1991-2000 compared to 1961-1979



Regardless of weather conditions, water management is one of the major problems that affect the future of Morocco. Irrigation is a strategic sector in Morocco and a key channel toward development. The basic principle is based on the need of optimal management of water resource, to face the lack of water availability and waste of water because of outdated irrigation techniques. In this regard, the situation of the oases of southern Morocco today is dramatic in a way that it foreshadows a considerable acceleration of desertification effects with a significant deterioration and loss; and finally abandonment of productive ecosystems holding an ecological and economic roles that are crucial for the region.

In the oases environment, hydrological context and climate are more sensitive because of irregularities in water availability in time and space. Water management is vital for people, especially; in times of drought which indicates weaknesses of the current country system. The oases are both the first to suffer the impacts of climate change and are the last defense of the country against the advancing desert.

The Moroccan oasis

The oasis area is characterized on a bioclimatic space as semi - arid to arid, with very irregular precipitation from one year to another. The rains are often brutal and concentrated in time in the form of storms, causing severe floods. The average annual rainfall is only 132 mm and the number of rainy days is barely twenty. However, in some valleys there are microclimates characterized by attenuation of aridity due to the presence of vegetation and protection of these valleys by high relief.

The region is characterized by periods of very random violent floods, which can cause considerable damage resulting from rainstorms, and localized thunderstorms. They are more frequent as we move from east to west. The risk of these floods has been reduced by the construction of dams (Mansour Addahbi the Oued Draa and Hassan Addakhil the Oued Ziz). The construction of these dams has to make regular principal Draa palm and Tafilelt, but it severely limited the groundwater recharge, especially groundwater, all along the course of the streams and in low-lying areas.

Although, the temperature regime is fairly steady from one year to another, the rainfall is very irregular. Inter-annual variability is very strong. Successions of floods and drought have great impact on people lifestyle. Farmers are living in expectation of rain and constantly fear floods and droughts.

Winds increase the evaporating power of the atmosphere and enable the transport of sands that threaten high-value sites (Ksour, roads, agricultural land, irrigation infrastructure). This gives the area the following general characteristics: dry climate and poor soil, harsh Saharan influences, wind erosion, sandstorms, drought and desertification, shortage of groundwater resources, importance of evaporation and the evapotranspiration, remarkable diversity of fauna and flora, characterized by a dominance of endemic species.

The region is drained by five major oueds: it is from West to East, the Draa, the Rheriss and Maïder, Ziz and Guir. Covering an area of 115 563 km² and an average flow of 25 m³ / s. This area is only about 4% of the surface water resources of Morocco and only 5.7% of global resources. 93% of resources are mobilized, which means that the hydraulic system implemented at full throttle and it should certainly save the existing balance between population growth and resource use. Uncontrolled population growth and programming projects of large irrigation water users could undermine this delicate balance. Over 1102 million m³ mobilized in the oasis area, 98% are dedicated to agriculture (needs are covered at 75%) and the rest is reserved for drinking water. It is obvious that before the scarcity of resources and the difficulty of mobilizing others, water saving techniques; particularly in agriculture, must be implemented as soon as possible. It is also important to consider water conservation as a strategic objective to safeguard the oasis areas.

The oasis area of southern Morocco has 1,733,000 inhabitants (5.3% of the national population in 2002 estimations) over an area of 115 563 km² (15% of the national area), with a density of 15 inhabitants per km². This is a significant figure considering that the utilized agricultural area (UAA) covers only 2% of this space and the remaining 98% are in almost a complete desert. The region does not count on its own economic bases but it counts on transfer income from emigration, which represents approximately 60% of income.

The oasis populations are currently immersed in a vicious cycle combining environmental degradation and impoverishment as a result of the ecosystem degradation, the oasis no longer provide sufficient means of subsistence, and the oasis populations are forced to

resort to seasonal migration and increased dependence of these revenues migration, which has the effect unexpected negative lead to the abandonment of the oasis area adapted to practice, so the loss of ecosystem services, and therefore a continuous impoverishment. Indeed, while the influx of money from emigration, maintains plots, creating economic projects, maintenance and construction of housing and strengthening of family budgets, it is also the processing in the origin region.

Oases, by their biological, cultural and architectural provide exceptionally rich and varied landscapes, play many environmental functions and provide a multitude of goods and services of social, ecological and economic features. It has strengths and potentials that are the basis for the development of many human activities such as agriculture, golf, tourism, trade and industry. However, these potentials are in a binding context and a fragile environment. Severe weather, low resilience and water scarcity led man to practice a traditional production system which helped in developing traditional skills of mobilizing water (khattaras ...), in the practice of agriculture (adoption of an intensive system of three levels of vegetation associated with livestock and crafts) and in the natural resource management system.

The rapid population growth in recent years and the radical change that occurred in its lifestyle, in addition to the precarious economic situation, have created a strong pressure on natural resources. This pressure has resulted in an intensification of agriculture and excessive water pumping from groundwater. The waste of this scarce resource is even more serious because it is often used to irrigate agricultural crops with very low economic productivity as it uses traditional irrigation methods which are characterized by a significant waste of resources. Therefore it lead to soil degradation, drying palm trees, dwindling of Khettaras and overexploitation of water resources, resulting in the loss of agricultural productivity and agro-biodiversity. In addition to water shortages, virus attacks such as "Bayoud" are serious threats to the future of all the oasis ecosystem, natural vegetation and microclimate barrier against the advancing desert.

Environmental heritage is the main productive activities in Moroccan oases that are already weakened by the effects of recurrent drought periods and subject to the arid climate. Moreover, the irrational modes of operation (over-exploitation of resources, overgrazing, excessive pumping of water, etc.), is now too debased. This degradation process affecting the integrity of ecosystems, could eventually lead to the decline in goods and services that are the source of income of the local population, and then leading to degradation of life styles ,social and cultural destabilization of local communities.

Today oases face the additional challenge of climate change, which may provide greater constraints (water scarcity, extreme weather events). The Ministry of the Environment Water and Mines conducted a study to assess future scenarios on the oases areas, in terms of climate change, for 2021-2050. This study yielded the following results:

- A decrease in winter rainfall for the entire area, associated with a decrease in the number of wet days and heavy precipitation event.
- The magnitude of cumulative rainfall would be 10% to 40% depending on the region and also depending on numbers of wet days and heavy precipitation events from 5% to 30%.
- The magnitude of extreme winter events is reduced over a big part of the area.
- The spring season would experience an increase of 5% to 20%.
- In thermal problems, the area would warm all year round. The rise in temperatures is more pronounced in summer and varies between 1 ° C and 2.2 ° C.

Project / Programme Objectives:

The Climate Changes Adaptation project will help reduce climate change and human vulnerability of oasis agro ecosystems in Morocco by increasing the adaptive capacity of local actors and by disseminating knowledge management. The project aims at implementing prior adaptation measures to climate change for Moroccan oases areas. The intervention zones of the project are those of the administrative regions of Souss Massa Draa (province 'Ourzazate, Zagora and Tinghir) and Melnés Tafilalet (province of Errachidia and Figuig). The number of beneficiaries is assumed to be about 40 000 person.

The project focuses on four major components:

- **Component 1** : Capacity Building for different actors
- **Component 2** : Implementation of adaptation measures based on improving and empowering the management of water resources and soil conservation
- **Component 3** : Income generating activities for the young and women
- **Component 4** : Knowledge management

Component 1: Capacity Building for different actors

This component will focus on supporting and strengthening the capacity and skills of local institutional structures and local civil society organizations to access, analyze and use information related to climate in combination with the oases ecosystems. It will also support the concerned communities in determining a participatory adaptation to Climate change measures allowing them to generate environmental and socio-economic benefits.

This component will also seek the consolidation of learning and updating data related to climate change in these areas. It will also focus on knowledge management to adaptive change. This process is crucial for learning and risk mitigation and is an important step toward capacity building and knowledge management.

It is suggested that the development of knowledge and the sharing and transfer of learning activities will be done in particular through training managers, supporting dissemination of information. More details about knowledge management are figured in section G.

• ***Component 2: Implementation of adaptation measures based on improving and empowering the management of water resources and soil conservation.***

Targeted perimeters and palm endure a more recurrent rough with a more growing demand of water.

Improvement and strengthening management of water resources will mainly focus on aspects of rationalization and optimization. Rationalization is justified at two levels:

- i) Improving the efficiency of existing irrigation resources, including the most appropriate to oases systems and the ancestral systems including khettaras and spreading of floodwaters.
- ii) Improving the rate of available water storage both on surface and underground, through development and full rehabilitation of irrigation schemes and artificial recharge of groundwater

The optimization is illustrated by a better use and management of resources through capitalization of existing irrigation systems, and building new systems, and also developing water infrastructure to improve the rate of resources gathering and limit water downstream losses.

The project also aims to improve the living standards of local populations by taking various support measures around the most promising sectors in the oasis agriculture, for young people and women; and therefore, limiting the rural exodus through fighting desertification and poverty.

For soil resources, improving and strengthening will be carried around:

- the completion of the mapping of risk areas as a tool to help in decision making, and
- commitment to conservation actions and preservation in priority areas.

• ***Component 3: Income generating activities for the young and women***

This component aims at improving the population's lifestyle through supporting various accompaniment measures, around the most promising economic sectors in oasis for women and young people through:

- realization of Income generating activities for women
- strengthening capacity for young people and their support in creation of very small sized organization

Component 4: Knowledge management:

This component will also seek the consolidation of learning and updating data related to the adaptation to climate change in these areas. It will also focus on knowledge management to adaptive change in Moroccan oases.

The detail of each component of the project is presented in part II of this conceptual note

Project / Programme Components and Financing:

The project estimated cost of selected components, requested to adaptation fund to climate change (AF) is about 9,7 million U.S. dollars.

Inputs and outcomes of the project are reported in the following table:

Project/Programme Components	Expected Concrete Outputs	Expected Outcomes	Amount (US\$)
1. Capacity building of different actors and Knowledge management	1.1. Workshops for local stakeholders (institutional, Associations of Agricultural water users, professional organizations of first and second order etc...)	Communication autour des Changements Climatiques	390.000
	1.2. Information sessions for actors		
	1.3. Acquiring tools to support the actors	Strengthening and Support for actors	
	1.4. Acquisition of support systems for actors		
2. Implementation of adaptation measures based on improving and empowering the management of water resources and soil conservation:			7.000.000
2.1. Studies and support	2.1.1. Realization of Technical conceptual studies	Collection of data on field	
	2.1.2. Commitment of technical assistance for implementation		
2.2 implementation of adaptation measures to climate change focused on water resource management	2.2.1. Rehabilitation of khetaras: Khetaras Galleries – Drilling programs	improving the efficiency of deserted networks of irrigation water	
	2.2.2. Rehabilitation of irrigation canals and related art structures.		
	2.2.3. Infrastructure and artificial recharge structure-small and medium underground dams		

	2.2.4.Rehabilitation of flood waters spreading perimeters. Thresholds – irrigation and water supply network		
2.3. implementation of adaptation measures to climate change focused on farmland preservation	2.3.1. completion of the mapping of areas to develop	Conservation of agricultural land against erosion	
	2.3.2 completion of work against silting		
3. pilot Income generating activities for women and youth			550.000
3.1. Mainstreaming gender and youth in the process of adaptation to climate change	3.1. Implementation of pilot projects for Young farmers around promising sectors and helping them in the creation of small sized companies.	Commitment to action for the benefit of young farmers. Commitment to action for the benefit of women	
	3.2 Capacity building for women	Engagement d'actions au profit des femmes.	
	3.3 Implementation and support of pilot projects for women		
4. Knowledge and know-how Management			375.990
	4.1 Training course for actors and governmental units on risk management, hydrometeorological management , findings & facilitating tools, groupware, monitoring, analysis of climate information, use of methodological tools and development of modules of adaptation.	Training for actors and developing tools for knowledge sharing	
	4.2 Engaging experts to make recommendations about strategy to mull over and about tactics to take advantage of "After Action Reports " and to set up an "after- action procedure" in order to capture and disseminate information.	Capitalization of knowledge and updating of data on climate change in oasis area	
5. Project/Programme Execution cost			872 950
6. Total Project/Programme Cost			8.315.990
7. Project/Programme Cycle Management Fee charged by the Implementing Entity (if applicable)			781 060
Amount of Financing Requested			9 970 000

Projected Calendar:

Milestones	Expected Dates
Start of Project/Programme Implementation	Octobre 2014
Mid-term Review (if planned)	Octobre 2016
Project/Programme Closing	April 2019
Terminal Evaluation	Decembre 2019

PART II: PROJECT/PROGRAMME JUSTIFICATION

A. Describe the project components, particularly focusing on the concrete adaptation activities of the project, and how these activities contribute to climate resilience.

Moroccan oasis experience degradation due in particular to climate change, compounded by population and urban pressure. This deterioration, in recent years, has taken alarming proportions and is leading to an increasingly threatening desertification. A dozen of southern Morocco Oasis has already lost more than 40% of their crop area: more than 200 Ha of agricultural land were silted in Errachidia area. The gradual disappearance of favorable farming conditions of oases, led to the decline in the income of the population, which is a big issue for the majority of the southernmost oasis societies. Moroccan oases are facing a complex problem where multiple parameters interact including:

- Water scarcity is a major problem in oasis areas, conditioning upstream by both persistent and recurrent drought by upgraded irrigation systems. The remedy to this problem is related to the fact of restoring a sustainable use of water resources that can be take multiple facets which all contribute to establish an optimal operating system of a scarce and valuable resource. It is not sufficient to talk about limitation or water saving, but also optimization, as it is to show that we can maintain a certain level of production despite strong constraints and low water allocation.
- Degradation that Moroccan palm groves know has greatly accelerated the last 10years, losing nearly three-quarters of their palms. The production of dates has decreased by 34%. If diseases and socio-economic changes have contributed to the deterioration of the situation, it is essentially the increasing exploitation of water, highly irrational, which precipitated the degradation.

- The advance of the desert is a real threat for oasis. The silting reduced agricultural land, impede the movement of water by clogging water circulation systems.
- The development of sectors tailored to the specific area requires special technical knowhow to promote more productions with a high potential connected to the market conditions.
- Although local and regional actors displayed a dynamism and commitment in the development of their territory, they still suffer from low capacity and poor supervision in areas related to the development and sustainable management of natural resources, particularly water resources.

The above constraints have contributed to a gradual disappearance of favorable farming conditions of oasis, which led to the gradual decline of the population income, and an increased vulnerability to the climate change impacts. This requires consideration of the situation of climate change actions and projects to be implemented in the future.

In the prospect of facing the challenges outlined above, the project will integrate the component of climate change in all the process of implementation of any development intervention in oasis areas.

Thus, this integration concerned all components, starting with development actors, through the implementation of structural actions embodying adaptation to CC and finally the activities for the promotion of gender mainstreaming.

To achieve this goal the project will be based on five complementary results defined as follows:

Outcome 1.: local actors (farmers, territorial collectivities and organizations, etc...) are informed and their skills reinforced (around 40 000 beneficiaries)

The intervention zone of the project are parts of the administrative region of Souss Massa Draa (province of Ouarzazate, Zagora and Tinerhir) and Meknes Tafilalet (province of Errachidia and Figuig). The population benefit from project activities concern 40,000 beneficiaries which represent more than 50% of women and 70% of young people.

The poverty rate is set at 14.1% compared to the national average that is 9.5%.

The activities planned under this component will involve information workshops and training sessions on the theme of integration of climate change. The strengthening of various actors will be made through the acquisition of support material such as equipment and tools, kits and small technical materials related to the theme of climate change, etc...

Activity : Information, training and awareness of the stakeholders

The project will organize 5 workshops of information and communication, achieving ten training sessions, the acquisition of a set of kits and small equipment for an amount of \$ 390,000.

It is communication and training of local actors about aspects of the adaptation to Climate Change through:

- Workshops and information sessions for local stakeholders (institutional, associations of agricultural water users, professional first and second degree organizations, etc.)
- Training courses for local actors
- Internships for local actors and visits of similar activities

Capacity building will involve both informative aspects and awareness on environmental and economic situations related to oasis and desertification issues, technical aspects of installation and project management, governance and territorial approach.

It is about the capacity building of stakeholders to ensure better participation (local authorities, social fabric, cooperatives ...) in the development efforts in the region.

For individuals, capacity building is a process of changing attitudes and behaviors, improving knowledge, skills and performance.

In the case of institutions (public, private, civil society), the capacity will cover all areas to improve their performance and help them define organizational frameworks, coordination of cooperation and convergence.

It should be noted that capacity building is not only about training but extends to creating an environment conducive to the establishment of mechanisms of development in order to achieve:

- Changing attitudes and behaviors;
- Improving knowledge;
- Developing of skills, competencies and performance;
- Encouraging the development of initiatives and national, regional and local dynamics.

The project aims at organizing 5 information workshops and about ten training sessions. Also, elaboration of more than ten adequate communication tools and acquisition of support materials for work

Outcome 2.: Adaptation measures to climate change focused on improving and enhancing the efficiency and mobilization of water resources are implemented

The activities consist of rehabilitation works and constructions related to targeted hydro-agricultural development in order to:

- Elaboration of thematic studies and mobilizing technical assistance for the actions monitoring

- Improve efficiency of adduction systems of irrigation water
- Extension of works when opportunities are presented
- Improving of artificial recharge structure

Activity: Elaboration of thematic studies and mobilizing technical assistance for the actions monitoring

This activity is about the collection of field data and the achievement of specific technical studies leading to innovation in some activities such as the construction of underground dams for artificial recharge of groundwater. It is also detailed design studies and commitment to technical assistance for implementation.

Activity: Improving the efficiency of irrigation water network

The works of the rehabilitation of perimeters and water irrigation network concern the following actions:

- Rehabilitation khattaras (Galleries Khettaras and extra holes). The technique of khattaras was introduced by farmers in the XII century to supply water from the gravity table to the surface;
- Rehabilitation of irrigation canals and articles related building structures;

As illustration, in Tafilalet Region, the proposed intervention program was identify on the basis of number of selected criteria. In fact, on total of 191 khattaras fonctionnelles, 36 khattaras was selected on the basis of the following elements :

- Profitability of the planned activities;
- Flow greater than or equal to 10 l / s (resource availability);
- Leaks and low efficiency of the network;
- Risk of silting;
- Risk of flood damage of nearby rivers

The project has set as a main objective the improvement of selected khattaras' flows that will improve the provision of water and intensification of used cultivations. The program also aims at improving the living standard of populations, limiting rural-urban migration and fighting against desertification.

It is planned to rehabilitate 36 khattaras serving 36 irrigation schemes for an irrigated area of 1,500 ha for the profit of around 15,000 habitants. The planned interventions consist of:

- Reshaping and cleaning galleries 20 Km ;
- Construction and cover galleries 8 Km ;
- Construction of distribution network of 23 km ;
- Extension of khattara 2.5 Km ;
- Renovation and repair of storage basins;
- Fight against desertification and land visits .

The expected outcomes are as follows :

- Mobilization of additional volume of 2 Mm³/year of groundwater.
- Rational use of water from the aquifer.
- Improving farmers' incomes by intensification of agricultural development.
- Creation of about 160,000 NJT to local populations.

Also , the project covers the following activities :

- Heightening, reinforcement and extension of the existing threshold;
- Construction of a reinforced concrete dead on 3.500 ml head channel
- Construction of irrigation system :
 - Main Canal in 3650 ml
 - Secondary Network 10,775 ml

The total cost of the activities is USD 4,000,000 . The value of gross agricultural production that will emerge after the project is estimated at approximately 72,400 DH / ha / year.

In addition to these benefits, there will be also :

- Creation of employment for local people
- Limitation of the rural exodus
- Improvement of socio -economic level.

An association of irrigating is already created , which will support the operation and maintenance of hydro-agricultural equipment installed .

Activity: strengthening mobilization of water and groundwater recharge.

The work of mobilization and groundwater recharge will help mitigate the progressive depletion of groundwater due to low flows and climate change. This can be recovered from groundwater recharge to the palm through designing facilities that could ensure a refill on the palm to balance water pressure. It is estimated that making spreading areas and promoting infiltration through development of appropriate surface could increase overall recharge and subsequently the conveyance of hydraulic structures downstream. The actions envisaged aim to replenish the stock of groundwater in the palm groves that have not reached the point of no return, it consists of:

- construction of underground facilities to enhance the groundwater recharge through infiltration thresholds and small and medium-sized dams.
- rehabilitation schemes spreading flood waters particularly thresholds bypass

As an illustration , the area of Ouarzazate is characterized by the fact that almost all of the rainfall in the area is spread over two or three months all over a single year, during this period, the aquifer, including slick inféroflux , recharges with storm flows. However, it immediately gets empty at the end of the rainy season and quickly ceases to be easily readable by khettaras or wells.

The removal of downstream losses stabilizes the level of water or at least maintains it in usable limits.

The choice of alternative subsurface dam was made after reviewing the results of the study of balance sheet prepared by ORMVA Skoura Ouarzazate in 1989, and whose the hydraulic gradient varies from 10 m / km 17 m / km from downstream to upstream of the palm.

The work proposed in this project consists of the completion of five underground structures. These five structures have a total length of 1174 m and used to power a perimeter of 2700 hectares (Height ranging from 15 to 20 m.) The unit cost per structure is USD 750,000.

Outcome 3: adaptation measures based on soil conservation are implemented.

Activity: Completion of the mapping of areas to develop

This is the completion of the participatory localization of areas to be developed based on objective criteria to identify Priority Action Areas (ZAP) given the huge potential and limited budgets. This completion will result in a map of ZAP in which the GIS will be the main tool.

Activity : Implementation of actions against silting

The project will apply on these sites, intervention against silting; systematically favoring the biological control over mechanical control, the latter is easily challenged by the sandy kinetic currently following advanced desertification of these areas. Furthermore re-vegetation of degraded areas, which use plant material, adapted to the ecological conditions of the site, biological control has the advantage of requiring much less maintenance than mechanical control. This control is usually led by three separate and complementary processes, namely: reforestation, seeding and enclosure.

In Morocco, the plants used to stop the advance of the sands “Calligonums” are at the forefront, as well as other species such as Acacia and Aristida.

The grid in palms is the most used technique. It fits in the environmental oasis landscape through the use of fins as a mean to fight against the advancing sands, in combination with plants resistant to water stress and able to adapt to the adverse effects of climate change.

Based on the experiences conducted by relevant departments, this technique has a double advantage in the fight against desertification, and has also social and economic effects.

The achievement of results 2 and 3 require approximately 7,000,000 USD

Outcome 4: Youth and women will be involved in the the process of the adaptation to climate change and a decreased vulnerability

The sub-component "Gender Mainstreaming and youth" in the process of adaptation to climate change "to an estimated 550 000 USD envelope, aimed at promoting women and youth participation in the development process.

Women and men don't experience climate change in the same way within the oasis. Economic constraints, social and cultural norms that prevent women's access to employment imply that their livelihoods depend on sensitive sectors to climate, such as subsistence farming and water harvesting.

In addition, given that women and girls are often responsible for the unpaid work at home (household duties such as cooking, taking care of children etc...) also means that their lives are directly affected by climate change. Therefore, they spend less time in their education, their income-generating activities or their participation in decision-making within the community, which emphasizes gender inequality.

Promoting pilot activities with young people and women would help to create sources of incomes related to economic sectors that do not put pressure on natural resources (water and soil). These pilot projects will be made of craft activities, tourism, promotion of mining materials, medicinal and aromatic plants etc ...

Activity: Implementation of pilot projects for women

Planned actions aims at supporting the local organization of women around the phenomenon of climate change while involving them in different levels of decision making. To support this initiative, a plan to strengthen the capacity of women will be implemented in a participatory gender-based approach.

It is also possible to work with women on making pilots projects that can be a model of adaptation to climate change such as agro-ecology, waste management, clean energy, green tourism ... etc..

Taking into account the specific realities of each region, the project intends to conduct more than ten interventions for women whose knowledge, history and experience warrant. Therefore, each oasis is subject to a standard intervention allowing to women's groups (Association, cooperative and so on...) to improve their living conditions and to mitigate the effects of climate change.

Given as aforesaid the valuation of aromatic and medicinal plants is a promising niche for women. Crafts and agro-ecology is a niche in another one.

It is certain that the overall interventions can't be done in the absence of a participative approach putting women in the center of positive change of their situations.

Activity: Upgrading youth skills/competencies

The aspect on the integration of young people focuses on the nature of the project is to be addressed to adults and young adults, which would significantly alleviate the unemployment rate among young people. For the sake of example, we note that the technical conduct of certain sectors such as palm tree sector and treatment of post-harvest date requires technical expertise that cannot be prepared by anyone except youth and adults, the same goes for tree maintenance, pollination, harvesting dates, post-harvest treatments and all other actions that are essential tasks in the sector.

Emphasis will also be placed on supporting young people in creating very small company active in the field of services around key economic clusters that characterize the area (agriculture, tourism, crafts, development of mining products etc...). The project will support about ten initiatives in this sense with the help public structures specially the National Agency for Promotion of Work and Skills

Outcome 5: Skills and knowledge are consolidated, disseminated and shared

The Project forecast the organization of workshop and visits of exchange experience, elaboration of more than ten kits and adapted communication tools, acquisition of support material for an amount of 375 990 USD

Activity: Capitalization of results and updating data on climate change at the oasis zones.

The project will undertake efforts for the consolidation and capitalization of knowledge and capitalization of results of other interventions on adaptation to climate change. Therefore, data on climate change at the oasis area will be updated.

Activity : Training for actors and elaboration and elaboration knowledge management tools

Internships and visits will be organized for actors. This actions will focus on risk management, hydro meteorological management, findings & facilitating tools, groupware, monitoring, analysis of climate information, use of methodological tools and development of modules of adaptation.

The process of knowledge managements is crucial for learning and risk mitigation. To ensure that individual knowledge is improved and shared, the project provides a range of knowledge management initiatives containing, methods and techniques to collect, identify, analyze, organize, store, and share knowledge between users and participating members in the project implementation. Communication on climate change is an important step toward capacity building and knowledge management. There will be some facilitating tools and groupware to promote an integrated approach to identifying, capturing, evaluating, retrieving, and sharing all of information assets. These assets will include databases, documents, policies, procedures, and previously un-captured expertise and experience. » Collecting data as a first step will help the working teams in processing information and using it to build an effective approach to adopt to alleviate the impacts of climate change and come-up with useful actions to be undertaken during the implementation phase. Workshops and information sessions for local stakeholders (institutional, associations of agricultural water users, professional organizations of first and second order etc...) will be delivered by a team of experts who will

use technology transfer to local people and stakeholders in pilot area and also adopt comprehensive systems of generation of new water resources. In order to strengthen and support actors, knowledge about climate change and different technics of Irrigation water abstraction, distribution of irrigation water, soil conservation etc... will be broadcast to the farmers and rural communities. It is suggested that the development of knowledge and the sharing and transfer of learning activities will be done through the following:

- Train managers in technical editing and dissemination of gathered knowledge related to Climate change;
- Support dissemination of information and support gathering /dissemination of information based on national policies related to the objectives of the project, beneficiaries and civil society;
- Edition of a manual in both Arabic and Berber languages distributed accompanied with other communication tools like DVD's, brochures etc..
- Organize seminars / information;
- Support organization of regional consultations on environmental issues, climate change and fight against poverty;
- Publish and disseminate good practices of sustainable management of natural resources;
- Promote reflections on environmental issues in the forums, seminars,workshops, regional with the assistance of local farmers, women and young people
- Establishment of intranets to link geographically dispersed organizations.

To back-up these activities, there will be regular meetings which gather a group of farmers, and women with experts to tell stories, to share and discuss problems, and opportunities, discuss best practices, and talk over lessons learned. The natural knowledge sharing that will occur in social spaces must be replicated virtually to electronically linked communities in order for them to benefit from the expertise of others and to raise awareness about climate change.

Engaging experts is a crucial step toward making recommendations about strategy to mull over and about tactics to take advantage of "After Action Reports " and to set up an "after-action procedure" in order to capture and disseminate information. A system will be designed whereby a group of people, typically someone in KM and other environmental experts, are assigned the responsibility to debriefing, creating the report, and ensuring that the lessons learned are captured and disseminated.

B. Describe how the project provides economic, social and environmental benefits, with particular reference to the most vulnerable communities, and groups within communities, including gender considerations.

The project area mainly covers oasis administrative regions: "Meknes Tafilalet and Sous Massa Draa" including what relates to transversal actions and support focusing on most vulnerable areas to climate change. Perimeters undergone rehabilitation are prioritized as follows:

- Scope of small and medium hydraulic: Average area perimeter of 10-30 ha.
- Scope of application of flood waters: average area of 200 to 600 ha (800 A3000 households)

The traditional oasis society was primarily a society of management of the shortage, with the development of community practices of solidarity and discipline. This very consensual management of the society could only function under stability and control of the fundamentals of the oases' environment.

The gradual disappearance of favorable conditions of oases farm led to an entire population gradual decline in income and a poverty becoming nowadays very problematic for the majority of oases' population.

To this end, the project is mainly based on the component "rehabilitation of traditional irrigation systems" which includes the biggest part of funding build on amplifying water availability for production and consumption, and stabilizing access to water resources for smallholder farmers in most vulnerable areas to climate change. This would result in improving their production systems and help increasing their productivity and stabilizing their income and capital.

The project will benefit the population either directly or indirectly about 40,000 inhabitants (over 50% are women and 70% of young people.) This population is organized into 30 groups of AUEA's, a dozen economic interest grouping (EIG), as well as informal farmers' groups erected by customary laws "El Orf". The poverty rate is set at 14.1% compared to the national average 9.5%.

The project will have positive spinoffs and benefits on social, economic and environmental levels. Selected effects and adaptations measures will be transferred to beneficiaries. Transfer tools and technologies will be implemented to improve capacity in responding to the impacts of climate change, including drought and silting.

At social level:

The participatory process under the project will enhance local capacity and strengthen the process of collective decision-making. The identification of common constraints and problems, and finding solutions all together with the greatest possible extent, will also help improve social cohesion.

Given the climatic conditions and associated risks, the project will use awareness measures and tools for risk management established by the State, in particular, agricultural insurance against climate hazards. This insurance has been established by the Department of Agriculture in partnership with the Moroccan Agricultural Mutual Insurance "MAMDA" since 2011; such insurance aims to reduce potential negative effects of climate change and for variability on the social spectrum of greater vulnerability.

Advocacy and dissemination of farmers will also provide the affected population better institutions, better information and greater predictability through a social network that helps in reducing vulnerability and improving prevention and responsiveness to climate risks.

The project will also lead to a strong social integration and cohesion, with the promotion of more than ten pilot projects for youth and women.

Aspects of training and supervision will have an important role in the project, the activities in this framework will facilitate the participation of local communities, to ensure that they have developed a better understanding of possible adaptation measures and had the knowledge and needed skills available in Morocco and elsewhere. This capacity is not only related to training but the creation of an enabling environment for implementing development mechanisms able to achieve:

- A change in attitudes and behavior;
- Improved knowledge;
- Development of skills and performance;
- An incentive for development of initiatives and national, regional and local dynamics.

The overall objective of the proposal in terms of gender is to anchor the principle of gender equality and thus strengthen the participation of rural women in decision-making.

At Economic level :

The gradual disappearance of favorable farm oases conditions led to an entire population gradual decline in income and poverty becoming more and more problematic for the majority of oases farms.

The actual project is mainly based on the "rehabilitation and improvement of irrigation systems for mobilizing sustainable water" as a primary factor of production and help increase farmer productivity and stabilize their income and capital.

Promoting pilot activities with young people and women and supporting youth in creating very small company active in the field of services around key economic clusters that characterize the area, this would help in creating sources of income related to economic sectors that do not put pressure on natural resources (water and soil).

At environmental level:

The project will initially be limited to the effects of more tangible climate change including the sustainability of maintenance and rehabilitation of water resources, mobilization and supply of water in the oasis area through strengthening organizations and associations of infrastructure management.

Improving ability in managing natural resources and implementing adaptation to climate change will reduce stress on the water. The project envisions the protection of threatened irrigated areas; thereby, limiting desert encroachment and preserving agricultural land and

irrigation systems. Efficient use of resources and implementation of best practices will help reduce crop losses.

Management and rehabilitation of mobilization systems of water resources:

The project aims at supporting affected populations in order to improve their system of water collection and mobilization, and enhance the acquired training and optimize the use of conceptual tools required to develop an appropriate plan to their activities.

Measures against erosion and siltation:

The project will carry out actions to preserve irrigated perimeters, against silting through the following:

- Construction of fences against silting
- Construction of protection walls / lining of the wadi.
- Construction of fences(in grid) in palm.
- Improvement of physico-chemical characteristics of the soil subject to salinity damage.

Overall, the table below summarizes some of the project's expected social, economic and environmental benefits.

Components	Social benefits	Economic benefits	Environmental benefits
Component 1 : Strengthening capacity of different actors	<p>- Support and capacity building for local institutional structures and local civil society organizations in order to access, analyze and use information related to climate in combination with oasis ecosystems;</p> <p>-Building awareness for actors (institutional, Associations of Agricultural Water Users, Organisations of first and second order, etc. ..) through workshops and information seminars.</p> <p>-Improvement of capacity development and effective</p>	<p>- Supports communities in a participatory manner to determine adaptation options allowing them to generate socio-economic and environmental benefits.</p>	<p>-Improving knowledge, and awareness in relation to climate change and its impacts on environment to allow better management of natural resources.</p>

	implementation of adaptation approaches to climate change		
Component 2: Implementation of adaptation measures focus on improving and strengthening management of water resources and conservation of agricultural land	<ul style="list-style-type: none"> - Improving access to water and agricultural practices, food supply will be strengthened. -Increasing agricultural potential through improving skills in economics resource based on climate change adaptation approaches. 	<ul style="list-style-type: none"> -Increasing revenue through improving access to water and strengthening the mobilization of water resources. -Increasing revenue through better management of farmland. 	<ul style="list-style-type: none"> -implementation of adaptation to climate change focused on farmland preservation measures. -Better water management through implementation of rehabilitation and development of water mobilization.
Component 3: Pilot activities for women and youth	<ul style="list-style-type: none"> -Strengthening gender equality through the integration of women and their participation in decision-making. Action commitment for women -Commitment of action for young farmers to ensure succession. 	<ul style="list-style-type: none"> -Improvement of living conditions of women through pilot projects. - Improving sources of revenue and implementation of pilot project for young people around the promising sectors in the region and their support in the creation of very small company. 	<ul style="list-style-type: none"> -Reduce pressure on natural resources through pilot projects for women and youth.
Component 4: Knowledge management	<ul style="list-style-type: none"> -Participatory processes provided in the development of the project will improve local capacity in taking collective decisions. -Training actors and developing tools for knowledge sharing for a better social cohesion. 	<ul style="list-style-type: none"> - Training and exchange visits for stakeholders on risk management of hydraulic resources and development of communication tools for monitoring, analysis of climate information and adaptation to climate change will have positive impacts on agricultural production and farmers' incomes 	<ul style="list-style-type: none"> -Elaboration of recommendations around the CC adaptation strategy for disseminating and sharing will enable better management of environmental risks.

Although the project will not cause major negative impacts on the social and environment, it will ensure the management of socio-environmental aspects through a process that involves the development of specific studies, environmental monitoring and capacity building.

It is important to emphasize that the project activities are part of the programs identified by the National Strategy for Agricultural Development "Green Morocco Plan". A Strategic Environmental Assessment (SEA) of the Plan has been developed in 2010 and has identified an overview of the environmental and social implications of its actions, to determine potential impacts and propose management of environmental and social measures for mitigating the impacts of the CC and to enhance the environmental and social benefits. In addition, the same area had implementation of a Large Project funded by the U.S. Government through the Millennium Challenge Account. This project is also subject to a Strategic Environmental Assessment (SEA) in 2009.

In addition to the above two documents, hard activities under the project will be subject to technical and feasibility study, and environmental and social study that will result to environmental and social management plans (ESMP) for each large area or many small areas .

Similarly, when carrying out the work, the general and specific conditions relating to environmental and social management will be included in Consultations Records Entrepreneurs (CRE) so that the work is carried out, completed and under all specifications and performance management of environmental and social requirements. These clauses will effectively manage the following aspects:

- Surface water;
- Site installations;
- Circulation;
- Nuisances;
- Hydrocarbons;
- Waste;
- Health and safety;
- Rehabilitation.

In conjunction with the above, the process will be strengthened by the application of procedure for environmental and social work supervision and **environmental capacity building of all stakeholders including:**

- Training - business awareness to the environment;
- Team capacity building;
- Capacity building of DPA and ORMVA;
- Raising awareness for AUEA about environmental and natural resource protection.

Finally, the phase of rehabilitation of plots occupied by construction facilities after completion of work should be done properly.

C. Describe or provide an analysis of the cost-effectiveness of the proposed project.

Adaptation to climate change is intended to help people in most socially, economically and environmentally vulnerable areas, to overcome the consequences of these changes. They are to adopt practices to prepare populations to climate change, accepting the fact that it is now impossible to avoid completely.

The oases of the action area are facing a complex problem in which multiple parameters interact including:

- Scarcity of water, conditioning upstream by both persistent and recurrent droughts of irrigation systems that must be upgraded.
- Degradation of Moroccan palm groves, which accelerated the last 10 years, losing almost 2/3 of their palms. Production of dates has declined by 34%.
- The advance of the desert is a real threat to oases. The scourge of silting reduced farmland, impeded the movement of water by clogging water circulation systems
- Development of pathways for specific area requires special technical knowledge to develop more productions corresponding to market demands.
- Although local and regional actors show a dynamism and commitment in the development of their territory, they suffer from low capacity and poor supervision in areas related to the development and sustainable management of natural resources; particularly, water.

The above constraints have contributed to a gradual disappearance of oases farms, which led to an entire population decline of income and increased their vulnerability to the effects of climate change. This requires consideration of the given climate change actions and projects to be implemented in the future.

The costs of inaction are constantly progressive in time. Currently, they are expressed in a series of public programs, such as agricultural development programs "Green Morocco Plan" master plans of Water Resources, the National Development Strategy of oases zones and argan tree zones etc The proposed project aims at introducing measures to reduce anthropogenic climate change and vulnerability of agroecosystems oasis in Morocco, on one hand by increasing the adaptive capacity of local institutions and actors, and on the other hand, by implementing priority adaptation measures to climate change for Moroccan oasis zones.

The project in question is focused on four main components:

1. Capacity building of different actors
2. Implementation of adaptation measures which focuses on improving and strengthening the management of water resources and conservation of agricultural land.
3. Pilot activities for generating income
4. Knowledge Management and expertise

Taking into account the above elements, the intervention through the aforementioned components is very beneficial in terms of costs opportunity, compared to other alternative proposals, the associated cost (proposed) is moderate and its concrete benefits help directly in reducing the growing vulnerability, particularly by:

- Supporting and Strengthening the capacity and skills of local institutional structures and local civil society organisms to access, analyze and use information related to climate change.
- Improving and strengthening the management of water resources and conservation of agricultural land.

Rationalization is justified on two levels: i) Improving the efficiency of existing irrigation systems ii) Improving the rate of mobilization of surface water as well as groundwater.

The optimization is illustrated by the better use and management of these resources by making profitable systems to improve the rate of mobilization of resources and limiting the losses downstream of endorheic basins, main character of the wadi oasis area.

For soil resources, improving and strengthening will be carried out conservation actions and conservation in priority areas

- Pilot activities for income generation and knowledge management and expertise.

The project provides support to various private initiatives around the most promising sectors in oases for women and young people through:

- Implementation of income-generating activities for women;
- Capacity building of young people and support the creation of Very Small Enterprises.

The project also envisages the consolidation of gains and data refresh, and finally the dissemination and sharing of knowledge relating to climate change in these areas.

The benefits shown from the approach taken in the project and the reason for not taking alternative solutions is explained through the following:

In capacity building, it has to be noted that Awareness and training are important to increase the understanding of climate threats and management of these risks by local actors. The training will also promote learning and cooperation between different sectors and communities.

The training will also promote learning and cooperation between the different sectors and communities, particularly in terms of adaptation to climate change. This concern is rarely considered in outreach / training provided in programs / projects at national level, which would result in some gaps in the knowledge and understanding at the local level in the field of adaptation to climate change and where resources are deployed and critical decisions are taken.

In term of the implementation of adaptation measures focused on improving and strengthening the management of water resources and conservation of agricultural land, the rehabilitation of khettaras, it has many advantages, which are:

- proactive drought management;
- Provide stable volume throughout the year;
- Save energy costs and be maintained by the groups of water users;
- Preserve water resources because they are not subject to evaporation phenomenon occurring to surface waters.
- It is vital to exploit khetaras water resources to preserve their function of stable supplier of waters crucial to rural life and agricultural production. Their advantages are invaluable for the development and maintenance of production and for rural society, and also for the fight against desertification, mitigating the rural exodus, and the protection of environment.

The objective of the project on one hand is the development and rehabilitation of the existing system without impacting the environment, since this area has been fragile. On the other hand, the same solutions and proposals have been made in the context of other projects that have yielded positive results about the management of water and soil resources.

Concerning the pilot activities for women and youth:

- Durability in reducing the increasing vulnerability by adopting various forms of adaptation with appropriate costs. The choice of pilot projects was dictated by the need to relieve the pressure on water resources. Sectors such as crafts and tourism have been identified in contrast to income-generating activities based only on agriculture. The project aims at strengthening gender equality, integration of women and their participation in decision-making.
- The project also aims at improving the sources of revenue through the implementation of pilot projects for young people and women around the promising sectors in the region and their support for the creation of very small companies.

We could target other social strata other than youth and women, but the main idea behind this proposal is to integrate women to promote gender equality and lead to a strong involvement of youth to take over, as the average age of farmers is 55.

Concerning the Knowledge management, the project distinguishes the following:

- Participatory approach provided in the project framework will allow the development of local capacity and collective decision making.
- Training courses and exchange of visits for stakeholders on risk management of hydraulic resources and development of communication tools for monitoring, analysis of climate information will have positive impacts on agricultural production and farmers' incomes.

The objective of the participatory process is to take collective decisions, and also to make a direct targeting. As was already mentioned in part 1, the project could focus on awareness only

at the national level, however, it would leave gaps in knowledge and understanding at the local level where resources are deployed and key decisions taken.

In addition, preliminary analysis of economic and social feasibility compared to other similar projects undertaken in the same area project identified the following key economic indicators:

- Economic internal rate of return (EIRR) of 12%
- The project would bring in an additional average net income of \$ 1,210 per farm.
- The Benefits Report / Average cost of all components is 1.3

Finally, it should be noted that the project is a precursor to the government policy on decentralization and advanced regionalization targeting local capacity so that appropriate measures may continue to be integrated into the regional development to ensure sustainable results.

D. Describe how the project is consistent with national or sub-national sustainable development strategies, including, where appropriate, national or sub-national development plans, poverty reduction strategies, sector strategies, national communications, or national adaptation programs of action, or other relevant instruments, where they exist.

The Moroccan government is strongly committed to the long struggle against desertification and adaptation to climate change.

The project comes within those strategies in which the evolution is done through the following:

Since 1996, through national action programs (NAPs) which brings in a territorial orientation platform and programming, several institutional actors, organizations and Moroccan funders.

In 1999, and through its 2020 strategy for rural development, Morocco's commitment to the fight against desertification is found in the DRI approach. Some of the major programs supported by the World Bank cover oases areas.

The government has made a priority in 2005 for the rehabilitation and preservation of Moroccan Oases, as well as mountains, through the NIHD programs (National Initiative of Human Development).

In 2008, the development of the National Strategy for Agricultural Development (Green Morocco Plan) that has retained among its major concerns...

En 2010 et 2013, respectivement la création de l'Agence Nationale pour le Développement des zones oasiennes et de l'Arganier et la formulation de sa stratégie d'intervention. Le diagnostic stratégique du territoire oasien a permis d'identifier 3 grands enjeux, auxquels le plan de développement devra répondre :

In 2010 the National Agency for the Development of oases and Argan zones was created and in 2013 the formulation of its intervention strategy was achieved and presented to the king of Morocco. Strategic analysis of the oasis area identified three major issues:

- Human development;
- Recovery of economic resources;
- Sustainable development.

On the environment plan, the territory is the last barrier against the advance of desertification. However, it remains subject to strong natural constraints (climate, erosion, etc..) that are aggravated by the pressure exerted by human being (overgrazing, over-exploitation of woodlands, suboptimal water management ...). This poses a serious environmental problem and should be checked, especially as the country has a rich heritage.

Based on these observations, 5 strong ideas helped establish the development strategy in oases and Argan areas:

- Development that guarantees citizens a good quality of life;
- Development that improves the incomes of local people in a sustainable way;
- Development based on sustainable development of natural and cultural heritage;
- Proactive development that revitalizes the territory;
- Integrated development that capitalizes on all the sectorial and territorial strategies in progress.

Based on these strong ideas, territorial strategy was articulated around three axes of development:

1. Enhancing the attractiveness of the area: the challenge of improving the living conditions of all citizens, through the strengthening of basic services (water, electricity, roads), the development offers care and education, as well as the establishment of cultural and sporting infrastructures.
2. Strengthening the competitiveness of the region, through the development of its natural and cultural resources. Four sectors are addressed: agriculture, argan, tourism and mining;
3. Preservation of territories through optimization, mobilization, and water management programs, soil conservation programs and programs for the conservation of biodiversity.

These areas have been broken down into 10 strategic issues and 45 development programs. Indeed, the project falls within the framework of the implementation of the National Strategy for Agricultural Development (Morocco Green Plan), especially the part about the revitalization of the agricultural sector include: program contracts for the development of the date palm industry and of the Argan tree and the number of irrigation schemes. This project is also within the framework of the implementation of the guidelines of the national charter for the protection of the environment and sustainable development particularly those applicable to biosphere reserves and the Argan tree oasis, etc.

E. Describe how the project meets relevant national technical standards, where applicable, such as standards for environmental assessment, building codes, etc.

The project will adopt an integrated and multi-sectorial approach and will focus on the participation and the active involvement of beneficiaries at all levels of decision making. This approach is taken to strengthen the major orientations of Morocco concerning decentralization and development of the region and serve as a model to launch similar projects in other areas or sensitive areas such as mountain and coastal areas.

This project will take into account national standards of hydro-agricultural development, we can consider that the undertaken work during the last 5 years in Morocco have identified a cost per hectare varying from 2 420 USD to 4 253 USD. Our project estimates a cost per hectare which is of 2 420 USD.

Also the various projects carried out in the oasis zones retained an Internal Rate of return (IRR) and Economic Rate of Return (ERR) of about 12%.

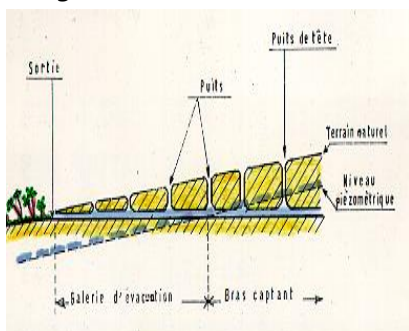
Concerning the technical standards of the works, it is necessary to present those used in these areas namely:

- Rehabilitation of khetaras:




Throughput of khetaras range from 0 to 30l / s and rarely dominates an area exceeding 30 ha per unit managed by a traditional distribution system of water and on the basis of volumes of work done by each claimant. The System is adapted to the arid environment and is threatened by climate change in the absence of integrated management involving the works of recharge and rehabilitation operations of the system.

The most commonly used techniques in this field are as follows:

- Irrigation water abstraction




- Expansion operations in the head of khetaras to drain more water and capture the maximum of water table.
- Construction of manholes every 15 to 20 ml.
- Building of recharge to enhance the flow of khetaras.
- Unit cost varies from 2000 Dhs / ML 5000 Dhs / ML

<p>- Abductor part of irrigation water:</p> 	<ul style="list-style-type: none"> • Opening the khattara to the limit of 5 to 6 m depth along the surrounding ground and the degree of resistance. • The construction of the gallery by reinforced concrete channels (B = 0.5 to 0.6m and H = 1.20m) with cover and manhole every 15 to 20 ml. • Unit cost varies from 1000 Dhs / ML 2000 Dhs / ML
<p>- Downstream part: distribution of irrigation water</p> 	<ul style="list-style-type: none"> • Cout unitaire varie de 400 Dhs/ML à 800 Dhs/ML • Primary and secondary irrigation network construction to improve the efficiency of seguias. • Construction of water storage basins. • hydromechanical equipment Installation: valves • Unit cost varies from 400 Dhs / ML 800 Dhs / ML
<p>- Partie parcelle d'irrigation et arroseurs</p> 	<ul style="list-style-type: none"> • Establishment of irrigation systems to save water. • Setting up drip irrigation. • Concreting of sprinklers. • Improving water tower. • Unit cost varies 50 000Dhs/Ha Dhs 120 000 / ha

- Artificial recharge of groundwater

In theory, to infiltrate 6 million m³ per year, infiltration basins that can accommodate 4 floodings, 10 hours each with a rate of about 1300 l / s, should be constructed on sites, on the basis of a yield of 80% and an infiltration of 1000 l / s / ha, 40 ha

The main techniques used for strengthening groundwater recharge revolve around the following:

Recharging system	Building materials and estimated cost of the works
<p>Weirs for flood waters</p> 	<ul style="list-style-type: none"> • Mainly local materials based stone masonry and also cyclopean and sometimes reinforced concrete (for coverage or BCR). • Allow the deviation of flood through dams with average importance (bypass flow is determined based on the water requirements of irrigated crops, usually equal to 10 l / s / ha. • The unit cost of these structures depends on the length of the work site, the importance of floods in the wadi, the nature of the surrounding ground and other factors related to geotechnical and stability of the item.

	<ul style="list-style-type: none"> The unit cost of thresholds made in the oasis area varies from 2 million to 15 million dhs including intake structure and accessories.
<i>Speed bump weirs for flood water</i>	<ul style="list-style-type: none"> Several studies are being conducted in this direction to identify the effectiveness of this type of work. Similar studies are conducted in the area by the ABH Ziz Gheris and Guir. The charging structures are being built on basins feeding khettaras' heads. The unit cost of these systems is variable and depends on the number of recharge sites and the importance of the work ...
<i>Irrigation canals without strike</i>	<p>Side walls of masonry, the case for high flow channels, the case of the region of Moulay Brahim work in the plain of Tafilalet that has a capacity of 20 m³ / s.</p> <ul style="list-style-type: none"> Charging and soil enrichment.
<i>Charging Items</i>	<ul style="list-style-type: none"> Thresholds Small-scale, damming a tributary and allowing temporary storage of flood waters by improving infiltration rate and then charging downstream of these sites. The unit cost, varies from 1 to 2 million Dhs / unit.
<i>Hill dam</i>	<ul style="list-style-type: none"> Average Dams generally intended for charging and feeding livestock. Some hillside dams which were built in the eighties of the last century are functional, but others require maintenance.

Compared with the laws in Morocco, relating to the activities of the Project, it is necessary to underline:

- Law No. 19-98 amending and supplementing Law No. 10-95 on the water;
- Law No. 11-03 on the protection and enhancement of the environment;
- Law No. 12-03 on impact studies on the environment;
- Law No. 13-03 relating to the fight against air pollution;
- Law No. 28-00 on waste management and disposal;
- Law No. 22-80 relating to the conservation of historic monuments and sites, inscriptions, art and antiques;
- Law No. 7-81 on expropriation for public utility and temporary occupation;
- Law No. 65-99 on the Labour Code.

Also the following application decrees:

- Decree No. 2-07-253 concerning classification of waste and establishing a list of hazardous waste;
- Decree No. 2-07-96 fixing the procedure for granting authorizations and concessions relating to public water;
- Decree No. 2-04-553 relating to spills, discharges, releases, direct or indirect deposits in surface water or groundwater.

- Decree No. 2-04-563 on the functions and operation of the National Committee and regional committees of impact studies on the environment.

The component of water resources, as presented in the Project is mainly based on efficient irrigation systems and improved mobilization with conventional water rehabilitation and optimization of their operation does not affect the situation and therefore the effects and expected impact on the environment are almost positive.

Presented in the appendix, a matrix describing the results of a study conducted about environmental impact across similar projects and demonstrating that the implementation of actions and components identical to those of the project do not cause any preliminary impact study.

F. Describe if there is duplication of project / programme with other funding sources, if any.

The project is complementary to the actions already undertaken and achieved by the Moroccan Government funded by either bilateral or multilateral cooperatives, among them the World Bank , the International Fund for Agricultural Development, the Millennium Challenge , the Belgian Technical Cooperation , the Japanese cooperation , etc.

In addition, this project will be built on the achievements of other projects and programs that provide a range of support to establishment of new practices to adopt.

More specifically, the implementation of this project will also be closely linked to development Oases programs (PNUD POS-POT), including provision of tools to ensure the sustainability of their activities on climate change. These two programs, running in two villages in the oasis area, are tools for National Strategy for Development of Oases implementation, and aim to sustainable development and poverty reduction.

As an illustration we can list a set of projects undertaken by the Department of Agriculture (Office of Regional Agricultural Development Tafilalet) which converge towards the goals of the actual project: it is in effect:

- Rural Development Project in the RTEP - Tafilalet - (1995-2002) , funded by IFAD and held more than 43 khattaras, the cleaning and coating of 29 km, 3km of extension and coverage of 18 km.
- Rural Development Project in rural communities through the rehabilitation of khattaras in the regions of South East Atlas (2002-2005) funded by JICA , and that led to the establishment of a Development Master Plan of rural communities based on khattaras.
- Rehabilitation Program of khattaras under non-refundable grant for small local projects funded by the Japanese Embassy in Rabat, which has led to a rehabilitation of over 24 khattaras since 2002, on a total length of 11 km gallery for about 13 MDHS .

- Programme of Integrated Rural Development and Enhancement Land value DRI-MVB (2007-2010), in which 9 khettaras were rehabilitated (0.8 km of tunnels, 1.5 km cleaning and building of 1km distribution network for a total budget of 3 MDHS.)
- Millenium Challenge Account MCA (2009-2013), a major program which involved the development of fruit trees, among others, the date palm. This project concerned the oasis area by the realization of hydro-agricultural work on the rehabilitation of irrigation structures, rehabilitation of irrigation khettaras and small and medium hydraulic network.

Our project will also benefit from the additional positive impacts of another program being formulated with the support of the Technical Cooperation (BTC), which concern the downstream of palm date sector; and particularly, marketing support .

In this respect, it should be emphasized that assisting beneficiaries to promote the production, market exploration and identification of marketing channels is a great asset for the sustainability of the project. Work remains to deploy in this direction for labeling products, the application of standards of varieties of Moroccan dates and market penetration. In this sense, and as illustration for the palm date sector, the services of the Department of Agriculture, with the support of the ANDZOA provide all necessary professional organizations using second order : "the interest economic group, GIE ", in the implementation of targeted and concerted action to help farmers through the GIE to market their products and prepare them to get more added value . Accompaniment, with the support of donors, is being finalized in this direction and will be led by ANDZOA through making investments for the implementation of social aggregation projects for disadvantaged actors around programs of rehabilitation and renewal of palm, with intensification and recovery measures.

Thus, the required services focus mainly on downstream of agricultural production, including palm tree sector, while paying some attention to its upstream for better productivity of orchards and to ensure quality of products. Therefore it will interest and integrate women, men and young adults, into the value chain of the industry. These interventions include:

a) The implementation of a comprehensive and participatory approach to the professional organization of all oases farmers' cooperatives, to integrate them into GIE aggregators, and enhance their capacities in agricultural production, packaging and marketing, in the form of a complete product that conform to the market demand. This approach will be done through workshops to sensitize farmers, support their actions, and integrate them into GIE;

b) Definition of requirements, proposal and implementation of training plans for beneficiary farmers (men and women, including their sons and daughters and their organizations) on driving techniques palm plantations as well as technical management and integrated

cultures of oases in a shape of organic production. Thus, the terms of reference defining the training programs, the number of sessions to organize for the benefit of each IEG, their implementation and estimated budgets will be defined and the requirements of implementation will be taken during each year . The project will also eventually assist the developer in making consultation for trainers' selection;

c) Training, mentoring and technical assistance of IEG and member cooperatives in management, marketing, communication, accounting and access to financial services. To do so, information and training, as well as demonstration visits inside and outside the country will be organized for targeted groups of IEG;

d) Training and technical assistance for units' value of agricultural products particularly dates, in terms of storing, packing, packaging, processing and adopting appropriate practices and appropriate processes of valuation. In addition to the training sessions and technical visits for the benefit of targeted groups of each IEG, technical assistance will be provided with units value supervision of agricultural products, including dates;

e) Training and technical support and implementation of good quality practices thanks to a training program and supervision of production infrastructures and development will be implemented for quality standards;

f) Necessary support and guidance in exploration opportunities and product flow of IEG help in market share, promotion and distribution. This work will enable each IEG in developing and signing sustainable contracts and also marketing their products;

g) organization and implementation of an information system for collecting, processing and sharing remote data relative to date market system, which system will serve the IEG and professional organizations. Consultants will be hired to design the system, provide training for staff that will handle the administration and assist in choosing the necessary hardware for operations;

h) Design, application and implementation of a participatory way, a framework for consultation and coordination of IEG and professional organizations sector;

i) Proposal and implementation of related activities to date palm tree sector with each IEG, allowing the creation of jobs for young people and women with added value, and leading to an improvement in participants' incomes;

j) Support IEG E and allow them to own and implement the concepts of quality certification and labeling, such as the Label Agricole, Geographical Indications, Designations of Origin, Organic Farming and ISO Certification. It is thus expected that each IEG is certified;

k) The proposal of a social cohesion framework for each IEG allowing its members to get benefit from mutual social services ,creating more activities for them and improving their living

G. If applicable, describe the learning and knowledge management component to capture and disseminate lessons learned

The process of knowledge managements is crucial for learning and risk mitigation. To ensure that individual knowledge is improved and shared, the project provides a range of knowledge management initiatives containing, methods and techniques to collect, identify, analyze, organize, store, and share knowledge between users and participating members in the project implementation. Communication on climate change is an important step toward capacity building and knowledge management. There will be some facilitating tools and groupware to promote an integrated approach to identifying, capturing, evaluating, retrieving, and sharing all of information assets. These assets will include databases, documents, policies, procedures, and previously un-captured expertise and experience. » Collecting data as a first step will help the working teams in processing information and using it to build an effective approach to adopt to alleviate the impacts of climate change and come-up with useful actions to be undertaken during the implementation phase. Workshops and information sessions for local stakeholders (institutional, associations of agricultural water users, professional organizations of first and second order etc...) will be delivered by a team of experts who will use technology transfer to local people and stakeholders in pilot area and also adopt comprehensive systems of generation of new water resources. In order to strengthen and support actors, knowledge about climate change and different technics of Irrigation water abstraction, distribution of irrigation water, soil conservation etc... will be broadcast to the farmers and rural communities. It is suggested that the development of knowledge and the sharing and transfer of learning activities will be done through the following:

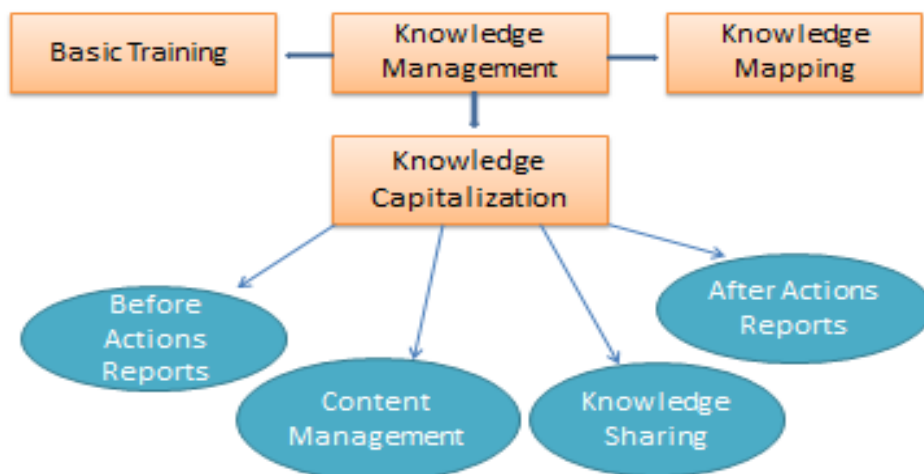
- Train managers in technical editing and dissemination of gathered knowledge;
- Support dissemination of information and support gathering /dissemination of information based on national policies related to the objectives of the project, beneficiaries and civil society;
- Copies of a manual in both Arabic and Berber languages to be edited, printed and distributed accompanied with other communication tools like DVD's, brochures etc..
- Organize seminars / information;
- Support organization of regional consultations on environmental issues, climate change and fight against poverty;
- Publish and disseminate good practices of sustainable management of natural resources;

- Promote reflections on environmental issues in the forums, seminars, workshops, regional with the assistance of local farmers, women and young people
- Establishment of intranets to link geographically dispersed organizations.

To back-up these activities, there will be regular meetings which gather a group of farmers, and women with experts to tell stories, to share and discuss problems, and opportunities, discuss best practices, and talk over lessons learned. The natural knowledge sharing that will occur in social spaces must be replicated virtually to electronically linked communities in order for them to benefit from the expertise of others and to raise awareness about climate change.

Engaging experts is a crucial step toward making recommendations about strategy to mull over and about tactics to take advantage of "After Action Reports" and to set up an "after-action procedure" in order to capture and disseminate information. A system will be designed whereby a group of people, typically someone in KM and other environmental experts, are assigned the responsibility to debriefing, creating the report, and ensuring that the lessons learned are captured and disseminated.

Figure 4: Knowledge Management



H. Describe the consultative process, including the list of stakeholders consulted, undertaken during project preparation, with particular reference to vulnerable groups, including gender considerations

It should be noted that the idea for the project comes from the participative analysis initiated by the National Agency for the Development of Argan Zones, with the agreement of the decentralized services of the Agriculture and Fisheries maritime Ministry, and, the local communities as well as various local organizations participating in the project areas such as development associations, cooperatives and professional organizations.

For that, workshops and meetings with focus groups were organized in different localities, in which the opportunity to identify the strengths, weaknesses, opportunities and constraints, to propose actions in order mitigate constraints and develop their potential was given. In the same meaning, this collaborative approach has to:

- Identify major development axes that were retained;
- do An analytical review of the diagnoses realized : focal points, inconsistencies and economy scale opportunities;
- Identify dynamic actors of the territory on which the implementation of the project is based, and point the dynamic actors that represent an obstacle to the project;
- Develop the themes of the project: building a common vision and foresight of the evolution of the territory from the identification of elements federating communities and developing projects budgets accordingly;
- Build participatory and possibly contractual approach for the project linking the main actors involved in the territory to ensure the coherence of projects' development to national sectorial projects, and encourage their commitment to the project and its contractualization.

The different stakeholders identified are:

- 1- Beneficiaries, their organizations and their representatives: AUEA , professional organizations such as Cooperatives and IEG , local councilors, local NGOs for development, etc. ..
- 2- Administrations of technical proximities: ORMVA , DPA , CT , CMV and regional representations of ANDZOA .
- 3- The central structures of MAPM, of water and the environment for more coherence in national strategies and policies.

Furthermore, it should be mentioned that in the framework of sustainable development of the production and quality improvement in an integrated model preserving the natural resources of palms, a number of characterization studies and participatory diagnosis have been performed. All the conducted studies through a participatory approach have identified the expectations and needs of associations and cooperatives in the region to overcome the

problems related to water scarcity and improve the socio-economic conditions of the oasis population (see some of the PV's of meeting held with population's population in annex 6).

All actions planned including the part which refers to the operation and mobilization of water resources and measures to cope with climate conditions and climate change have been projected in the project actions.

The study area corresponds to the extent of the oasis area of the Kingdom, these studies were used to develop action plans that the holder of the projects are Economic Interest Groupings GIE, with partnership with government organizations.

Other workshops will be organized during the detailed elaboration of the program in order to look for a further reflection concerning proposed axes in this project.

The implication of beneficiaries is reflected in a conscious and effective participation in all phases of the project: identification, planning, implementation, monitoring and evaluation. It is to mobilize, educate, negotiate and convince all the different components of the population to seek the support of all for a desired behavior change to improve their environment and living conditions.

To more reinforce this implication, the project proposed actions that integrate entertainment, communication and awareness of all the project stakeholders about the experiences and practices related to adaptation acts of climate change in the context of the resources' sustainable management.

Awareness of climate change will concern different levels: national, regional, provincial and local levels. In the first three levels, awareness can be achieved through the development of messages, slogans and billboards. While, on the local level, thematic workshops will be provided, as well as the involvement and empowerment of the populations in all phases of the project. The aim is to ownership the project, to sustain actions and to change behaviors concerning hygiene, maintenance and management structures.

A great work of information, awareness through a methodology and adequate and appropriate animation techniques is recommended, with the support of different Agriculture Department structures including those of the National Agricultural Council Office recently created and whose missions are reported in the Appendix.

It should be noted that this work is a result of a review of several studies conducted in the territory: characterization, hydrological, socio-economic and environmental. Thus, the results are the result of a participatory program involving all stakeholders including local, inter alia:

- the Regional Office for the Development of Agricultural value Tafilalet
- Hydraulic Basin Agency of Ziz, and Gheris Guir,

- The Provincial Directorate of Water and Forests under the HCEFLCD,
- The National Institute for Agricultural Research INRA, Regional Service Errachidia
- Local NGOs including development associations,
- Rural communities across the Communal Development Plans,
- Cooperatives
- economic interest groups recently created to promote the palm date sector.

I. Provide justification for funding requested, focusing on the full cost of adaptation reasoning.

The area covered by the project is characterized by periods of very random floods, more or less violent and that cause considerable damage. They result from localized rainstorms and thunderstorms .which are more frequent from east to west . The risk of these floods has been reduced by the construction of dams (Mansour Addahbi , Oued Draa and Hassan Addakhil , Oued Ziz). The construction of these dams provided water supply to Draa palm and Tafilelt palm, but it limited to the groundwater recharge , particularly wadis.

Agriculture which is the primary economic activity, contributes over 60% to the income of local people. Agricultural production, livestock, craft are sold locally. Moreover, the ownership structure in these areas shows that about 80% of farms are less than 1ha area and there is an average of 8 plots per farm.

In general, and for all classes of holdings, except alfalfa yield levels remain low in the palm . This can be explained largely by the state of the irrigation network, adverse weather conditions and the scarcity factor limiting water: palm yield levels are relatively low compared to the potential production in intensive situations. They vary from 5-22 Qx / ha depending on the area. Yields ranging from 15 to 18 quintals / ha produced little cereals. Water needs in the project area, are satisfied only by approximately 50%.

On environmental level, the territory is the last barrier against the advance of desertification. However, it remains subject to strong natural constraints (climate, erosion, etc. .) that are aggravated by the pressure exerted by man (overgrazing , over-exploitation of woodlands , suboptimal water management ...) . This poses a serious environmental problem and must be mitigated, especially, as the country has a rich heritage.

In the area of the Tafilalet, there are a total of 191 inefficient functional khetaras, 35 khetaras were chosen for their improvement, based on the following criteria:

- Profitability of the planned activities;
- Flow greater than or equal to 10 l / s (resource availability);
- Leaks and low efficiency of the network;
- Risk of silting;
- Risk of flood damage nearby wadis.

The project has set as its main objective the improvement of the flow of these 35 selected khettaras serving 36 irrigation schemes for global irrigated area of 1,500 ha benefiting about 15,000 inhabitants which will improve the provision of water and improved crop management and consequently improve the standard of living, limiting rural migration and fight against desertification.

As an illustration, the area of Ouarzazate is characterized by the fact that almost all of the rainfall in the area is spread over two or three months all over a single year, during this period, the aquifer, including slick inféroflux, recharges with storm flows. However, it immediately gets empty at the end of the rainy season and quickly ceases to be easily readable by khettaras or wells.

The removal of downstream losses stabilizes the level of water or at least maintains it in usable limits.

The choice of alternative subsurface dam was made after reviewing the results of the study of balance sheet prepared by ORMVA Skoura Ouarzazate in 1989, and whose the hydraulic gradient varies from 10 m / km 17 m / km from downstream to upstream of the palm.

The work proposed in this project consists of the completion of five underground structures. These five structures have a total length of 1174 m and used to power a perimeter of 2700 hectares (Height ranging from 15 to 20 m.) The unit cost per structure is \$ 750,000.

J. Describe how the sustainability of the project / program outcomes has-been taken into account when elaborating the project.

The strategy to be adopted to close the Project is based on the principle of preserving the project's objectives in terms of investments and beneficiaries concerned, and to ensure the main conditions for its sustainability. These goals differ depending on the activities' types.

Thus, the project closing consists of:

- Identification of measures to achieve the physical closing and the establishment of procedures for this purpose;
- Identify roles and responsibilities of stakeholders;

- Transfer of assets and responsibilities in terms of:
 - Support and organizational strengthening of beneficiaries' groups;
 - Transfer works to the beneficiaries and empower them;
 - Operationalizing of water resources development.
- Risks of completion and sustainability:
 - Risks related to the physical completion;
 - Risks related to the experience's sustainability after the end of the Project;
 - Environmental and social risks.

During workshops participatory identification, certain risks were raised related particularly to beneficiary participation, sustainability actions, the residual impact of the work from an environmental and social point of view, and gender integration.

Concerning sustainability, it is important to note that the project area is experiencing institutional dynamic of great importance for the control of the palm tree sector as well as the Argan tree. This dynamic is initiated on one hand by the socio-economic role of these sectors concerning the formation of the population income at levels that exceed sometimes 50%; on the other hand, it is activated by efforts deployed by producers in term of professional organization (formation of cooperatives and associations) and particularly, at the stage of recovery.

With the support of the Administration, in this case the National Agency for the Development oasis Zones and Argan (ANDZOA) , these conditions led to the establishment of technical and institutional structures whose aim is to curry the section in question in its technical and economic development. The objective is to enable them to fully play their role as locomotive for improving the living conditions of populations in the oasis Argan areas.

Meanwhile membership, organization of beneficiaries and contractualization are a prerequisite.

K. Provide an overview of the environmental and social impacts and risks identified as being relevant to the project / programme.

The project does not have a major negative impact on environmental and social aspects. It is in full compliance with the environmental policy of the Adaptation Fund. Concerning minor and moderate risks, at the time of implementation of the work, a process of social and environmental monitoring as described in paragraph B of Part I, is planned. Implementation of the entire project does not require a prior assessment on this subject:

Checklist of environmental and social principles	No further assessment required for compliance	Potential risks/impacts - assessment required for compliance
<i>Compliance with the Law</i>	X	
<i>Access and Equity</i>	X	
<i>Marginalized and Vulnerable Groups</i>	X	
<i>Human Rights</i>	X	
<i>Gender Equity and Women's Empowerment</i>	X	
<i>Core Labour Rights</i>	X	
<i>Indigenous Peoples</i>	X	
<i>Involuntary Resettlement</i>	X	
<i>Protection of Natural Habitats</i>	X	
<i>Conservation of Biological Diversity</i>	X	
<i>Climate Change</i>	X	
<i>Pollution Prevention and Resource Efficiency</i>	X	
<i>Public Health</i>	X	
<i>Physical and Cultural Heritage</i>	X	
<i>Lands and Soil Conservation</i>	X	

PART II: IMPLEMENTATION ARRANGEMENTS

A. Describe the arrangements for project

The project will adopt an integrated and multi-sectorial approach and will focus on the participation and active involvement of beneficiaries

at all levels of decision making. This approach is taken to strengthen the major orientations of Morocco on decentralization and development of the region and serve as a model to launch similar projects in other areas or sensitive areas such as mountain areas and coastal areas.

At the national level, a steering structure (committee or commission) will be created and will be responsible for approving the annual work plans ,monitoring and coordination with other partners (Department of the Environment, Department of Agriculture, etc. ..).

At the territorial level, a project management unit will be established within the ANDZOA and will be coordinating the monitoring and implementation of the operations of the projects with the Department of Project Management ADA. The PMU will be provided with adequate profile and will be supported by external technical assistance and expertise.

B. Describe the monitoring and evaluation arrangements and provide a budgeted M&E plan. Include break-down of how Implementing Entity's fees will be utilized in the supervision of the monitoring and evaluation function.

The project will also include monitoring and evaluation activities conventionally applied to all projects financed by the Fund; adjustments will be made to ensure the integration of these activities into the overall system of the ADA and ANDZOA used in this area.

Since the implementation of the strategy of the Green Morocco Plan PMV in 2009, projects of development of oases zones have multiplied, in particular, those related to the promotion and development of solidarity agriculture.

Areas of intervention focused on promising sectors with added value, mainly, the date palm sector, pink perfume, as well as the enhancement of local products that offer huge potential in terms of their biodiversity and commercial value especially for the benefit of rural women.

The project will contribute to the mitigation of climate and of course the continuity of efforts for the safeguarding and preservation of natural resources and oases in a process of contracting and partnership with various development actors.

Taking into account the specificities and character of the project area as well as the obligations of the State with professional actors in 2020; particularly, in agriculture, natural resources preservation, systems monitoring and conventional evaluation are applied, taking into account the various projects funded for this purpose.

Monitoring indicators may be amended in connection with objective indicators and results of the project through the establishment of committees for monitoring and evaluation. This will be an integral part of various conventions and partnership arrangements involved in the project. Thereafter, an evaluation system specific to the project that includes all the indicators and measurement bases will be established.

C. Include a results framework for the project proposal, including milestones, targets and indicators and sex-disaggregate targets and indicators, as appropriate. The project or programme results framework should align with the goal and impact of the Adaptation Fund and should include at least one of the core outcome indicators from the AF's results framework that are applicable.

The detailed budget, the schedule of execution thereon and disbursement as well as the monitoring and evaluation system will be finalized during the detailed design project. The proposed amount comes from a rough estimate based on the costs incurred in similar

programs in the region. These estimates are subject to changes according to the requirements and nature of the applicant controls the delivery.

It is proposed to divide the project cycle into three basic phases:

- Phase of implementation of the previous project: preliminary study, implementation of management teams, implementation of mounting up etc. This will not exceed 6 months;
- Phase of implementation: the implementation of the project components (hard and soft);
- Closing phase: completion, liquidation of contracts, final evaluation, post project, etc.

The quantitative and qualitative monitoring and evaluation will be based on objectively verifiable indicators and easily around the relevance, effectiveness, efficiency and sustainability.

In conclusion , the study developed in this summary report has drawn a number of conclusions regarding the economic and social interest of the project in question and that for adaptation to local conditions and its response to the aspirations expressed by farmers in the participatory diagnosis.

The intensification of farming and production systems resulting from the implementation of the activities planned under this project will also lead to an increase in the use of factors of production and thus the real income at farm level will increase of at least 30 % compared to the current situation.

The analysis of the economic efficiency of the project revealed that the investment will be paid at a rate of 12% , which puts it above the social opportunity cost of capital (estimated at 10%), demonstrating the economic viability of the project .

In a more comprehensive analysis of the project effects, it is considered that the project will contribute positively to the improvement of water, its service and an overall increase in agricultural production in the project area, as well as a better recovery of irrigation water.

Precising elements will be given during detailed conceptual study that will be undertaken right after the approbation of the fund.


PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION

A. Record of endorsement on behalf of the government

Mr <i>Mohammed NBOU</i> , Director of studies, planning and prospective in the department of environment, Ministry of the Environment Water and Mines	Date: February 4th, 2014
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Please, refer to the endorsement letter attached in the annex 7.

B. Implementing Entity certification

<p>I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans (listed here: <i>National Strategy for Environmental Protection; National Charter for Environment and Sustainable Development; National Plan for Fight against Global Warming; Portfolio of CDM projects; New energy strategy; New Strategy for Water; Plan for protection against floods; Agricultural Strategy: Green Morocco Plan; National Strategy for the Development of Oases zones and Arganier Tree Zones</i>) and subject to the approval by the Adaptation Fund Board, commit to implementing the project/programme in compliance with the Environmental and Social Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.</p>	
<p>Mr Hamid FELLOUN Implementing Entity Coordinator</p>	 <p>Poste Directeur Général le Directeur Administratif et Financier <i>FELLOUN Hamid</i></p>
<p>Date: February 07th, 2014</p>	<p>Tel: 00 212 5 37 57 37 13 Email: h.felloun@ada.gov.ma / hfelloun@gmail.com</p>
<p>Project Contact Person: <i>Ms. Meryem ANDALOUSSI</i></p>	
<p>Tel: 00 212 5 37 57 38 13 Email: m.andaloussi@ada.gov.ma / Meryem.andaloussi@gmail.com</p>	

ANNEXS

**ANNEX 1: Description of objectives and tasks for a zone within the project boundary
(Zone Errachidia)**

Term		Short term (5 years)	Medium term (6 to 10 years)	
Khetaras subjects of the study		144 khetaras as priority (Q >= 2 lit/sec)		
		600 m (maximum)	Remaining segment for short-term rehabilitation	
		Khetaras that require urgent rehabilitation	47 priority khetaras (0<Q<2 lit/sec)	
Rehabilitation Khetaras	Content	Rehabilitation of sewer manhole and gallery. Implementation of small-diameter pipes. (<i>Khetaras</i> with speed to capture part of water, but dry in the output)	Rehabilitation of sewer manhole and gallery (Establishment of a program of common pumping provided that the effects of recharge are obvious)	
	Targeted rehabilitation rate	30%	30%	
Irrigation installations	Content of the work and purpose	Works in lining sections of earth and masonry and improvement of dividers		
		Objective of the work above : L=120.4km	---	---
		Improving the channel dividers in concrete		
		Objective of the work above : L=126.6km	---	---
Agriculture and Water Management	Education method	<ul style="list-style-type: none"> - Experimentation plants of profitable products and gardening - Implementation of demonstrative perimeters of water-saving irrigation for areas subject to rehabilitation mentioned above. - Continued subsidy system for irrigation saving existing water. 		
	Rate of education (vulgarization)	- Rate of education of irrigation water saving (drip irrigation): 10%		
organizational strengthening	individual organism	<ul style="list-style-type: none"> - Creating the "External Relations" within the groups entitled traditional water to serve as contact with the outside. - Acquisition of administrative skills needed for the new system of organization - Increase the capacity of projects for the new system of organization 		
	Cooperation agencies	---	- Establishment of the system of collaboration between farmers organizations	
Charging Structures	Content	Design and implementation of the promising partial map	Implementation of existing plans and establishment of new plans	
	Objective	2 projects	Approx. 6 projects	

ANNEX 2: National Agency for oasis zones and Argan tree Development (ANDZOA)

According to the creation law (Law No. 06-10 published in OB No. 5900 dated on 13/12/2010), The ANDZOA missions consist in developing, and coordination with government authorities, the elected bodies and agencies concerned , an overall development program of its areas of intervention, ensuring its implementation, monitoring its implementation and evaluation, in an economic, social, environmental and human context of sustainable development, in accordance with the guidelines and strategies decided.

For this purpose, the ANDZOA is responsible for:

a- The oasis zones :

- Ensure the preservation, the protection and the development of oasis , including the implementation of socio-economic projects ;
- In accordance with laws and regulations , Ensure the preservation , the protection of the date palm (Phoenix dactylifera) for more and better production ;
- Encourage agricultural investment and the structuring of the chain of the production, commercialization, recycling and marketing of date palm products , including through partnership with stakeholders ;
- Encourage streamlining the management of water resources and their development , and the fight against desertification and silting ;
- Encourage scientific research on the protection and development of the date palm production and the value of its products as well as oasis ecosystems, and also ensure the establishment of a system of risk prediction and the impact of climate change on these zones and their environment;
- Establish the necessary instruments for the formulation, implementation, follow-up and evaluation of projects, in coordination and collaboration with the responsible government authorities, particularly in hydro-agricultural infrastructures in zones above, the extension of the date palm plantations and the development of other plant and animal species adapted to the oasis ecosystems.

b- The geographical areas of the Argan tree:

- Carry out the expansion of stands of Argan trees accordance with laws and regulations relating to forest estate ;
- Conduct or supervise the implementation of projects for the development , recycling, marketing , promotion and labeling of Argan products , particularly in the framework program contract or agreement to be concluded with the agency ;
- Structuring production chains and marketing of Argan in partnership with various stakeholders including the population concerned ;

- Encourage scientific research on the protection and development of the Argan tree and the value of its products.

The target area of the Agency includes the oasis areas in the Saharan and pre-Saharan areas of the Kingdom, and the geographical areas of the argan tree (*Argana spinosa*), covering 16 provinces and 400 municipalities on five main areas : Eastern (with part of the province of Figuig) , Meknes -Tafilalet (with the provinces Errachidia and Midelt) , Souss -Massa -Draa (with all its provinces) and Guelmim- Essmara (with the provinces Tata Guelmim and Assa-Zag) and Marrakech- Tensift- Al Haouz (with the province of Essaouira) .

For the organizational aspect, in addition to the Branch, the ANDZOA is composed of four directorates: Strategy and Partnerships, Administration and Finance, Development of oasis zones Developments of Argan areas. This is an organization that is characterized by decentralized structures with, in addition to operational management in regions, territorial departments for close monitoring at the whole area of intervention.

ANNEX 3: National Office of the Agricultural Council (ONCA)

The National Office of the Agricultural Council (ONCA) is established under the law 58-12 promulgated by Dahir No. 1.12.67 of 4 Rabia I 1434 (January 16, 2013). He is responsible for leading, coordinating and monitoring the implementation of the strategy of agricultural advice nationwide.

According to the creation law, the office shall be responsible for four main sections:

1 - The Agricultural Council

- Apply government policy on agricultural advice ;
- Ensure the development and promotion of international cooperation;
- Assist and support farmers in their efforts to access the encouragement and financial support provided by the law and regulations;
- Develop and implement innovative methods ;
- Providing farm advisory focused on gender mainstreaming.

2 - The support of professional organizations

- Supporting professionals in the design and implementation of innovative agricultural projects and aggregation,
- Provide support, coaching, training and consulting professionals agricultural production sector in terms of production technology, marketing and farm management

3 - The agricultural development

- Contribute to the monitoring of solidarity agriculture projects on the land,
- Contribute to the collection of statistics relating to the sector,
- Conduct activities in commercialization of agricultural inputs.

4 - The interface with Training and Research

Disseminate the results of applied research and advanced methods of production, development and marketing of agricultural products,

Ensure the recurrent training in agricultural advice and conduct professional development programs, including agreements with professional organizations, chambers of agriculture and national training and research institutes.

ANNEX 4: Matrix of environmental and social assessment of some components of the project

Environment segment	Evaluation	Foundations
Social Environment		
Sociale life		
living of the population	D	The project should not change people' lifestyles, the integration of women and improvement of their status are not evaluated as a negative impact.
Demographic problems	D	Given its primary function of mitigating the effects of climate change, the project should not have an impact on the population growth
economic activities	D	Knowing that the goal is to help those involved in the foundation of the agricultural economy, it does not cause unemployment or economic displacement.
Systems and customs	D	It is possible that the organized farmer groups influence community structure, this is not intended as a negative impact
Health and hygiene	D	The project should not cause the emergence of new infectious diseases
Historical sites, cultural heritage, landscape	D	Traditional works khettaras are part of the project that will have a positive effect on their maintenance and backup
Naturel Environment		
Ecological and rare species	D	Control measures against desertification should somewhat improve or restore vegetation cover (positive effect) it won't have impact on the ecological system.
Soils and land		
Solis		
Soil erosion	D	The project won't have further impact on soil erosion
Soil salinity	C	The use of techniques of to save water doesn't have an impact on salinity but the presence of saline water should be taken into consideration
Decline in soil fertility	D	The oases are almost organic areas soil fertility has to be improved
Pollution des sols	D	Agriculture uses few chemicals and the project promotes the use of organic and biological products
Land		
Land degradation	D	The project components will participate in the protection against land degradation and desertification

Degradation of the hinterland	D	
Land subsidence	D	Ground subsidence has never been noticed during similar works
hydrogeology		
hydrology		
Modification of surface runoff	D	The majority of the proposed project activities will not have an effect on this part and further study is needed to mitigate the negative impacts
Change of groundwater flow and groundwater level	D	A comprehensive study is needed to mitigate the negative impacts
Occurrence of floods	D	Rehabilitation of existing structures will not have an impact on this segment
Sand accumulation	D	Rehabilitation of existing structures will not have an impact on this segment
Sagging riverbeds	D	Rehabilitation of existing structures will not have an impact on this segment
Quality and water temperature	D	The project will not create problems of water pollution, moreover, awareness campaigns should help reduce the pollution load
Atmosphere	D	Works will not have an impact on this segment

Source: Managing the development of rural communities through the rehabilitation of khattaras in South East Atlas Mountains of Morocco Plan (2005)

ANNEX 5 : Data and location of some schemes

Oasis zones climate:

- It is arid .
- The temperature range is high: temperature ranges from - 3 ° C in winter to over 45 ° C in summer.
- The average rainfall is 60 to 250 mm / year, and generally concentrated in 25 days with an FTE of over 2600 mm / year.
- Prevailing Winds: "Chergui" from south-west and "Sahel" from East. These winds often cause sandstorms.

Agriculture and livestock

Farming occupies the leading economic activity in the palm. The crop grown are :

- Cereals (wheat , durum wheat, barley, maize).
- Legumes such as beans .
- The vegetable (tomato, carrot, onion, pepper , eggplant) .
- Fruit trees (date palm , olive, almond , apricot, plum , pomegranate , fig , apple, ...)
- Alfalfa .

Livestock is mainly sheep, camels and horses.

Tourism

It occupies an important place in the economic fabric of the oasis area. The diversity of tourism products and biodiversity of oasis zones give this space a specificity of mass tourism as well as cultural entities(Diversity and Kasabats ksours , Gorges AntiAtlas , Merzougua dunes , hot springs etc. ..) .

Recovery and processing of local and agricultural products.

This business transformation plays an important role and provides employment opportunities and value creation for local people . It involves , among other things :

- Pressing olives for the extraction of olive oil .
- Oasis territory rich in aromatic and medicinal plants WFP
- Processing and packaging dates and derivatives.
- Production of milk .
- Local products

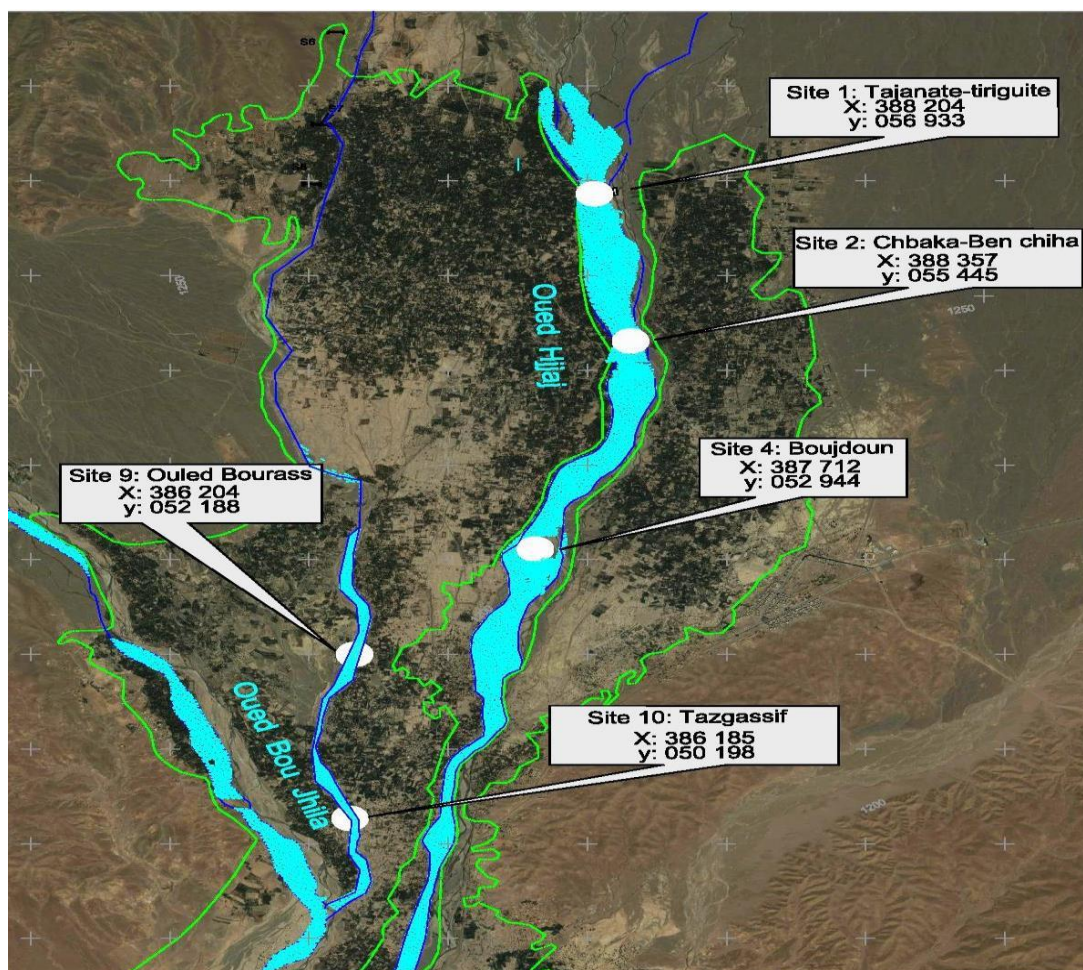
Significant mining potential

- Opportunities to create added value on the basis of mineral wealth including the organization and structuring of the sector .

Trade

Agriculture as first economic activity contributes over 60% to the income of local people. Agricultural production , livestock , craft are mainly passed locally and presentation on foreign markets is becoming increasingly important .

Region Souss Massa Draa: area of Ouarzzazate



In the two sub-basins of Zagora, water resources are of two types: surface water and groundwater.

Sub-basin Maïder: Water resources in this area are composed mainly of flows in wadis and N'kob Tazarine, flood waters of the river Taghbalte and groundwater present in the alluvium. The groundwater level has fallen sharply in recent years due to recurrent droughts. Works of water mobilization consist of:

- Three underground dams;
- A dam in spate Taghbalte;
- A network of khetaras;
- Individual pumping unit of a speed does not exceeding 5 l / s.

Under basin of Draa

1. Large irrigation:

The hydro-agricultural development of the Draa valley was completed in 1983, it allows the irrigation of a net area of 26,118 ha from the waters of the dam Mansour Edahbi. The surface irrigation is the mode of irrigation practiced. This development consists of:

Dam Mansour Ed dahbi: Completed in 1972, the dam has a current capacity of 440 million m³ on an initial volume of 560Mm³ due to siltation, it is the centerpiece of the hydro-agricultural development of the Draa Valley piece. This dam whose interannual average intake was estimated at 420 Mm³ helps regulate an annual average volume of 250 million m³. Water intake of the intermediate basin between the upstream and the downstream palm M'hamid dam are roughly estimated at 110 million m³ and have, in general, very irregular system which is facilitating their control.

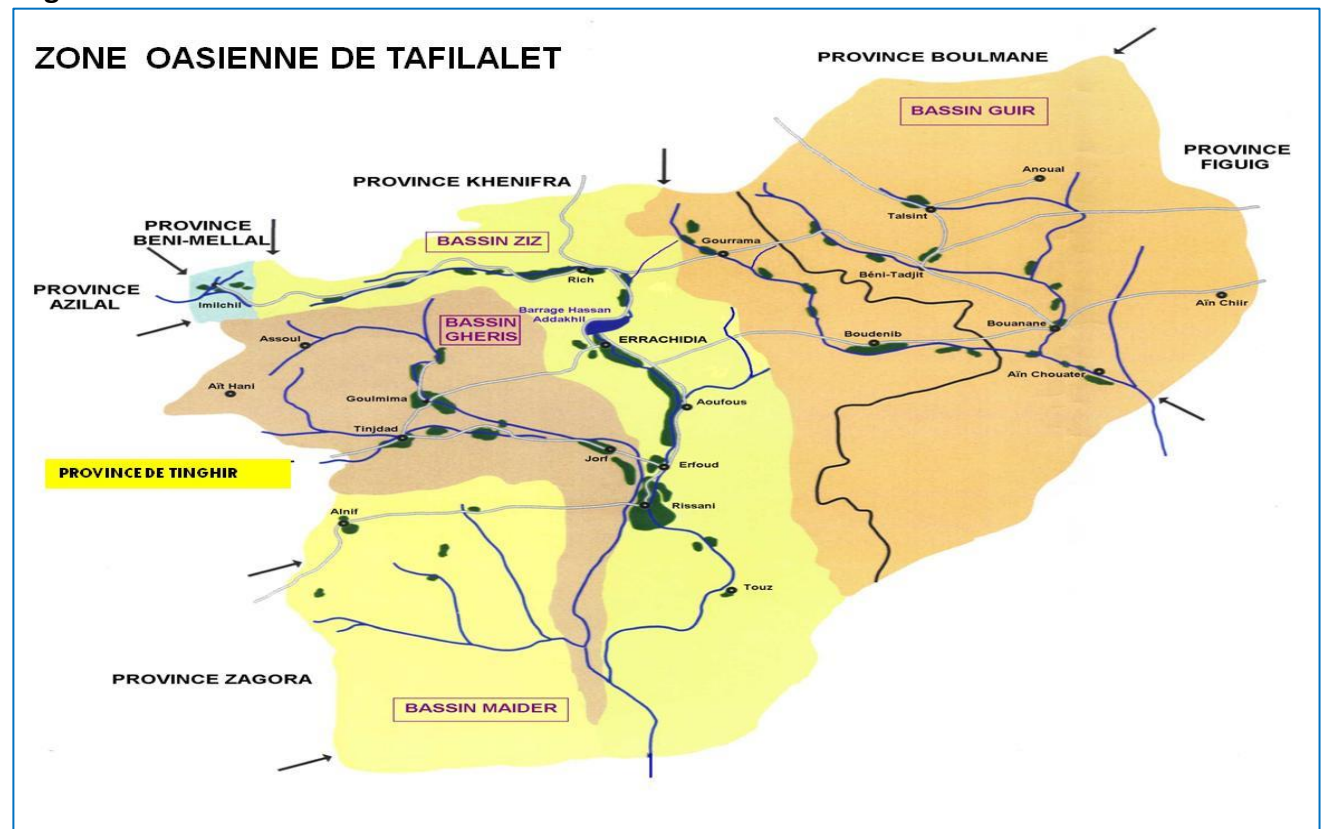
Diversion structures: the Oued Draa canal plays the role of the main water adductor to the distribution system. The derivation is carried out by five dams that feed the main channels, namely Agdz of Tansikhte, Ifly, Azaghar and Bounou.

Irrigation system: The water is channeled to the plots by a network of main canals totaling approximately 200 kml. These main channels lead to a secondary network of the same length as the main network which in turn feeds the traditional network. Traditional network is approximately 1,160 Kml Dead Head of seguias. It plays the role of tertiary and quaternary canals. Inherited from the period prior to the development, the network remains until today functional.

2. groundwater

Concerning the importance of groundwater, the total volume of all layers is estimated between 60 and 80 million m³ and a usable volume of 28.5 million m³ annually. Plies the waters of the two extreme downstream palm cannot be used because of their high salinity (> 10 g / l).

Region of Meknes Tafilalet: Tafilalet Zone



Tafilalet area:

Water resources

- Three major watersheds cover the area of Tafilalet (The Gheris, The Ziz, the Guir) in addition to the Maider basin in south.
- Groundwater resources are estimated at more than 200 Mm³.
- Khetarra's heritage of more than 401 units among which more than 250 are operational with a total flow of 1.25 m³ / s, which corresponds to 40 Mm³/year.

soil

The soils are generally of silty clay nature, sandy loam, clay and limestone. These are raw unsophisticated mineral soils

vegetation

- rare natural vegetation, composed of steppe formations (sparse natural vegetation formation mainly composed of thorny plants).
- anthropogenic vegetation consisting of date palm, olive hedging various underlying cultures.

ETUDE CONCERNANT LA CONDUITE D'ETUDES DE CARACTERISATION DES PALMERAIES FORMANT L'ASSIETTE DE CONSTITUTION DE GROUPEMENT D'INTERET ECONOMIQUE



ETUDE CONCERNANT LA CONDUITE D'ETUDES DE CARACTERISATION DES PALMERAIES FORMANT L'ASSIETTE DE CONSTITUTION DE GROUPEMENT D'INTERET ECONOMIQUE _ ORMVA TAFILALT

ATELIER DE DIAGNOSTIC

ورشة التشخيص التشاركي

Liste de présence

Ben Aoufous
Le 22/11/2012

Nom et prénom الاسم الكامل	Qualité الصفة	Organisme المنظمة	Email العنوان	Téléphone الهاتف
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Boumshel Mohamed	président coop	cop Amal Sakh	Blastine	06 60 04 94 51
AOURAS Brahim	member	cop AMAL SALH - Blastine		06 68 10 18 44

NOVEC

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Ministère de l'Agriculture

الست ٨ سونر 2012

محضر ورشة عمل مع أعضاء المجموعة
ذات النفع الاقتصادي وأعضاء التعاونيات
المختصة في المجموعة لتصدرت

في إطار إعداد دراسة لتخصيص واقتراح برنامج
عمل لكل مجال تدخل مجموعة ذات النفع الاقتصادي
لأقا "تعدولت" تم عقد ورشة عمل مع أعضاء
المجموعة بمقر الجماعة القروية لأيت وايبي على
الساعة التاسعة والنصف.

وقد تم خلال هذه الورشة تشخيص الوضعية المالية
لمجال عمل مجموعة ذات النفع الاقتصادي والتي هي
تشخيص القطاعات الاقتصادية بالمنطقة، كما تم تحليل
قطاع الفلاحة وكل ما يلزم سلسلة إنتاج التمور
في الأخير تم الاقتراح العديد من الأنشطة لدرجها في
برنامج العمل لتطوير القطاع الخاص بإنتاج وتسمين التمور
بالمهذبنة.

الإمضاء:

عن مكتب الدراسات
NOVEC
العلوي ضدونة
ياسين النقال

عبد المصطفى بن محمد ولد
أحمد



لائحة الحضور

ورشة عمل مع أعضاء المجموعات ذات النفع الاقتصادي

مجموعة ذات النفع الاقتصادي وكت للتعمير لقطا

في 16 نونبر 2012

الإسم	الهيئة	الصفة	الهاتف	التوقيع
البيول كعلم	تعاونية الأير فاندان	المراتب	06.73.98.85	
احمد دحمان	ج. د. ()	مستشار	06.67.73.63.80	
عبدالله أمينو	تعاونية إعمار النسيم اللام	رئيس	06.71.09.97.86	
عبدالحامد بن بولخير	تعاونية إعمار النسيم اللام	نائبة للأمين (رئيسة)	06.68.93.83.82	
أبو علا الزهيرة	تعاونية إعمار عفر	نائبة للأمين	06.78.54.38.04	
التسيب موهو	تعاونية إعمار (تعاونية إعمار النسيم اللام)	نائبة للأمين (رئيسة)	06.78.94.86.05	
هماد خلية	تعاونية إعمار	عضو		
احمور قبية	تعاونية إعمار	عضو		
العموم سكر زينة	تعاونية إعمار	عضو		

NOVEC



ANNEX 7 : Letter of endorsement



0041

04 FEV. 2014

**Letter of Endorsement by
The Ministry Delegate to the Minister of Energy,
Manes, Water and Environment in Charge of Environment**

To : The Adaptation Fund Board.
c/o Adaptation Fund Board Secretariat.
Email: secretariat@adaptation-fund.org
Fax : 202 522 3240/5.

Subject: Endorsement for "Climate Change Project in Oasis Zones".

In my capacity as designated authority for the Adaptation Fund in Morocco, I confirm that the above national proposal is in accordance with the government's national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in Oasis Zones in Morocco.

Accordingly, I'm pleased to endorse the project proposal with support the Adaptation Fund. If approved, the project will be implemented by the Agricultural Development Agency (ADA) and executed by the Agency for Development of Oasis areas and the Argan trees (ANDZOA).

Sincerely

Mr. Mohamed NBOU
Director of Studies, Planning and Prospective

Le Directeur des Etudes, de la
Planification et de la Prospective

Mohamed NBOU



Project Formulation Grant (PFG)

Submission Date: **February 10, 2014**

Adaptation Fund Project ID: **MAR/NIE/Agri/2013/1**

Country/ies: **Morocco**

Title of Project/Programme: **Climate changes adaptation project in oasis zones**

Type of IE (NIE/MIE): **NIE**

Implementing Entity: **Agency for Agricultural Development**

Executing Entity/ies: **National Agency for Development of Oases Zones and Argan Trees**

A. Project Preparation Timeframe

Start date of PFG	June 1, 2014
Completion date of PFG	July 31, 2014


B. Proposed Project Preparation Activities (\$)

Describe the PFG activities and justifications:

List of Proposed Project Preparation Activities	Output of the PFG Activities	USD Amount
1. Meetings with the the project implementing entity at central, local and regional levels and other relevant departments to generate knowledge and capitalize on relevant similar projects and get baseline information as a support for the Monitoring and Evaluation of project.	- Project components, detailed activities and relevant assigned entities. - Lessons from relevant projects leaned	2 500
2. Meetings and focus groups with target audience in pilot, ensuring the participation of all, including NGOs, local community entities, the private sector ...	- Establish a participatory framework for sharing and discussion of the planned project - Exchange of traditional knowledge made by local population regarding climate change - Seek support and commitment of local people to participate in the implementation of the project components	3 500
3. Conduct a rural appraisal, gather and analyse secondary data from official offices relevant to target areas	- Most vulnerable groups and communities within the target area identified	10 000
4. Preparation of draft project Appraisal document (PAD)	- Draft PAD	6 000
5. Organize a workshop to all stakeholders to present the draft PAD and seek feedback	- A workshop conducted and feedback from stakeholders	4 000
6. Prepare final PAD	- Final PAD	4 000
Total Project Formulation Grant		30 000

C. Implementing Entity

This request has been prepared in accordance with the Adaptation Fund Board's procedures and meets the Adaptation Fund's criteria for project identification and formulation

Implementing Entity Coordinator, IE Name	Signature	Date (Month, day, year)	Project Contact Person	Telephone	Email Address
Agency for Agricultural Development	 Pour le Directeur Général le Directeur Administratif et Financier FELLOUN Hamid	February 10, 2014	Hamid FELLOUN	(+212)5375 73713	h.felloun@ada.gov.ma