



## ADAPTATION FUND

AFB/PPRC.13/7  
17 October 2013

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Adaptation Fund Board  
Project and Programme Review Committee  
Thirteenth Meeting  
Bonn, Germany, 29-30 October 2013

Agenda Item 4 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 42 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 3) 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. 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.

6. 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.

7. 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.

8. 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 first submission of the project concept document. It was received by the secretariat in time to be considered in the twenty-second 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.

9. 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.

10. 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. Finally, it is worth mentioning that ADA has not submitted a Project Formulation Grant Request.

## Project Summary

Morocco – Climate changes adaptation project in oasis zones

Implementing Entity: ADA

Project/Programme Execution Cost: USD 850,000

Total Project/Programme Cost: USD 9,150,000

Implementing Fee: N/A

Financing Requested: USD 10,000,000

Project/Programme Background and Context: 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: 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 climate change and human vulnerability of oasis agro ecosystems in Morocco, on one hand by increasing the adaptive capacity of local institutions and actors, and on the other hand by implementing prior adaptation measures to climate change for Moroccan oases areas. 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 of different actors,
- Component 2: Implementation of adaptation measures based on a model of management actions integration, rationalization of water resources and soil conservation.

Component 1: Capacity Building of different actors (USD 423,400)

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 a model of management actions integration, rationalization of water resources and soil conservation (USD 8,726,600)

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 khattaras 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. Finally, 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.



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): **10,000,000**

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): **Jean-Marc Sinnassamy**

NIE/MIE Contact Person: **Hamid Felloun**

Review Criteria	Questions	Comments on 12 September 2013	Comments on 30 September 2013
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?	Yes.	

	<p>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?</p>	<p>The project will develop actions to rehabilitate and protect from degradation oasis ecosystems in Morocco. Actions will include restoring the traditional system of water management, by rehabilitating the irrigation work and water service system, improved management of soil and water resources, as well as the use of resistant varieties of palm trees and training sessions for the stakeholders. However, the adaptation reasoning is missing, which does not allow for an assessment of climate related threats to the oases ecosystems. Without such analysis, it is difficult to justify the use of AF resources to finance these business-as-usual activities. Human induced causes of the degradation of the oases are clearly described in the proposal. There are probably reasons why water infrastructures and their management were abandoned.</p> <p>One of the problems in the catchment area is the overuse of water upstream in the basin. We do not see any effort to rationalize or reduce this overuse. There is a lack of information about the “quality approach to any level of production”, how the project will “encourage commercializations” and how the incomes will be generated. <b>CR1:</b> Please provide more information on the climate trends and scenario in Morocco and more specifically in the target areas.</p> <p><b>CR2:</b> Please give more details on the project expected outcomes and outputs, along with the relevant budget per outcome. Please use the template “project components and financing” table (see proposal template available in the Adaptation Fund website). <b>CR3:</b> More generally, please fill out all the sections requested at the concept stage, using the project proposal template available in the Adaptation Fund website (<a href="https://www.adaptation-fund.org/content/request-projectprogramme-funding-adaptation-fund">https://www.adaptation-fund.org/content/request-projectprogramme-funding-adaptation-fund</a>).</p>	<p><b>CR1:</b> Addressed. Information on climate trends and scenario is provided.</p> <p>The “concrete” activities will focus on rationalization of water resources and soil conservation. “Rationalization” includes improving the efficiency of existing irrigation resources, including the most appropriate to oases systems and the ancestral systems including khettaras and spreading of floodwaters, and improving the rate of water storage both on surface and underground, through development and full rehabilitation of irrigation schemes. In addition, youth and women groups will benefit from pilot projects to generate resources out of the value chain of dates or other income generating activities.</p> <p>However, given the current excessive use of water and expected changes in climate, alternative solutions to intensive irrigation systems could be more appropriate. It is not clear if the proposed interventions to increase water storage capacity and the efficiency of irrigation systems, as well as raise awareness on irrational use of water by communities, would be</p>
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		<p>Please refer to the guidance provided by the Board to prepare the proposal (<a href="https://www.adaptation-fund.org/sites/default/files/Revised_Instructions_forPreparing_a_Request_for_Project_Funding_April_2013.pdf">https://www.adaptation-fund.org/sites/default/files/Revised_Instructions_forPreparing_a_Request_for_Project_Funding_April_2013.pdf</a>)</p>	<p>a sustainable solution. By promoting agriculture as the sole income generating activity, there will be a constant pressure on water resources, despite the proposed interventions. Promoting alternative livelihoods, in addition to soil and water engineering efforts, may reduce pressure on water, in times of increased temperature and reduced rainfalls. For instance, the pilot activities with youth and women could be a good opportunity to test alternative sources of incomes that are not dependant on water resources, i.e. craft, tourism, etc.</p> <p>Also, the promotion of varieties of date palms that are resistant to "Bayoud" virus does not appear in the project activities under component 2. Under activity 2.2.2, examples of species to be used for the biological control of siltation should be provided.</p> <p><b>CR2:</b> Addressed.</p> <p><b>CR3:</b> Partially addressed. More information is needed on the target areas, beneficiaries for activities under component 2, which budget amounts to almost 85% of the total budget. Furthermore, the link of subcomponent 2.3 (youth and women) with climate change is not demonstrated.</p>
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	<p>3. Does the project / programme provide economic, social and environmental benefits, particularly to vulnerable communities, including gender considerations?</p>	<p>Information not provided. <b>CR4:</b> Activities for children are planned through this project. Please provide information on the national laws related to child labour and explain how the project will comply with those and other international laws on child labour.</p>	<p><b>CR4:</b> Addressed. Youth (young adults) and women are targeted. Additional information on economic and social benefits is available under section on “cost effectiveness”. However, the estimated size of targeted people, including gender consideration and vulnerable groups should be provided. Who will benefit from the infrastructures provided by the project? How are farmers organized in the target areas? What is the size of their individual lands? Under which threshold of land size and assets farmers should be considered as vulnerable?</p>
	<p>4. Is the project / programme cost effective?</p>	<p>Information not provided. This includes providing an analysis of why the water infrastructures the project aims at restoring and their modes of management have been abandoned.</p>	<p>Partially addressed. Furthermore, many activities described under this section do not appear in the project activities description and are more related to “business as usual” agriculture project activities aiming at improving the value chain of the date product.</p>

	<p>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?</p>	<p>Information not provided. This includes information on how this project is anchored in the national framework of all efforts undertaken by Morocco on agriculture and on climate change issues.</p>	<p>Addressed.</p>
	<p>6. Does the project / programme meet the relevant national technical standards, where applicable?</p>	<p>Information not provided.</p>	<p>Not addressed. Existing technical standards for the building of dams, irrigation systems, or ground water use, should be provided. Any work that could trigger an EIA should be outlined, and the national laws on EIAs specified. Land tenure issues, if any, should be ruled out and the corresponding laws outlined.</p>

	<p>7. Is there duplication of project / programme with other funding sources?</p>	<p>Information on lack of duplication with other initiatives is not provided. However, please be informed that:</p> <ul style="list-style-type: none"><li>- FAO, as GEF Agency, works with the ANDZOA on a Medium Size Project entitled “Conservation of Biodiversity and Mitigation of Land Degradation Through Adaptive Management of Agricultural Heritage Systems”. This project focuses on the oases and the argan areas. Thanks to coordinate with it.</li><li>- UNDP, as GEF Agency, works with the Development of Renewable Energy and Energy Efficiency (ADEREE) on a GEF5 FSP entitled “Promoting the development of photovoltaic pumping systems for irrigation”, potentially interesting for oases.</li><li>- The government of Morocco works with UNDP and the World Bank on two GEF programmatic approaches with potential linkages to this current proposal: MENARID with UNDP and the project entitled “A Circular Economy Approach to Agrobiodiversity Conservation in the Souss-Massa Drâa Region of Morocco”; MENA-DELP, with the World Bank.</li></ul> <p>Finally, please, note that activities under the pillar 2 of Plan Maroc Vert are already financed by the GEF (see the PICCPMV and the ASIMA projects). It is recommended to well align this AF concept with such nationally approved projects.</p> <p><b>CR5</b></p>	<p><b>CR5:</b> Not clear. Detailed information on ongoing agriculture/oasis – related initiatives is not provided. Complementary adaptation projects in the country are not described either.</p>
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	8. Does the project / programme have a learning and knowledge management component to capture and feedback lessons?	No.	This component, which is mandatory, is not included in the project. Activities described in this section are not found in the description of the project's activities and components.
	9. Has a consultative process taken place, and has it involved all key stakeholders, and vulnerable groups, including gender considerations?	Information not provided. A consultative process is essential to allow for, among other things, 1) clarify the demand and the role of local communities and 2) improve the scientific information hold by various data providers (INRA, ONCA, Centre Pillar II, Provincial Directorates for Agriculture, Regional Offices, ANDZOA, etc.)	It is not clear which stakeholders have been consulted. A list should be provided. Were all the "identified" stakeholders consulted?
	10. Is the requested financing justified on the basis of full cost of adaptation reasoning?	Information not provided. The proponent needs to justify that the proposed activities are not "business-as-usual".	The "business as usual" or baseline is not provided, to demonstrate the value added of the project and its adaptation reasoning. The proponent should elaborate on how this project will be "complementary to previous or current agricultural actions already undertaken by the Moroccan government in the oases and" describe those actions.
	11. Is the project / program aligned with AF's results framework?	Information not provided.	Yes.
	12. Has the sustainability of the project/programme outcomes been taken into account when designing the project?	Information not provided.	Yes. However, this will need to be more elaborated at full proposal stage.
Resource Availability	1. Is the requested project / programme funding within the cap of the country?	Yes. However, the requested funding of 10 million USD, which is equivalent to the cap, does not give the possibility for a Project Formulation	<b>CR6:</b> Not clarified. Therefore the secretariat will assume that a PFG is not requested,

		<p>Grant to be requested. <b>CR6:</b> Please clarify if a Project Formulation Grant (PFG) of up to 30,000 dollars US will be requested to support the development of the full proposal. If yes, please provide a request for a PFG using the template available in the Adaptation Fund website (<a href="http://www.adaptation-fund.org/page/request-project-formulation-grant-pfg">www.adaptation-fund.org/page/request-project-formulation-grant-pfg</a>)</p>	<p>although the proposal refers to a “previous project” in page 24:          “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..”</p>
	<p>2. Is the Implementing Entity Management Fee at or below 8.5 per cent of the total project/programme budget before the fee?</p>	<p>N/A. No implementing entity fee has been requested. <b>CR7:</b> Please clarify if any implementing entity fee will be requested.</p>	<p><b>CR7:</b> Still not clear. It seems management fees are not requested.</p>
	<p>3. Are the Project/Programme Execution Costs at or below 9.5 per cent of the total project/programme budget (including the fee)?</p>	<p>Not clear. “Operational expenses” have been budgeted, for 300,000 USD, which, if they correspond to the execution costs, would be below 9.5 per cent of the total budget. <b>CR8:</b> Please confirm that the “operational expenses” correspond to the execution costs.</p>	<p><b>CR8:</b> Not clear. It seems execution costs are referred to as “operating charges” and set at 850,000 USD or 8.5% of the total budget.</p>
<p>Eligibility of NIE/MIE</p>	<p>4. Is the project/programme submitted through an eligible NIE/MIE that has been accredited by the Board?</p>	<p>Yes. ADA is an accredited NIE.</p>	

Implementation Arrangement	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. Is a budget on the Implementing Entity Management Fee use included?	n/a (Not required at Project Concept stage).	
	4. Is an explanation and a breakdown of the execution costs included?	n/a (Not required at Project Concept stage).	
	5. Is a detailed budget including budget notes included?	n/a (Not required at Project Concept stage).	
	6. Are arrangements for monitoring and evaluation clearly defined, including budgeted M&E plans ?	n/a (Not required at Project Concept stage).	
	7. 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).	
	8. 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 and sex-disaggregated data, targets and indicators?	n/a (Not required at Project Concept stage). <i>Please note that as of the 14<sup>th</sup> 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>	

	<p>9. Is a disbursement schedule with time-bound milestones included?</p>	<p>n/a (Not required at Project Concept stage).</p>	
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<p>Technical Summary</p>	<p>The project seeks to reverse the current trend of degradation of oases ecosystems in Morocco – which is worsened by observed climate change – through maintaining oasis ecosystem and agro-system productivity, thus contributing to the fight against poverty of local populations. 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.</p> <p>The initial review found that the document submitted by the proponent did not provide enough information to make a sound assessment of the project relevance and adaptation reasoning and benefits. Therefore, a substantial redrafting of the concept proposal was requested, in order to undertake a technical review of the document.</p> <p>The revised document had considerably improved and all the relevant sections completed. However there remain a few issues that need to be addressed before the concept could be recommended for endorsement. Given the current excessive use of water and expected changes in climate, alternative solutions to intensive irrigation systems could be envisaged. It is not clear if the proposed interventions to increase water storage capacity and the efficiency of irrigation systems, as well as raise awareness on irrational use of water by communities, would be a sustainable solution. By promoting agriculture as the sole income generating activity, there will be a constant pressure on water resources, despite the proposed interventions. Promoting alternative livelihoods, in addition to soil and water engineering efforts, may reduce pressure on water, in times of increased temperature and reduced rainfalls. For instance, the pilot activities with youth and women could be a good opportunity to test alternative sources of incomes that are not dependant on water resources, i.e. craft, tourism, etc.</p> <p>Moreover, the baseline activities relevant to the sector of agriculture in the oases area are not provided, neither were the initiatives with potential synergies or complementarity with this project, such as:</p> <ul style="list-style-type: none"> <li>- FAO, as GEF Agency, works with the ANDZOA on a Medium Size Project entitled “Conservation of Biodiversity and Mitigation of Land Degradation Through Adaptive Management of Agricultural Heritage Systems”. This project focuses on the oases and the argan areas.</li> <li>- UNDP, as GEF Agency, works with the Development of Renewable Energy and Energy Efficiency (ADEREE) on a GEF5 FSP entitled “Promoting the development of photovoltaic pumping systems for irrigation”,</li> <li>- The government of Morocco works with UNDP and the World Bank on two GEF programmatic approaches with potential linkages to this current proposal: MENARID with UNDP and the project entitled “A Circular Economy Approach to Agrobiodiversity Conservation in the Souss-Massa Drâa Region of Morocco”; MENA-DELP, with</li> </ul>
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the World Bank.

- Activities under the pillar 2 of Plan Maroc Vert financed by the GEF (see the PICCPMV and the ASIMA projects).

The proponent should reformulate the proposal taking into account the following observations:

- Given the strong pressure on water resources induced by agriculture, which will be exacerbated by increase in population and climate change in the future, promoting through this project alternative livelihoods, in addition to soil and water engineering efforts, may be a more sustainable solution for Moroccan oases. The pilot activities with youth and women which, as currently explained, are not clearly linked to adaptation to climate change could be a good opportunity to test alternative sources of incomes that are not dependant on water resources, i.e. craft, tourism, etc.
- The promotion of varieties of date palms that are resistant to “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.
- The cost effectiveness of the project should be demonstrated more clearly. For instance, more information is needed on the target areas and number of beneficiaries, including gender consideration and vulnerable groups, for activities under component 2. More specifically, information on who will benefit from the infrastructures provided by the project, the current level of organization of farmers in the target areas, the size of their individual lands, and the targeted threshold of land size and assets for farmers to be considered as vulnerable, should be provided.
- Existing technical standards for the building of dams, irrigation systems, or ground water use, should be provided. Any work that could trigger an EIA should be outlined, and the national laws on EIAs specified.
- Detailed information on ongoing agriculture/oasis – related initiatives should be provided. Complementary adaptation projects in the country should also be described. In the same line, the “business as usual” or baseline activities should be provided, to demonstrate the value added of the project and its adaptation reasoning. The proponent should elaborate on how this project will be “complementary to previous or current agricultural actions already undertaken by the Moroccan government in the oases” and describe those actions.
- 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.
- It is not clear which stakeholders have been consulted. A list should be provided. Furthermore, existing local NGOs and CSOs, as well as communities should be consulted, to increase coordination of actions on the

	<p>ground and ensure sustainability.</p> <ul style="list-style-type: none"><li>• Finally, the proponent should clarify which of the implementing entity fees or the execution costs are requested under “operating charges”.</li></ul>
Date:	30 September 2013



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



September 25<sup>th</sup>, 2013

# ADAPTATION TO CLIMATE CHANGE

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Project of Adaptation to Climate Change- Oases Areas

## PROJECT/PROGRAM PROPOSAL



### PART I: PROJECT/PROGRAMME INFORMATION

- **Project/program, category** : Regular
- **Country**: Morocco
- **Secteur** : Agriculture - Cross-cutting programmes,
- **Title of project** : Project of Adaptation to Climate Change– Oases Zones- PACC-ZO
- **Accredited National Implementation Entity**: Agricultural Development Agency
- **Implementing entity**: National Agency of Development of Oases zones and Argan Trees (ANDZOA)
- **Project's Owner** : National Agency of Development of Oases zones and Argan Trees (ANDZOA) / Ministry of Agriculture and Maritime Fisheries **MAPM**
- **Global Budget** : 10 000 000 USD



### 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, leading 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, ...).

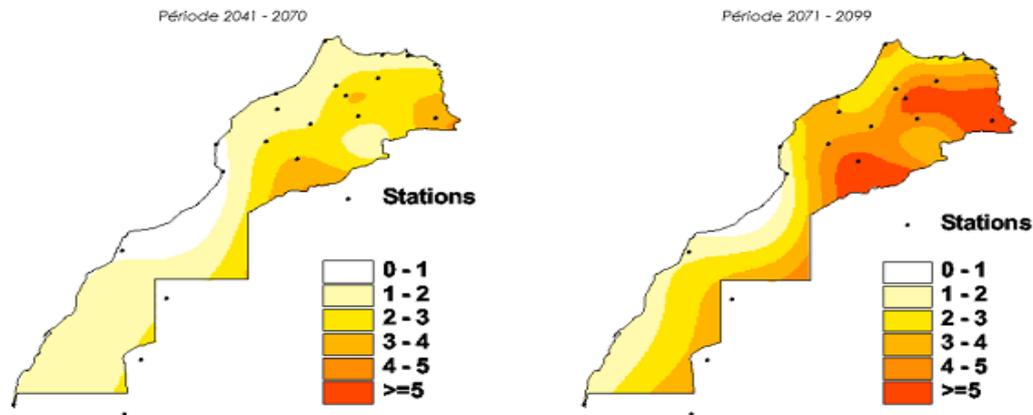
Analysis of climate Data from Morocco during the past quarter century reveals a high variability of climate in the country, with warming trends and rainfall deficit. Overall, the air temperature in Morocco during all seasons has increased by an average of 0.6 to 1.4 ° C depending on each region, over 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.)

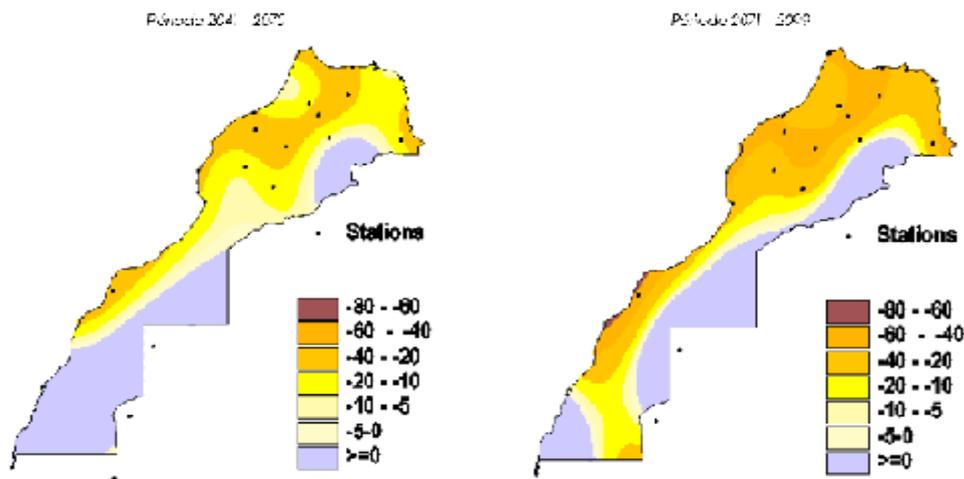
Climate projections provide throughout the twenty-first century a worsening situation, as shown in the following temperature and precipitation maps that are compared to the period 1961-1990.

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



Source :

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



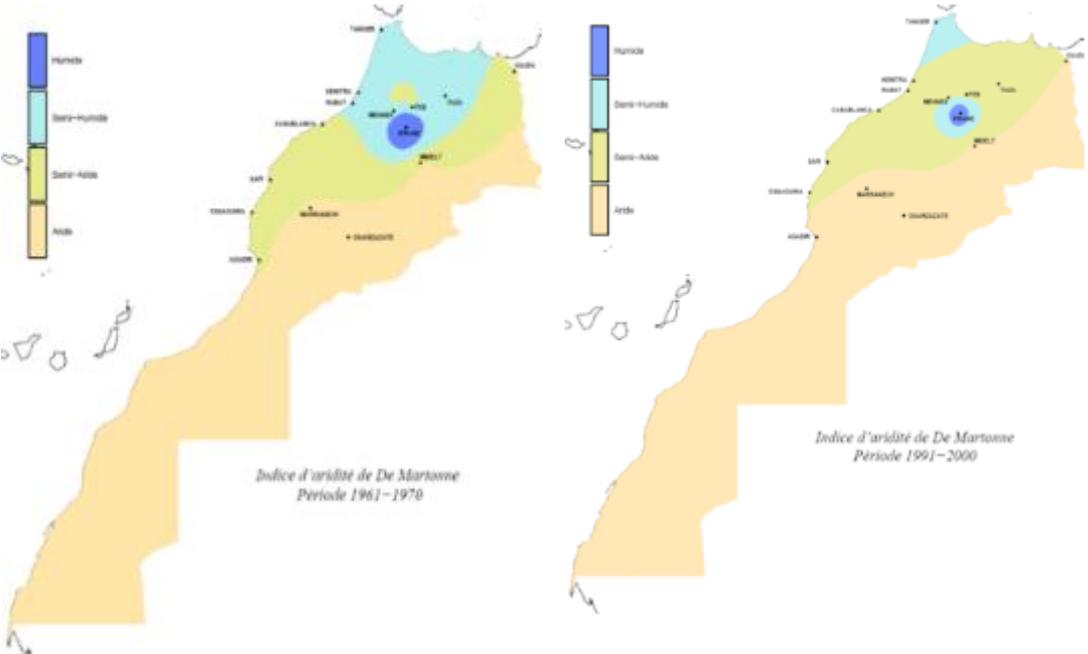
Source : [http://www.minenv.gov.ma/PDFs/CLIMAT/changements\\_climatiques.pdf](http://www.minenv.gov.ma/PDFs/CLIMAT/changements_climatiques.pdf)

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 (Ksours, 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 km and an average flow of 25 m<sup>3</sup> / 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 m<sup>3</sup> 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 km<sup>2</sup> (15% of the national area), with a density of 15 inhabitants per km<sup>2</sup>. 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 Khetaras 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 project will help reduce climate change and human vulnerability of oasis agro ecosystems in Morocco, on one hand by increasing the adaptive capacity of local institutions and actors, and on the other hand by implementing prior adaptation measures to climate change for Moroccan oases areas.

The project Adaptation to Climate change focuses on the two following components:

- Component 1: Capacity Building

The project will support a 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 a participatory adaptation measures allowing them to generate environmental and socio-economic benefits.

- Component 2: Implementation of adaptation measures based on a model of management actions integration, rationalization of water resources and soil conservation.

Rationalization is justified on two levels: 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. ii ) Improving the rate of water storage both on surface and underground, through development and full rehabilitation of irrigation schemes .

The optimization is illustrated by 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.

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.

## ■ PROJECT / PROGRAMME COMPONENTS AND FINANCING:

The project estimated cost of selected components, requested to adaptation fund to climate change (AF) is about 10 million U.S. dollars.

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

<b>Component 1 : Capacity building of different actors</b>		
<b>Sous composante</b>	<b>Outcomes</b>	<b>Outputs</b>
	1.1. Communication on Climate Change	1.1.1 Workshops and information sessions for local stakeholders (institutional, Associations of Agricultural water users, professional organizations of first and second order etc...)
		1.1.2. Training course for actors
	1.2. Strengthening and Support	1.2.1. Acquisition of support systems for actors
<b>Total component</b>		<b>423 400 USD</b>
<b>Component 2 : Rehabilitation of traditional network of irrigation water storage :</b>		
<b>Sous composante</b>	<b>Outcomes</b>	<b>Outputs</b>
2.1. Education and support	Collection of data on field	2.1. Realization of Technical conceptual studies and technical assistance for implementation
2.2 Implementation of adaptation measures to Climate Change in irrigated Oases areas.	2.2.1. Realization of rehabilitation perimeters and irrigation networks to improve efficiency and water gathering, and also strengthen the artificial recharge of groundwater tables.	2.2.1.1 Rehabilitation of khetaras: Khetaras Galleries – Drilling programs
		2.2.1.2 Rehabilitation of irrigation canals and related art structures.
		2.2.1.3 Realization of underground infrastructure: Infiltration Structures - Small and medium surface dams
		2.2.1.4. Rehabilitation of flood waters spreading perimeters. Thresholds – irrigation and water supply network
	2.2.2. Preservation of agricultural lands against erosion	2.2.2.1 Mapping of areas to be developed
		2.2.2.2 Implementing work to combat silting
2.3. Involvement of gender and young people in the adaption to climate change process.	2.3.1. Undertaking concrete actions for the benefit of young agricultures.	2.3.1.1. Implementation of pilot project for young people around the promising sectors in the region.
	2.3.2. Commitment to action for the benefit of women.	2.3.2.1. Implementation of pilot projects for women.
		2.3..2.2. project support for other existing projects in the regions
<b>Total component 2</b>		<b>8 726 600 USD</b>
<b>Component 3 : Operating charges</b>		
-	<b>Outcomes</b>	<b>Outputs</b>
	Coordination, Monitoring and Evaluation Equipment, Operation.	
	<b>Total</b>	<b>850 000 USD</b>
<b>Total amount</b>	<b>10 000 000 USD</b>	

## ■ PROJECTED CALENDAR:

MILESTONES	EXPECTED DATES
Start of project/Programme implementation	January 2014
Mid-term Review	1st quarter of 2016
Project/programme Closing	2017
Terminal evaluation	6 months after the achievement of the project

## ■ 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: 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. 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 10 years, 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 rational growing way of palm groves and the introduction of new varieties resistant to disease can remedy this problem.
- 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.

Important to know that dozen of south morocco oases have already lost 40% of their cropping lands.

- 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.

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

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 four complementary results defined as follows:

**Outcome 1.1: farmers, local organizations are informed and internally better organized**

(around 40 000 farms)

**Activity 1.1.1: Training and awareness of the stakeholders**

It is communication and training of 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 course for the actors

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.

### **Outcome 2.1: The traditional oasis irrigation system is rehabilitated on 3500 ha**

#### **Activity 2.1.1: Development of thematic studies and mobilization of technical assistance for monitoring the implementation**

The sub-component "Studies and Support" 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 dam. It is also detailed design studies and commitment to technical assistance for implementation.

#### **Activity 2.1.2: Implementation of rehabilitation perimeters and access networks to irrigation water**

The sub-component on the implementation of "adaptation to Climate Change in irrigation Oasis" is the realization of the rehabilitation and conservation of agricultural land against wind erosion and targets:

- Waterproofing supply parts to improve transport efficiency ;
- Extension works whenever the opportunities are available ;
- spreading flood waters to improve conditions for groundwater recharge and allow the continuity of the irrigation infrastructure ;
- Reduction of the natural drainage of the water ;
- Protection perimeters of silting.

An estimated 8 726 600 USD to execute a set of activities such as:

- The implementation of rehabilitation perimeters and access networks of irrigation water by focusing on the following areas:
  - o 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;
- Conducting underground structures for artificial enhancement of groundwater recharge through infiltration thresholds and small and medium-sized dams.
- Rehabilitation perimeters spreading flood waters, thresholds diversion and irrigation network.

## **Outcome 2.2: perimeters are protected from erosion**

### **Activity 2.2.1 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 2.2.2: 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, biological control has the advantage of requiring much less maintenance than the fight mechanics.

## **Outcome 3.1: Youth and women will be involved in the project**

### **Activity 3.1.1: Implementation of a pilot project for women and young**

The sub-component «Gender and youth integration" in the process of adaptation to climate change with an estimated envelope of 484 200 USD, aims to promote women and their participation in the development process leading them to become real actors in the development of their territory. This sub-component concerns the implementation of a pilot project for women that will affect all links in the value chain of date or other income generating activities including the scope and nature of participation will be finalized during the development work especially the establishment phase of pre-launch project.

### **Activity 3.1.1: 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 reduce child labor and 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.

**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 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 training and supervision aspects will play an important role in the project that facilitate the participation of local communities, putting at their disposal the knowledge and expertise available in Morocco and elsewhere. This action aims to transfer skills knowledge about climate risk management at the local level, ensuring that local actors develop an understanding of adaptation options.

The gradual disappearance of favorable farming oases conditions led to gradual decline of populations' income, and poverty which became very problematic for most oases societies.

Hence the main component of the project "rehabilitation of traditional irrigation systems" holds the most important funding part which mainly focuses on the augmentation of water availability for production, consumption and stabilization of access to water resources.

The attention to small farmers in highly vulnerable land to climate change, and the improving of their production systems will contribute to increase their productivity and stabilize their incomes and capital.

The project will also focus on social integration and social cohesion, by promoting around ten pilot projects for young people and women.

The project also provides protection against siltation of threatened irrigation perimeters, and thus, limits desert encroachment and preserves the farming land and irrigation works.

Impacts of the project can be summarized as follows:

- Preservation of natural resources
- Improving the efficiency of water use by more than 40%
- Improvement of water storage
- Minimizing the effects of climate change
- Improving the living conditions of the people in the region

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

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

- An economic internal rate of return (EIRR) of 12%
- The project would bring in an additional average net income of 1.210 USD per farm
- A social cohesion proven and reverse trend rural exodus average qualified
- The Benefits Report / average cost of all components is B / C = 1.3

Meanwhile this project will benefit from additional positive impacts of a program to be launched in 2014 with the support of a donor and which concerns downstream of the palm tree industry; particularly, marketing support.

Therefore, the support for beneficiaries in order to promote production, market exploration and identification of marketing channels is a great asset for the sustainability of the project.

Regarding the marketing support, it is necessary to emphasize that assisting beneficiaries to promote the production, doing a market exploration and identification of marketing channels is a great asset for the sustainability of the project.

Efforts have to be deployed for the product labeling, the application of standards of varieties of Moroccan dates and introduction to markets. For the palm tree sector, the operating services of Agriculture Department, with the support of the ANDZOA, provide all necessary professional organizations using: Interest Economic Groups "IEG" to help farmers market their products and get added values. Assistance with the support of donors is being finalized and will be led by ANDZOA through implementation of social aggregation projects for underprivileged actors. This assistance will be around rehabilitation and renewal of palm trees, along with strengthening measures to intensify and value the sector.

Thus, the services required is mainly about agricultural production, including palm tree dates, with some attention to its upstream for better productivity quality products. The project will focus on gender equity including young adults to bring their interest and integrate them into the value chain 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 conditions.

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

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%.

**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.

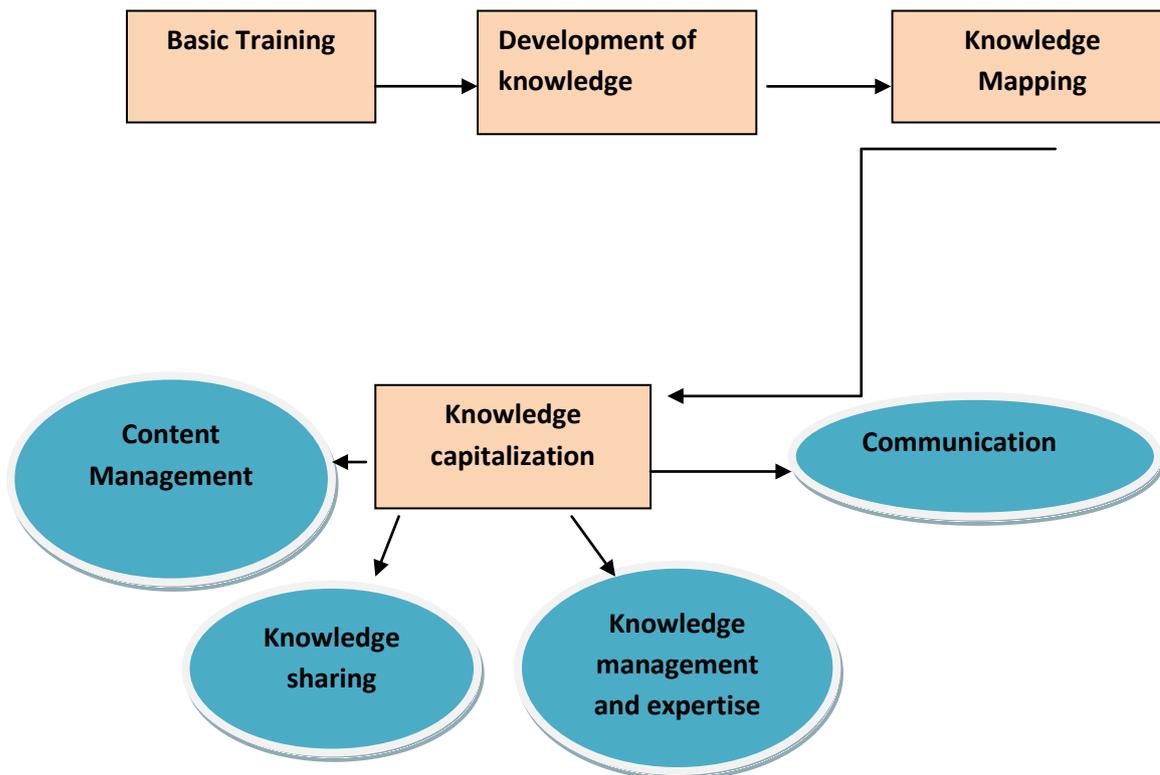
More specifically, the implementation of this project will also be closely linked to development Oases programs (PNUD POS-POT), including provision of tools to ensure the sustainability of their activities on climate change. These two programs, running in two villages in the oasis area, are tools for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

**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. 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;
- 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 including climate change;
- Promote reflections on environmental issues in the forums, workshops, regional and international conferences.

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**

This commitment is reflected in a conscious and effective participation of populations' beneficiaries 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. For this, he 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 can 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.

Participatory approach is still a key project success. Thus, the project will use a range of methods used mainly by the development agents, focusing especially women, and provides an opportunity for each of the local actors to get involved in the development process so that they can own the project and become an actor and full partner of it.

**Moreover, 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 to mitigate constraints and develop their potential was given. In the same meaning, this collaborative approach has:

- Identify major development axes that were retained;
- 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.

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.

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

Considering the difficult climate conditions, the project will provide interventions with concrete adaptation measures to prevent oases degradation. This deterioration has in recent years taken alarming proportions and therefore leading to underscored population dynamics, employment and lack of revenues. To alleviate all the impact of climate change described in Part II of the project and in prospect of facing the climate challenge through a large scope of activities such as: “ capacity building, education, workshops and information sessions for local stakeholders, realization of technical conceptual studies and technical assistance for implementation, rehabilitation of Khettaras’ Galleries, drilling programs, rehabilitation of irrigation canals and related art structures, realization of underground infrastructure and Infiltration structures, small and medium surface dams, rehabilitation of flood waters in spreading perimeters, providing water supply network, preserving agricultural lands against erosion through mapping of areas to be developed, implementing work to combat silting, implementing pilot projects for women young people around promising sectors in the region, etc.”. All these activities would help slowing down the on-going deterioration trends in the region. The fund will also allow people in the region to save, maintain and promote agricultural activities. The funding requested is complementary to previous actions already programmed and undertaken by the Moroccan government, in a sense that it would help in making these actions concrete with full cost of adaptation, giving people a unique opportunity to direct and adopt significant adaptation measures.

**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.



### **PART III: 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.

#### **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.

**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.

#### **PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY**

An approval letter was sent by the Department of Environment of the Ministry of Energy, Mines, Water and Environment dated 30 August 2013.

## **ANNEXS**

## **ANNEX 1: 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 Directorat of Agriculture

GIE : Economical Interest Group

GIEC : Intergouvernemental panel on climate change

INDH : National Initiative of human development MAPM : Ministry of Agriculture and maritime fisheries

ONCA : National Agricultural Counseling Office

ORMVA : Regional Office of Agricultural Development

PMV : Moroccan Green Plan

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

		Short term (5 years)	Medium term (6 to 10 years)	
Khetaras subjects of the study		144 khetaras as priority ( $Q \geq 2$ 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"> <li>- Experimentation plants of profitable products and gardening</li> <li>- Implementation of demonstrative perimeters of water-saving irrigation for areas subject to rehabilitation mentioned above.</li> <li>- Continued subsidy system for irrigation saving existing water.</li> </ul>		
	Rate of education ( <b>vulgarization</b> )	<ul style="list-style-type: none"> <li>- Rate of education of irrigation water saving (drip irrigation): 10%</li> </ul>		
organizational strengthening	individual organism	<ul style="list-style-type: none"> <li>- Creating the "External Relations" within the groups entitled traditional water to serve as contact with the outside.</li> <li>- Acquisition of administrative skills needed for the new system of organization</li> <li>- Increase the capacity of projects for the new system of organization</li> </ul>		
	Cooperation agencies	---	<ul style="list-style-type: none"> <li>- Establishment of the system of collaboration between farmers organizations</li> </ul>	
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: the Location of boundaries in the area Ouarzazate**

