

# **Strengthening the resilience of ecosystems and populations in four regional hubs in Northern Mauritania**

## **ANNEX 6**

### **Environmental and Social Management Plan**



## Table of Contents

<b>1. EXECUTIVE SUMMARY .....</b>	<b>1</b>
<b>2. INTRODUCTION AND PROJECT BACKGROUND .....</b>	<b>2</b>
<b>2.1. INTRODUCTION .....</b>	<b>2</b>
<b>2.2. PROJECT BACKGROUND .....</b>	<b>3</b>
<b>2.3. PROJECT RATIONALE .....</b>	<b>4</b>
<b>2.4. PURPOSE OF THIS DOCUMENT .....</b>	<b>4</b>
<b>3. PROJECT CONTEXT .....</b>	<b>6</b>
<b>3.1. MAURITANIA'S VULNERABILITY TO CLIMATE CHANGE.....</b>	<b>6</b>
<b>3.2. THE PROJECT STUDY AREA .....</b>	<b>6</b>
<b>3.3. SECTORAL BASELINE ANALYSES .....</b>	<b>10</b>
<b>4. THE PROJECT.....</b>	<b>18</b>
<b>4.1. THE PROPOSED PROJECT.....</b>	<b>18</b>
<b>4.2. PROJECT INTERVENTION STRATEGY .....</b>	<b>18</b>
<b>4.3. ANTICIPATED PROJECT BENEFITS .....</b>	<b>28</b>
<b>5. LEGAL, INSTITUTIONAL AND POLICY FRAMEWORKS .....</b>	<b>30</b>
<b>5.1. NATIONAL LEGAL FRAMEWORK .....</b>	<b>30</b>
<b>5.2. NATIONAL INSTITUTIONAL &amp; POLICY FRAMEWORK.....</b>	<b>30</b>
<b>5.3. UNEP SAFEGUARDS AND GENDER POLICIES.....</b>	<b>41</b>
<b>5.4. GREEN CLIMATE FUND SAFEGUARDS, GENDER AND INDIGENOUS PEOPLES POLICIES .....</b>	<b>41</b>
<b>5.5. OTHER CONSIDERATIONS .....</b>	<b>42</b>
<b>6. PROJECT E&amp;S RISK CONSIDERATIONS.....</b>	<b>43</b>
<b>6.2. POTENTIAL E&amp;S RISKS OR IMPACTS AT THE PROJECT ACTIVITY LEVEL .....</b>	<b>44</b>
<b>7. E&amp;S RISK ASSESSMENT &amp; MANAGEMENT AT THE PROJECT ACTIVITY LEVEL.....</b>	<b>55</b>
<b>7.1. RISK IDENTIFICATION, SCREENING &amp; ASSESSMENT APPROACH .....</b>	<b>55</b>
<b>7.2. RISK ASSESSMENT.....</b>	<b>56</b>
<b>7.3. SAFE WORK INSTRUCTIONS / METHOD STATEMENTS.....</b>	<b>56</b>
<b>7.4. LEGAL COMPLIANCE OBLIGATIONS.....</b>	<b>57</b>
<b>7.5. ROLES, RESPONSIBILITIES, COMPETENCIES AND RESOURCES .....</b>	<b>57</b>
<b>7.6. STAKEHOLDER ENGAGEMENT.....</b>	<b>58</b>
<b>7.7. EMERGENCY PREPAREDNESS &amp; RESPONSE .....</b>	<b>58</b>
<b>7.8. NONCONFORMITY, INCIDENT REPORTING &amp; CORRECTIVE ACTION .....</b>	<b>59</b>
<b>7.9. PERFORMANCE EVALUATION &amp; REPORTING .....</b>	<b>60</b>
<b>7.10. IDENTIFICATION OF ESMP DEFICIENCIES &amp; OPPORTUNITIES FOR IMPROVEMENT .....</b>	<b>60</b>
<b>7.11. GENDER ACTION PLAN .....</b>	<b>60</b>
<b>7.12. INDIGENOUS PEOPLES PLAN.....</b>	<b>60</b>

7.13. PROJECT LABOUR AND COMMUNITY HEALTH & SAFETY PLAN .....	60
8. ESMP .....	62
9. ROLES, RESPONSIBILITIES AND CAPACITY BUILDING .....	78
9.1. ROLES AND RESPONSIBILITIES .....	78
9.2. OTHER PROJECT STAKEHOLDERS .....	80
9.3. CAPACITY BUILDING .....	80
10. STAKEHOLDER ENGAGEMENT .....	82
10.1. GUIDING PRINCIPLES .....	82
10.2. COMMUNE-LEVEL STAKEHOLDER ENGAGEMENT .....	82
10.3. INSTITUTIONAL LEVEL STAKEHOLDER ENGAGEMENT .....	83
10.4. INFORMATION DISCLOSURE .....	83
11. GRIEVANCE REDRESS MECHANISM .....	83
11.1. OVERVIEW .....	83
11.2. PROJECT INTERNAL & EXTERNAL GRIEVANCE MECHANISMS .....	84
11.3. SEAH AND GBV RELATED GRIEVANCES .....	85
11.4. GCF INDEPENDENT REDRESS MECHANISM .....	87
12. MONITORING AND EVALUATION .....	87
12.1. OVERVIEW .....	87
12.2. PROJECT IMPLEMENTATION M&E .....	88
12.3. ESMP M&E RESPONSIBILITIES .....	88
12.4. KEY PERFORMANCE AREAS & INDICATORS .....	89
12.5. REPORTING .....	91
12.6. PERFORMANCE EVALUATION & CORRECTIVE ACTION .....	92
13. ESMP IMPLEMENTATION BUDGET .....	93
REFERENCES .....	94
APPENDIX 1: PROJECT SUB-ACTIVITY E&S RISK SCREENING CHECKLIST .....	95
APPENDIX 2: SAFE WORK INSTRUCTION / METHOD STATEMENT CONTENT .....	97
APPENDIX 3: GRM TEMPLATES .....	99
APPENDIX 3: PROJECT LOGICAL FRAMEWORK .....	104
APPENDIX 5: UNEP RISK SCREENING (SRIF) .....	112
• ANNEX P: ENVIRONMENTAL, SOCIAL AND ECONOMIC REVIEW NOTE (ESERN) .....	112
APPENDIX 6: HUB LEVEL BASELINES CHARACTERISTICS .....	128
Hub 2: Tamcheket .....	132

## List of Acronyms

<b>AE</b>	Accredited Entity
<b>CBOS</b>	Community Based Organisations
<b>CTC</b>	Commune-level Coordination Committee
<b>CSOS</b>	Civil Society Organisations
<b>E&amp;S</b>	Environmental and Social
<b>EE</b>	Executing Entity
<b>EbA</b>	Ecosystem-Based Adaptation
<b>ESMP</b>	Environmental and Social Management Plan
<b>ETP</b>	Evapotranspiration
<b>GCF</b>	Green Climate Fund
<b>GOM</b>	Government of Mauritania
<b>GRM</b>	Grievance Redress Mechanism
<b>H&amp;S</b>	Health and Safety
<b>ILO</b>	International Labour Organisation
<b>IRM</b>	Independent Redress Mechanism (GCF)
<b>IUCN</b>	International Union for Conservation of Nature
<b>KPA</b>	Key Performance Area
<b>KPI</b>	Key Performance Indicator
<b>M&amp;E</b>	Monitoring and Evaluation
<b>MASEF</b>	Ministry of Social Affairs, Childhood, and Family
<b>MEDD</b>	Ministry of Environment and Sustainable Development
<b>MHA</b>	Ministry of Water and Sanitation
<b>NGO</b>	Non-Governmental Organisation
<b>O&amp;M</b>	Operations and Maintenance
<b>NAPA</b>	National Adaptation Programme for Action
<b>PAM</b>	Priority Adaptation Measure
<b>PES</b>	Payment For Ecosystem Services
<b>PMU</b>	Project Management Unit
<b>PO</b>	Programme Officer
<b>PPE</b>	Personal Protective Equipment
<b>PSC</b>	Project Steering Committee
<b>SGF</b>	Small Grants Facility

**UNEP** United Nations Environment Programme

**UNFCCC** United Nations Framework Convention on Climate Change

**VA** Vulnerability Assessment

**VCA** Value-Chain Assessment

**WUG** Water-User Group

## 1. EXECUTIVE SUMMARY

---

This Environmental and Social Management Plan (ESMP) focuses on climate change vulnerability in Mauritania, where fertile lands are threatened by desertification, due to erratic rainfall and increasing temperatures. The proposed project will strengthen the resilience of communities, ecosystems and agro-production systems across four regional hubs: Aoujeft, Rachid, Tamcheket and Néma. Proposed is the adoption of ecosystem-based adaptation (EbA) strategies in both urban and rural areas to mitigate climate impacts and improve ecosystem services.

The ESMP outlines potential environmental and social risks, alongside mitigation measures, adhering to national legal frameworks and United Nations Environment Programme (UNEP) safeguards. Aspects of this plan include waste management protocols, water resource protection measures and approaches to conserving biodiversity. The plan details stakeholder engagement processes that will ensure local communities are consulted throughout the project lifecycle. Additionally, described is a grievance redress mechanism, to be established to address concerns raised by affected parties.

A monitoring and evaluation framework will track the effectiveness of mitigation measures and enable adaptive management. The project integrates gender considerations to promote equitable participation and benefit sharing. It also ensures compliance with Green Climate Fund (GCF) environmental, social and gender policies. Following the GCF Indigenous Peoples Policy (2019) and a contextual assessment of nomadic pastoralist groups in Mauritania, no groups that meet the GCF definition of Indigenous Peoples are present in or have collective attachment to the project areas. Therefore, no Indigenous Peoples Planning Framework (IPPF) or Indigenous Peoples Plan (IPP) is required. Ultimately, this ESMP provides a strategy for responsible project execution, promoting climate resilience and safeguarding the environment and well-being of vulnerable Mauritanian communities.

## 2. INTRODUCTION AND PROJECT BACKGROUND

---

### *Introduction*

Mauritania is located in the Sahel zone and is one of Africa's most water-deficit countries, with only 0.5% of its total land surface area considered arable. An estimated 60% of its surface area is considered severely or very severely degraded, caused by a combination of natural and anthropogenic factors. The major environmental challenge the country is currently facing is the temporally and spatially erratic character of rainfall, frequently leading to general or local droughts since the late-1960's, resulting in increased human pressure on the natural resource base and the subsequent degradation thereof.

The country is facing severe climatic changes characterized by the decrease in, and poor distribution of, rainfall and the increase in temperature over the years. The expected increase in temperature and rainfall variability will also have a negative impact on natural resources, including water resources and water-dependent sectors such as agriculture, livestock and forestry, and therefore a negative impact on agro-pastoral production. The proposed project will attempt to address this, with the objective of strengthening the climate change resilience of populations, ecosystems and agro-production systems within the project study area.

Activities under the proposed project are intended to reduce the climate change impacts faced by rural and urban communities in the study area by implementing ecosystem-based adaptation (EbA) interventions. As per the international union for conservation of nature (IUCN) definition thereof, EbA is the use of biodiversity and ecosystem services as part of an overall adaptation strategy to help people to adapt to the adverse effects of climate change. EbA focuses on the benefits humans derive from biodiversity and ecosystem services, and how these benefits can be utilized in the face of climate change. This broad definition requires a narrower meaning of EbA in the context of the recommended project intervention approaches that are discussed in chapter 3 of this report<sup>1</sup>.

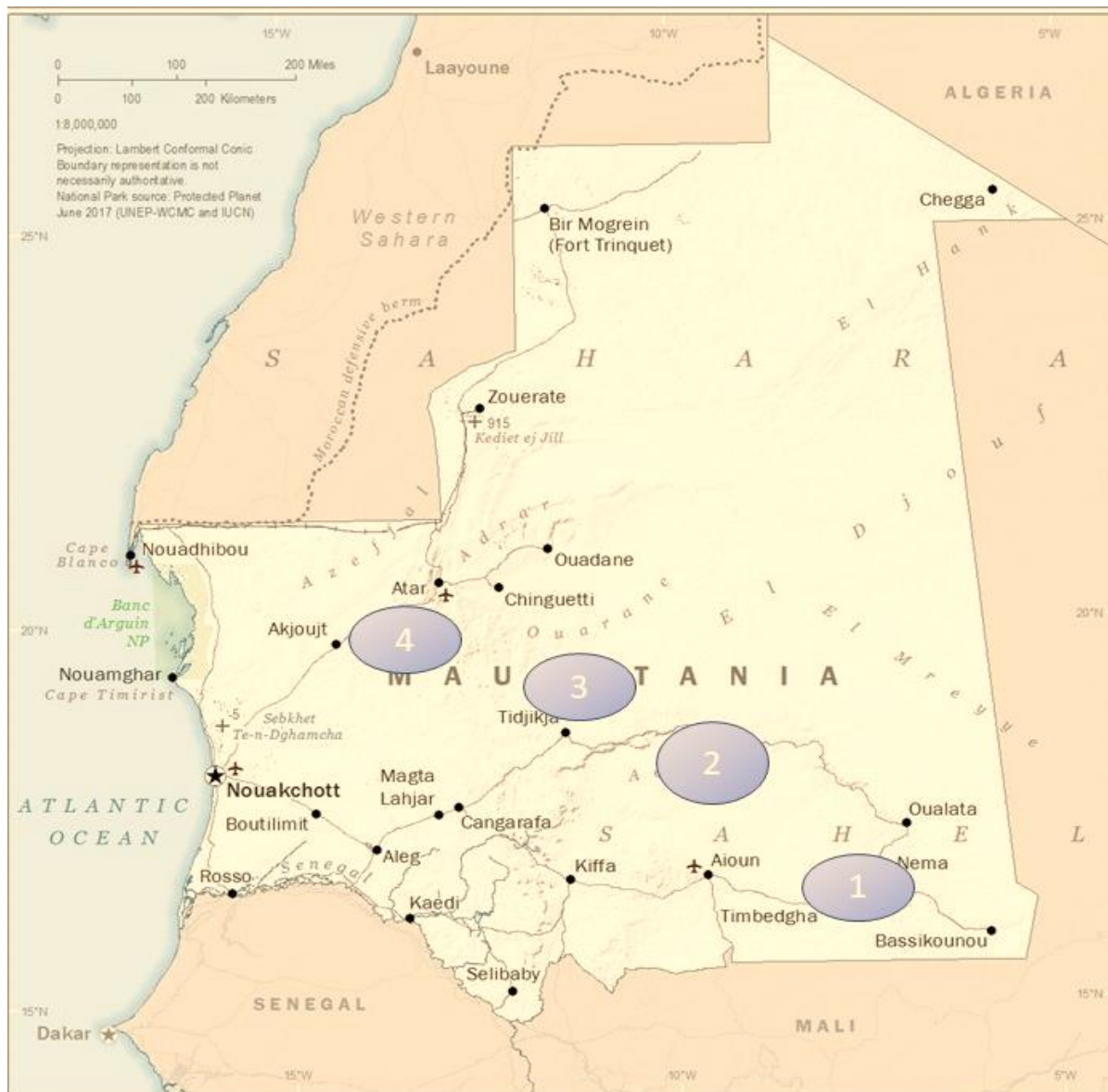
The project will rely on an integrated approach, thus ensuring interactions both within and between the natural ecosystem and the socio-economic system, bringing in investment opportunities that incentivize climate resilience initiatives (project concept note, 2019).

The project focuses on four (4) regional hubs (or poles as they are referred to locally) along the strip or band of the country where the desertification process is most severe. The project focuses on Aoujeft, in the province of Adrar; Rachid, in the province of Tagant; Tamcheket, in the province of Hodh El Gharbi; and Néma, in the province of Hodh El Chargui. These hubs are depicted in figure 1.1 below from east to west as follows:

- Hub 1 — around Nema, the project covers ten communes and an area of 80 km<sup>2</sup>, with an estimated population of 99,620 inhabitants in 2017.
- Hub 2 — around Tamcheket, the project covers five communes and an area of 85 km<sup>2</sup>, with an estimated population of 43,282 inhabitants in 2017.
- Hub 3 — around Rachid, the project covers three communes and an area of 80 km<sup>2</sup>, with an estimated population of 25,626 in 2017.
- Hub 4 — around Aoujeft the project covers six communes and an area of 80 km<sup>2</sup>, with an estimated population of 35,643 inhabitants in 2017.

---

<sup>1</sup> While EbA can include agriculture, since it involves ecosystem services such as water-provisioning, EbA in this context also refers to those interventions that enhance ecosystem goods and services on non-agricultural land.



**Figure 1.** Location of the four target hubs in Mauritania (source: Aria Technologies)

In each of these hubs, the project considers both urban and rural areas; however, focus is placed on the latter.

#### *Project background*

More frequent, long and severe droughts are contributing to an intense process of desertification, putting additional pressure on the extremely fragile oases of the Sahara and moving the desert conditions further south, threatening the country's very fragile and most fertile lands in the Sahelian region and the Senegal river. The overall rate of change in land use and land cover accelerated from 0.4% per year between 1975 and 2000 to 0.7% per year between 2000 and 2013. As a result, in 2013, less than 1% of the country was agricultural land, making Mauritania the least cultivated country of the 17 West African countries. Likewise, other 'bio productive' land cover types — including forest, gallery forest and swamp forest — comprise only small fractions of the total land area.

The project study area is located on generally fertile soils; however, the productivity of agricultural land is dependent on variable rainfall, with annual precipitation ranging between 150 mm and 400 mm across the region. The four target hubs are at the forefront of the current *desertification line*, a progressive process that is being exacerbated by climate change. Strategies promoting resilience to climate change



within these sites will contribute to the creation of a buffer zone for the rest of the country, impeding the current and progressive rate of desertification.

The overall results of the climate change risk assessments<sup>2</sup> produced for the project to date confirm that the four hubs located in the highly exposed area in Mauritania are facing similar challenges in each hub with some marginal differences due to local topography and cultural traditions. Most of those challenges are also faced by other Sahelian countries and include: i) economic vulnerability due to low economic diversification; ii) limited institutional capacity within governments because of low population; and iii) limited economies of scale, which results in high costs – even for government goods and services.

In this context, the government of Mauritania submitted a project concept note (2019) to obtain green climate fund (GCF) support and financing to address key adaptation issues.

### *Project rationale*

In the project study area, it is confirmed that there is a general deterioration of living conditions leading to a rural exodus of the population. Coupled with increased evaporation due to increased temperatures, observed decreased rainfall and more frequent and long droughts are reducing, and will further reduce, water availability for crops, trees and animals in the four hubs. The change in average climatic conditions associated with an increase in extreme climatic events will lead to further erosion of biodiversity in the four hubs, with a reduction in the resilience of ecosystems and people's livelihoods. Impacts on agriculture and livestock production (the main economic activities) lead to a decrease in productivity and therefore to a decrease of living conditions: changes in average climatic conditions lead to high variability in agricultural production on which a large part of the population depends. The shift in the rainy season will imply a decrease in water availability and a reduction in the growing season, which in turn leads to a decrease in productivity. Finally, these projected changes will further impact on the development or spread of diseases and pests, as well as the health impacts experienced by the population during heat wave periods.

In every hub, it is clear that water supply infrastructure (and in some localities in particular) are under pressure from heavy silting. This process of desertification has also reduced the resilience of degraded ecosystems and led to extensive impacts on biodiversity — Community consultations highlighted that many plant species have disappeared, and high temperature increase combined with a decrease in precipitation could result in the complete extinction of many species by 2050. As the lifestyles and livelihood practices of the population in these areas is closely linked to natural resources and rely on predictable access to these resources, safeguarding these communities will require an integrated programmatic approach that responds to the major risks and impacts as described above. This integrated approach focuses on several key outcomes including:

- Enhancing agriculture production in the context of climate change;
- Enhancing livestock production in the context of climate change;
- Promoting the protection and/or restoration of ecosystems;
- Enhancing water-provisioning infrastructure;
- Securing communities against flood events and severe inundation; and
- safeguard people's health against climate change impacts.

These integrated approaches are discussed further in Chapter 3.

### *Purpose Of This Document*

The Environmental and Social Management Plan is the instrument for managing identified Environmental and Social (E&S) risks during the project lifecycle by setting the principles, rules and guidelines for managing the E&S risks of related project activities. The ultimate outcome intended by the ESMP is to *avoid and minimize unintended and/or negative environmental and social outcomes that may result directly or from indirect, induced and cumulative effects of project activities, thereby enhancing the positive/sustainable outcomes from these activities*. It additionally provides information

---

<sup>2</sup> ARIA Technologies et al. Critical climate risks in the four regional hubs. 09/06/2022.

on how E&S issues should be evaluated in the project implementation process, including in decision-making, planning, implementation and performance monitoring processes. In summary, the ESMP aims to provide the project with guidance on:

- The institutional context and project implementation responsibilities at the local and national levels with a specific focus on responsibilities relevant to the implementation of the ESMP;
- The relevant applicable environmental legal/regulatory requirements, as well as the safeguard policies of the Accredited Entity (UNEP) and the Fund (GCF);
- The different E&S risks identified during the project development process and proposed methods to address these, with clear responsibilities and associated budgets in the form of an ESMP implementation plan;
- The procedures and methodologies for the E&S risk screening, mitigation planning and ongoing review of project-related activities;
- The range of planning actions and operational control measures which could reduce and mitigate the potential impacts to minimal or insignificant levels where these are not specifically listed in the implementation plan;
- Where any activity or intervention-specific plans or procedures will need to be further developed for specific project activities and where measures that will optimize beneficial impacts can be implemented;
- The training, capacity building and technical assistance that may be required to implement the provisions of the ESMP successfully;
- Where stakeholder engagement and other methods can be used to better enable targeted communities to participate in decision-making processes, whether they are adversely affected or benefit from the project activities;
- A general Grievance Redress Mechanism (GRM) with example templates, which can be customized for the local context to ensure appropriate avenues are available for affected people to voice a suggestion or raise a concern or complaint regarding project activities;
- How the project can prepare for, and respond to, unforeseen, abnormal and emergency events; and
- How the project's E&S performance can be monitored and evaluated.

This ESMP mainly focusses on the project activities detailed in Sections 3.4–3.6 of this document that will have varying degrees of E&S risk attached to them, despite these generally being of low overall significance if managed and mitigated appropriately.

Project execution and implementation risks are likely to be more significant than the potential E&S risk associated with physical intervention or construction activities. While managing implementation risks are not the primary consideration of this document, these risks are discussed in some detail in Chapters 5 and 6.

### 3. PROJECT CONTEXT

---

This chapter provides a summary of vulnerability to climate change in Mauritania, a brief description of the project area and an overview of the biophysical, environmental and socio-economic context in which the project will be implemented. A more detailed analysis of the study area is available in the respective studies listed in the reference section of this report.

#### *Mauritania's vulnerability to climate change*

More frequent and severe droughts in Mauritania are contributing to intensification of the desertification process, which has placed additional pressure on the extremely fragile oases of the Sahara. These climate change impacts have resulted in desert conditions moving further south, threatening the country's productive ecosystems and most fertile lands in the Sahelian region and the Senegal River Valley.

Drought poses a significant threat to local ecosystems, leading to the disappearance of vegetation cover. When combined with wind, it promotes desertification and ecosystem silting. The steppe and Sahelian short grass savannah, which are the most widespread natural vegetation cover types and crucial pasture grounds, have suffered extensive degradation. The steppe has transformed into large sandy areas, exemplifying the classic image of desertification where productive and stabilizing vegetation cover is lost, and the sandy substrate becomes mobile, resembling an encroaching desert. Sahelian short grass savannahs have been replaced primarily by steppe and, to a lesser extent, sandy areas.

These changes indicate a gradual aridification and a subsequent southward shift of the major vegetation cover types in southern Mauritania. Moreover, more frequent heatwaves often lead to bushfires that negatively impact the remaining vegetation cover.

Reduced rainfall and recurring droughts are resulting in a decline in overall water resources, making access to water increasingly challenging. Sand winds cause water points to silt up, while floods degrade their quality. Additionally, the decrease in water resources leads to salinisation, rendering the water unsuitable for consumption or irrigation. Heavy rains contribute to erosive phenomena and floods, further degrading ecosystems and soils.

Altered climatic conditions have caused variability in agricultural production, upon which a significant portion of the country's population depends. The shift in the rainy season reduces water availability and shortens the growing season, ultimately decreasing productivity. Climate change also facilitates the proliferation of diseases and pests that affect livestock. Droughts and changes in rainfall patterns pose a threat to rangelands, particularly impacting pastoralist and agro-pastoralist communities present in the target hubs.

#### *The project study area*

The change in average climatic conditions associated with an increase in extreme climatic events is leading to the erosion of biodiversity in the four hubs, and an associated reduction in the resilience of ecosystems. Heavy rains often fall on soils that have been made impermeable by drought and are bare and can quickly lead to flooding. This can lead to the destruction of infrastructure, agro-ecosystems, human and livestock deaths and the silting of wells and dams. At the same time, increased heavy rains, even far from the target hubs, have resulted in increased runoff and soil erosion and more frequent and devastating flash floods, destroying houses and other infrastructure in the hubs. Significant floods have already been experienced in Tintane (not far from Tamcheket) and in Aoujeft due to water run-off originating from more than 100 km away.

Coupled with increased evaporation due to increased temperatures, observed decreased rainfall and more frequent and long droughts are reducing water availability in the four hubs, affecting the availability of water for human consumption, crops, trees and animals. Nema has groundwater resources located 25 km away from the town, but the other three target hubs do not have underground reserves and rely on surface water often from remote places. The Tamcheket Hub relies on winter water coming from 80

km away, which feeds a number of water bodies, including a pond very important in terms of biodiversity. The accumulation of sand coming from the desert is silting watercourses, reducing their storage capacity, with a huge impact in terms of resilience - in some areas there is water availability from between 3–6 months of the year only.

The decreased water availability also affects the four hubs indirectly, through reduced generation of hydro-electricity from dams such as the Manantali dam in Mali, which is key for energy provision in Mauritania, including the four target hubs.

In the agricultural sector, observed climate change impacts are resulting in:

- Increased changes in crop growth cycles;
- Reduced viability of rain-fed crops (e.g. dates, millet, sorghum, rice, corn);
- Increased soil-water evaporation and plant transpiration (evapotranspiration - ETP);
- Increased soil erosion; and
- Increased incidence of diseases and pests.

Furthermore, observed climate change is affecting livestock husbandry through:

- Decreased quantity and quality of pasture, in part due to the increased frequency and intensity of bushfires as a result of prolonged drought;
- Reduction in the number and volume of water points; and
- Increased incidence of diseases and pests.

Shortage of pasture also results in social conflicts and security problems. In terms of public health climate change has resulted in:

- Increased incidence of malnutrition in both humans and livestock;
- Increased occurrence of water-borne diseases such as cholera, typhoid and diarrhoea; and
- A larger distribution of vector-borne diseases such as malaria and leishmaniasis.

Heat waves have also had adverse impact in the denser areas of the hubs. Globally these impacts have resulted in increased water and food insecurity, increased poverty and decreased income security, and increased social conflicts over the use of natural resources, resulting in turn in increased human pressure on already degraded natural resources. They have also resulted in negative impacts on gender equality, as women tend to focus on agriculture, livestock and craftsmanship.

The climate change projections presented above suggest that impacts could potentially aggravate in the near future, including the following:

- An overall decrease in water resource availability leading to: an increase in ETP and a decrease in water quality;
- Saltwater intrusion into groundwater resources;
- Warmer surface water in riverine systems;
- Increase land degradation and erosion;
- The move of arid land southward of the country, further reducing the availability of productive land, the length of the production period and the agriculture yields;
- The decrease of rangeland and pastoral land available for livestock; and
- Reduction In Food Availability, Leading To Further Food Insecurity.

### 3.1.1. Hub 1: Nema: Climate Change Assessment

Observation data at the Nema synoptic station shows an increase of annual minimum temperature by 0.40°C/decade and no change of annual maximum temperature. Precipitation at Nema has seen an annual decrease of -18 mm/decade and a daily extreme increase of 1.6 mm/decade.

Climate change projections for the hub predict increase of the minimum temperature (by 2.6–3.8°C) and maximum temperature (by 2.5–3.3°C) by 2050, and an increase in potential ETP. Precipitation will continue to decrease during the first half of the 21<sup>st</sup> century but at a slower rate. By 2050, Nema will experience between 20–30% less rain. As a consequence, the water balance deficit will worsen, the heatwaves will be much more frequent, and the drought will slightly increase. Heavy rainfall events are predicted to become less frequent. Hazards linked to climate change at the hub level are as follows:

- Strong impacts on its ecosystems and biodiversity (loss of biodiversity, disappearance of ecosystems and the services they provide, etc.). These impacts are mainly linked to recurrent droughts. Although a significant natural variability is observed, a significant increase in the intensity of droughts is observed. Bushfires have also become more frequent and devastating in nature.
- Although a decrease in torrential rain events has been noted, destructive flooding events still occur in Nema.
- Existing tensions around water resources are noted in the communes, accompanied by an increase in the cost of producing drinking water (deeper water/further away). These tensions are accentuated in Nema by a significant drop in rainfall in recent years, unlike in the other poles.
- The reduced rainy season combined with the increased intensity of droughts has led to a decrease in agricultural yields.
- The impacts on livestock are similar to those described for Aoujeft below.
- Health impacts are still limited, although there has been an increase in the number of skin cancers and the persistence of some climate-related diseases. The silting up of water resource infrastructure is directly linked to climate change along with an observed increase in, and effects of, heat waves in recent years.

The combination of the increases in annual minimum temperature and a decrease in rainfall can lead to climate stress, mainly water stress, impacting the cost of producing potable water. Extreme weather events like floods have been observed in the hub in recent years, with huge impacts on these communities. Other climate stressors will lead to pressures and impacts in local residents' food security needs, especially when agriculture and livestock are heavily affected. A reported increase in damaging bushfires locally also jeopardizes these ecosystems goods and services.

### 3.1.2. Hub 2: Tamcheket Climate Change Assessment

Tamcheket will experience similar changes as those described for Nema, although the intensity of changes can be slightly different. Increases in minimum temperatures (by 1.7–2.3°C) and maximum temperatures (by 2.1–2.8°C) are anticipated by 2050. Precipitation will continue to decrease during the first half of the 21<sup>st</sup> century, and at a faster rate than the Nema hub. In 2050, Tamcheket will experience between 30–35% less rain. Potential ETP will increase and reach 2000 mm/year in 2050. Consequently, the water balance deficit will worsen, the heatwaves will be much more common, and the frequency of droughts will continue to increase slightly. Heavy rainfall events will also become less frequent. Hazards linked to climate change at the hub level are as follows:

- Strong impacts on ecosystems and biodiversity (loss of biodiversity, disappearance of ecosystems and the services they provide, etc.). These impacts are mainly linked to recurrent droughts. Although natural variability is noted, a significant increase in the intensity of droughts is observed locally. It has led to a significant reduction of the vegetation cover locally, promoting the advance of sand dunes and silting up of ecosystems. Climate change therefore has a direct impact on local ecosystems, particularly as a result of the increase in droughts.
- No significant trends in torrential rain were reported by local communities. However, significant material damage was reported with the destruction of palm groves, drowned livestock, buried wells, destruction of sills and dams during heavy rainfall events.
- Tensions around water resources are noted in the communes that constitute the hub.
- The impacts on agriculture are also reflected in malnutrition problems. Many climate-related diseases are noted, such as high blood pressure due to increased temperatures.
- The impact on livestock varies greatly according to climatic conditions. It is closely linked to water resources. Intense droughts, increased ETP and changes in rainfall patterns (rainy season delayed and reduced by 2 months in 50 years) are all impacts that reduce agricultural yields.
- The local population has particularly emphasised the effect of heat waves during the two last years.

The predicted temperature increase affects both annual minimum temperature and annual maximum temperature, one can understand the increased risks and effects of heat waves as mentioned by communities. As for Nema, water stress is an important issue in that hub. Impacts on water resources, livestock and agriculture can lead to food security pressures and health impacts locally.

### 3.1.3. Hub 3: Rachid Climate Change Assessment

Rachid will experience an increase in minimum temperature (by 2.0–2.7°C) and maximum temperature (by 2.1–3.2°C) in 2050. By 2050, Rachid will experience between 15–18% less rainfall. As a consequence, the water balance deficit will worsen, heatwaves will be much more frequent; droughts will continue to increase at a same rate as experienced in the recent past. The frequency of heavy rainfall events will stay constant. Hazards linked to climate change at the hub level are as follows:

- The increase in the intensity of droughts is directly linked to climate change and leads to a significant degradation of ecosystems (destruction and loss of biodiversity).
- Although no significant trends are noted with regard to torrential rains, recent and destructive floods (resulting in property losses) are noted in Rachid. The rainy season is predicted to be reduced by a month by 2050. Combined with the increased intensity of droughts, this will lead to a decrease in agricultural yields.
- Significant increase in temperature, ETP and drought intensity are a clear sign of climate change leading to a decrease in water resources availability.
- The livestock situation is equivalent to that described for Aoujeft below.
- These impacts on agricultural production are also reflected in the frequency of malnutrition problems and cases reported in the Rachid hub.

Both increase of annual minimum temperature and annual maximum temperature should be highlighted as major constraint and can be considered as significant influence in water stress. Adding to that, the intensity of droughts we can understand that climate change contributes to an important degradation of ecosystems. Rainfall is predicted to see an annual decrease of -8.5mm/decade, with a daily extreme value increase of 0.78mm/decade. The predicted reduction in the length of the rainy season, combined with the increased intensity of droughts and decrease in agricultural yields, will lead to food insecurity, possible malnutrition and secondary health impacts.

#### 3.1.4. Hub 4: Aoujeft Climate Change Assessment

The hub is experiencing an annual minimum temperature increase of by 0.77°C/decade and an increase of annual maximum temperature by 0.22°C/decade. Precipitation is predicted to see an annual increase of 1.2 mm/decade (not significant) and an increase of daily extreme values of 1.3mm/decade (not significant). Climate change will induce an increase in minimum temperature (by 3.1–3.8°C) and maximum temperature (by 2.4–3.2°C) by 2050. Precipitation levels will stay approximately constant during the first half of the 21<sup>st</sup> century. As a consequence, the water balance deficit will worsen, and the heatwaves will be much more frequent. The drought duration and the heavy rain frequency should be about the same as those experienced recently. Hazards linked to climate change at the hub level are as follows:

- Aoujeft is experiencing strong impacts on its ecosystems and biodiversity (loss of biodiversity, disappearance of ecosystems and the services they provide, etc.). These impacts are mainly linked to recurrent droughts. Although a significant natural variability is observed, a significant increase in the intensity of droughts is observed. Droughts led to a strong reduction of the vegetation cover favouring the advance of sand dunes (silting up of ecosystems) for strong winds that have not changed significantly. Climate change therefore has a direct impact on ecosystems, particularly through the increase in droughts.
- Floods remain relatively infrequent (7 major floods in the last 40 years) but their intensity increases according to local populations and they are responsible for human deaths and significant material losses (5 deaths and 1 000 palm groves destroyed in 2003). They are mainly related to heavy rain events which do not show any significant evolution.
- The increase in ETP (linked to the increase in temperature) leads to increased water losses and water requirements. This increase in ETP with relatively constant rainfall over the year leads to a chronic water deficit (compounded by a drop of 12 to 20 m in local groundwater tables over the last two decades in the Aoujeft area). Tensions over water resources are clearly exacerbated locally by climate change, particularly through the increase in ETP and the intensity of droughts.
- Intense droughts, increased ETP, and changes in rainfall patterns (rainy season delayed and reduced by 2 months in the next 50 years) are all climate change impacts that will reduce agricultural yields. Livestock farming is dependent on the resources provided by rangelands, whose productivity is closely linked to water resources. Droughts are the main disruption to the local livestock

production system (along with lower productivity, expansion of permanent settlements, more sedentary population etc.) Leading to further the degradation of rangelands used for grazing purposes. However, there has been a rapid rebuilding of livestock herds locally in recent years, due to less dry conditions and the increased productivity of the rangelands over this period.

- Aoujeft has experienced deaths in the last 2 years due to heat waves, although no significant trend has been noted for this phenomenon in the modelling analyses conducted for the related studies. Notable health impacts are still limited, although there has been an increase in the number of skin cancers and the persistence of some climate-related diseases apparent locally.

The predicted significant increase in the intensity of droughts will lead to a major reduction of the vegetation cover favouring sand movements and silting up of ecosystems. This will necessarily impact on local water points and sources, and the drying up of water points (traditional wells for example) and lowering of groundwater levels is anticipated to accelerate.

### *Sectoral baseline analyses*

The following section describes the baseline situation in each of the four hubs in relation to a specific and relevant sector. One of the characteristics of the overall locality is data-scarcity with regard to socioeconomic and biophysical data. Where information is available it is aggregated at the wilayah level and is not readily available at the 'hub' level. To help address this, the following information was collected via both desktop analyses and site-level participatory engagement processes in 2021 and has been considered not only in the development of the ESMP but has informed the development of the project design. Additional information on the Hubs (including available socio-economic and biophysical descriptions) is included in Appendix 6 of this ESMP and in the Feasibility Study (Annex 2).

#### 3.1.5. Ecosystems

The Fourth National Communication (July 2019) reports that *"the chronic droughts and human pressure will destroy the woody vegetation cover, accentuate desertification, affect biological diversity and reduce pastoral potential thus provoking a massive rural exodus towards the large urban centres. Conflicts over access to these resources, which have marked the history of the Guidimakha Wilayah since the first droughts, are likely to intensify [and expand] as a result of the growing demand for food, fibre and energy, and the loss and degradation of productive land. They will be further exacerbated by changing agricultural conditions, increased water shortages, loss of biodiversity and reduced grazing land and its poverty.* The reduction of agro-sylvo-pastoral areas is indeed the source of conflicts in rural oases, particularly between farmers and herders (transhumant or sedentary herders and sedentary farmers) as confirmed during the field visits.

- In the Nema hub, communities observed that: *"The droughts of the 1970s and 1980s led to a sharp decline in livestock numbers, with a dramatic acceleration in the rural exodus and a tendency for herds to be concentrated in the hands of large urban owners. The improvement of rainfall during the recent years seems to have allowed an overall reconstitution of the herd. The last few decades have also been marked by a strong movement towards the settling of livestock breeders, which has led to profound changes in production systems (in particular: regression of nomadic systems, spatial and temporal reduction of transhumance) and increased competition over pastoral resources."* (OSS, 2015). Some infrastructures are completely buried by silting up and this generates various impacts such as i) leading to rural exodus to the big cities, ii) causing displacement of populations and iii) the reduction of agricultural areas.
- The Tamcheket hub is characterized by hydromorphic sandy-clay soils. This type of formation is found around wetlands (wadis and tamourts) and is clearly dominated by *Acacia nilotica* (Amour en Hassanya) associated with *Ziziphus mauritiana* (jujube tree). The classified forest of Tamcheket corresponds to this type of plant formation. However, this forest is nowadays in the state of a relic since there is no trace of regeneration of the above-mentioned species.
- In the Rachid hub, conflicts generally arise as a result of livestock roaming in the oasis area, but more generally in the peri-oasis area, for example affecting flood recession crops, which are less easy to protect than the zeribas (corrals). The climate hazards on livestock are worsening of the current situation, marked by the degradation of livestock productivity induced by recurrent droughts,

the scarcity and the remoteness of pastoral areas and water points. The lack of availability of pastures will increase transhumance distance and duration all year round, and potentially increase social conflict. Peri-urban development and the implementation of breed improvement programmes alongside the lack of availability of pastures (leading to increasing transhumance) is affecting the entire livestock sector, in particular the way in which the herds are run.

- In the Aoujeft hub, the wilayah of Adrar shelters rich pastures. It is a transit and transhumance area for herds of small ruminants and camels from several wilayahs in the country, depending on the state of wintering and the abundance of pasture. The fodder balance is dependent on rainfall and therefore varies from one year to the next. The existing livestock system in the wilayah is mainly extensive and transhumant, with the emergence of the peri-urban livestock system and home-based livestock farming for the goat species (Toumza). With the *introduction of fodder crops under palm trees*, some breeders have begun to provide food supplements, to hut farms in the large towns and to the dairy camels. Based on focus group discussions, climate change has a significant impact on oasis livestock. Its influence is reflected in the reduction of woody and herbaceous cover, abortion, the reduction of the most appetizing plant species, the reduction of the duration of lactation and the decrease in productivity due to the pasture availability that can lead to food insecurity. The herders met said that currently the *density of trees in the oasis areas is lower than before the drought of the 1970s*.

The WFP (2015a<sup>3</sup>), mentioned that “*It is now estimated that 974,000 Mauritians- one in four- live in food insecurity; including 231,000 in severe food insecurity and in urgent need of assistance*”. The World Health Organisation emergency threshold of 15 percent is surpassed in six regions namely, Hodh El Gharbi, Assaba, Gorgol, Brakna, Tagant and Guidimagha; local communities mentioned this occurred in Oued Nkhal Agouenit (palm grove and wells are impacted), Tichilit Talh (rainfed agriculture is impacted), Zangra and Bamoir (wells are impacted) and Oued Tatrart.

As far as biodiversity (fauna and flora) is concerned, field visits and literature reviewed allowed to collect the following information. (See also Annex 3: Endangered and extinct species in the four hubs)

- In Néma: the hub is facing biodiversity threats through the extinction of plant species (*Grewia bicolor* since 1995, and *Tamarindus indica* since 1965). The endangered species are *Acacia senegal*, *Commiphora africana* and *Euphorbia balsamifera*. *Prosopis juliflora* is a new plant species in Nema hub. Fauna is also concerned: extinct animal species are gazelles, antelopes, ostriches and guinea fowls; endangered species are rabbit and turtle.
- In the Tamcheket hub, the *extinction of plant species* concerned *Adansonia digitata*, *Maytenus senegalensis*, *Tamarindus indica*, *Calligonum comosum* and *Mitragyna inermis*; the two first species have been extinct before 1960, and for the three last ones, this phenomenon happened after 1968. *Commiphora africana*, *Grewia bicolor*, *Grewia tenax*, *Acacia senegal* and *Sclerocarya birrea* are vegetal species in danger of extinction. The species *Crocodilus suchus* is now scientifically an endangered species. The Tamcheket wetland mosaic contains unlisted families and their threatened habitats. This is an endangered heritage.
- The Rachid hub has also been affected by the *extinction of flora and fauna*. *Andersonia digitata*, *Acacia senegal*, *Bauhenia rufescens*, *Maytenus senegalensis* and have disappeared in 1956, 1971, 1975 and 1998 respectively. *Salvadora persica* is recognized as vegetal species in danger of extinction. New plant species have emerged, including *Acacia raddiana*, *Panicum turgidum*, *Leptadenia pyrotechnica*, *Nucularia perrini* and *Prosopis juliflora* generally as a result of anthropic utilization. Regarding fauna, several species have become extinct, including: hyaena (1968), guinea fowl (1971), gazelles (1970), warthogs (1967), ducks (1995) and ostrich (1948). Since 2000, animal species in danger of extinction are turtle pigeon, rabbit and hedgehog. The extinction of plant species is a matter of biodiversity loss, and has resulted in a number of impacts, including on food security, for both humans and animals.
- In the Aoujeft hub, biogenetic resources are scarce and scattered in specific areas, consisting of grassy steppes with few shrubs, with the distribution of the fauna being strongly linked to the flora with the diet of the herbivores being particularly selective. The floristic elements encountered in the Adrar belong to four essential biotopes: rocky stations, sandy stations or dunes, salty land stations

<sup>3</sup> WFP, 2015a. WFP Mauritania Brief, 2p.



and the reg. During the rainy season, the slopes are covered with grasses such as *Cenchrus biflorus* and *Tribulus terrestris*. Some trees, such as *Balanites aegyptiaca*, *A. tortilis*, *A. senegal* and *Calotropis procera*, can be found at the foot of these dunes. On the reg, vegetation is almost non-existent and plant cover is composed of a few trees (*Acacia* sp., *Capparis decidua*, *Boscia senegalensis*) and some grasses.

### 3.1.6. Water resources

Mauritania is one of the most water deficit countries with only 0.5% of the total surface considered arable. An estimated 60% is considered as severely or very severely degraded, which is being caused by a combination of natural and anthropogenic factors. The major environmental problem the country is currently facing is the temporally and spatially erratic character of rainfall, frequently leading to general or local droughts since the late-1960s with subsequent increase of human pressure on the natural resource base and degradation. Mauritania lies almost entirely within the Sahara desert, with very low rainfall and water-poor. Only the coastal zone sees any significant seasonal rainfall and the only perennial river in the country is the Senegal River, which forms its southern border (See Figure 16 : Hydrology of Mauritania (intermittent rivers)) and 17 on the water resources decrease in runoff of about 10% between 2000.



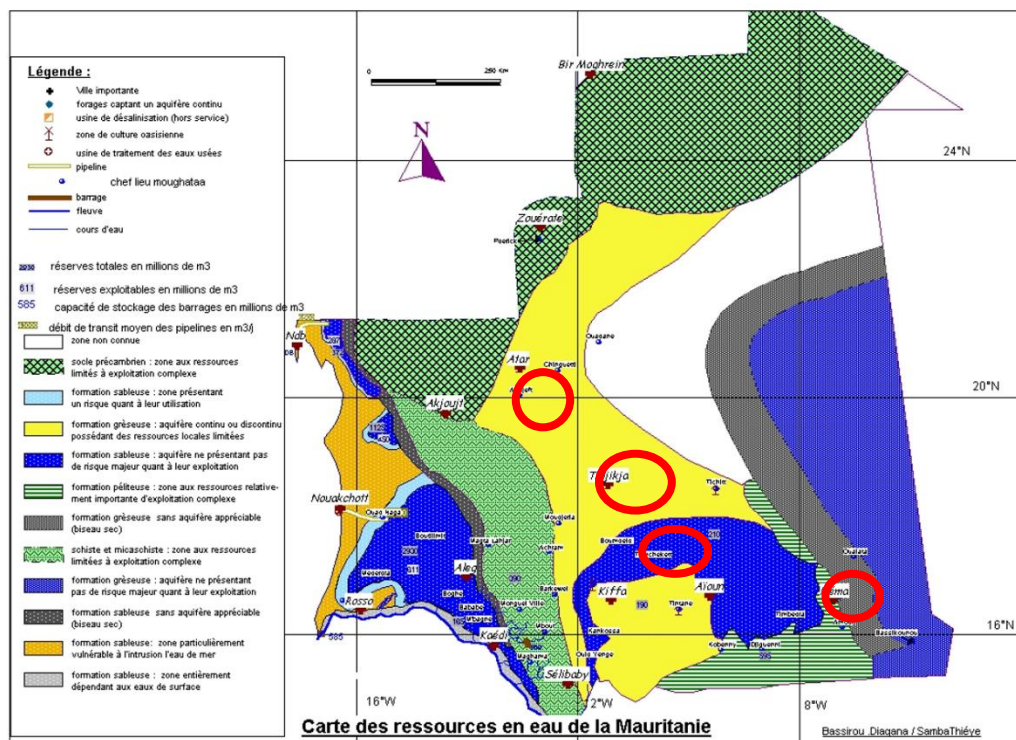
**Figure 2.1: Hydrology of Mauritania (intermittent rivers)** Source: AQUASTAT, 2005

The country is dependent on groundwater for virtually all its water supply. The overall impacts on water resources are significant and reflected in a general decrease in rainfall of around 10 to 15% with foreseeable consequences for agriculture, health and the well-being of the population<sup>4</sup>. In addition, a delay of rainy season onset associated and with intensity of rainfall, temperature increasing is noted with direct impact on the water table and surface water resources. Apart from drought and its impacts like the drying up and disappearance of rivers and wells, it will be difficult to find other socio-economic factors that might play any other role.

In general, local consultations reported by national experts during the field visit described a decrease in runoff of about 10% between 2000 and 2020 which is confirmed in the National Communication (*République Islamique de Mauritanie*, 2019), associated with an increase in evapotranspiration therefore the degradation of water quality, including the regression of woody and herbaceous plant cover. A drop in piezometric levels and a disruption of the wadi regime, associated with a reduction in the storage capacity of dams due to concentrated rainfall and accelerated silting by water erosion in

<sup>4</sup>- Fourth National Communication République Islamique de Mauritanie, 2019, p.61.

heavily denuded catchment areas (Freidel et al, 2012<sup>5</sup>). It's reported warmer and less aerated surface waters, with reduced flow rates and therefore a reduction in their power of dilution and biodegradation of certain pollutants.



**Figure 2.2: Water resources in Mauritania - Source : Bassirou Diagana (2007)**

The geological mapping of the water resources in Mauritania (Figure 17) clearly show that the hub of Tamcheket only is located in a geological zone where “the aquifers do not present major risks for their exploitation”.

- In the Nema hub, three water points disappeared during the 1960's droughts; they're located in Tichilit Talh, Oum Ettemay and Temachmarit. In general, local consultations reported by national experts during the field visit described a decrease in runoff of about 10% between 2000 and 2020 associated with an increase in evapotranspiration and a degradation of water quality; a drop in piezometric levels and a disruption of the wadi regime, associated with a reduction in the storage capacity of dams due to concentrated rainfall and accelerated silting by water erosion in heavily denuded catchment areas<sup>6</sup>. It is reported warmer and less aerated surface waters, with reduced flow rates and therefore a reduction in their powers of dilution and biodegradation of certain pollutants, etc.
- In the Tamcheket hub, rivers or streams are in danger of extinction: Taletfal (Tahourat) with a proportion of 2/3, Telmeden, Guelta Touzelat, Arereji, Taymsett and Iriji. Like in the others hubs, some traditional wells have already disappeared since the droughts occurred during the 1960's: the Majhar, Iriji Oum Lemhar, Tegwa, Aïn Ajhaniya, Legreywa, El Mbeydih, Le Mbeyha, Aguemoun and Lebyadh.
- In the Rachid hub, the same observations can be made. Due the drought during the 1960's, the streams disappeared by silting up are Oum Larjan, Telmeden (guelta), Guelta Touzelat, Taoujeft, Arereji, Taymsett, Iriji, Legleïb and Tarf. Before 1960, communities said that five (05) wells disappeared (Aghmachanet, Toun Wersukel, Khatt, Foun Ajar and Dhaya). A part from draught

<sup>5</sup>- Friedel M. J., Finn C. A., Horton J., 2012. Synthèse des données hydrologiques, 27p.

<sup>6</sup> Friedel M. J., Finn C. A., Horton J., 2012. Synthèse des données hydrologiques, 27p.

and its impacts like the drying up and disappearance of rivers and wells, it will be very tough to find other socio-economic factors that might be play any other role. Concerning the drying up of wells, communities mentioned in Rachid that it's noticed in Gagni, Toum Jeyj, M'Balla, Aghnemtit, Acharim (2 wells have dried up). Even traditional dry-stone wells and cemented wells are affected by the scarcity of water resources (Dakhla, Rachid).

- In the Aoujeft hub, communities reported that before 1960 that three water points disappeared by silting up and since that draught occurred at the end 1960's, in addition seven water points have disappeared (Oum Chenad, Ten Mour, Timoline, Timitine, Ijichane, Aïn Lebgar and Tiroutène).

### 3.1.7. Agriculture and forests

The overall rate of change in land use and land cover accelerated from 0.4 per cent per year between 1975 and 2000 to 0.7 per cent per year between 2000 and 2013. As a result, in 2013, less than 1 per cent of the country was agricultural land. This makes Mauritania the least cultivated country of the 17 West African countries. Likewise, other "bio productive" land cover types - forest, gallery forest and swamp forest - make up only tiny fractions of the land area. Climate hazards will result in a significant loss of seedlings and harvests, a drop in productivity and production, water stress on plants and land degradation and erosion, as well as an extension of the arid zone towards the south of the country. The rain-fed system and crops grown behind dams is already strongly affected, often resulting in the appearance of devastating crop pests and enemies.

This will imperil food security with impacts on health and the well-being of communities of the project hubs. The irregularity of the rains, their poor spatial and temporal distribution concern also natural resources, including the regression of woody and herbaceous plant cover, under the effect of chronic droughts and anthropic pressure (deforestation or abusive cutting) probably not directly linked to climate change, the accentuation of desertification, the loss of biodiversity species and the reduction of pastoral potential for livestock, thus leading a massive rural exodus towards the large urban centres.

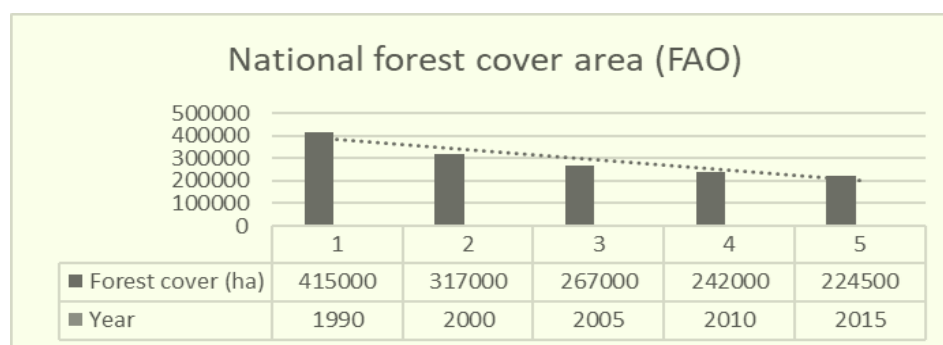


Figure 2.3: national forest cover area in Mauritania (source: FAO 2014)

Rainfed agriculture is closely linked to rainfall, which inevitably subjects it to the adverse effects of climate variability and change (reduced and random rainfall, shorter season length, increased frequency and intensity of dry spells, etc.). Long dry spells during the sensitive phases of the plant (vegetative and reproductive phases) can lead to loss of productivity and crop yield. Traditional cereal growing (millet, sorghum, and maize) is dominated by small family farms with rudimentary agricultural practices and a self-subsistence orientation. It has not yet improved enough to make a greater contribution to improving food security and reducing rural poverty. The greatest pastoral potential is in Hodh Chargui (Nema hub) with a capacity equivalent to 30% of the national fodder potential. This is due both to the size of this wilayah and the relatively good rainfall (242 mm) compared to other regions.

For most of the farmers interviewed, the level of the water table has fallen sharply since the droughts. According to the focus group in Aoujeft, this level has gone from a depth of 6 m to a depth of at least

12 m. The lowering of the water table as a result of the drought and the overexploitation of water resources are reflected in the oases by a progressive degradation of the soil through salinization.

### 3.1.8. livestock production

Widespread sedentarization in response to successive droughts has resulted in substantial changes to Mauritania's traditionally extensive production systems, which have diversified from a single nomadic system to numerous agricultural management practices<sup>7</sup>. Livestock management has particularly undergone several changes following severe drought episodes recorded in the country in the 1970s and 1980s. For example, prolonged droughts resulted in the rural exodus of livestock farmers — many of whom had to sell their livestock to urban nationals with the investment capacity to take advantage of the sharp drop in animal prices — and the establishment of livestock systems around main roads to enable access to food aid and administrative services. In addition, variations of partial settlement have been observed on former wintering grounds in the two Hodhs — the hubs Nema and Tamcheket — with the creation of new water points along the Road of Hope<sup>8</sup> in the southeast of the country. This livestock sector is a strong sector with large representative of the population in those areas (see Table 11) and constitute a political challenge. Despite their necessity, these shifts in livestock management have adversely impacted surrounding natural and agroecosystems<sup>9</sup>.

Access to feed, as a solution to the fodder deficit caused by droughts, remains limited by proximity, price and the financial resources. The 2019/2020 season shows, for a majority of non-transhumant herders, an early recourse to feed. Traders are taking the place of financial institutions and providing loans at often usurious rates, which, as it stands, constitutes a risk of spiralling indebtedness for the middle-class herder.

In addition, livestock farmers are particularly affected by the drought because the most widespread survival strategy of rural populations has always been capitalisation by building up herds. As a result, a major rural exodus has been initiated, following the decimation of herds due to the deterioration of the owners' financial capacity.

In the project area, the trend towards the sedentarization of rural populations, which began before the climatic crisis of the 1970s, was amplified during the 1984/1985 droughts. It is in this context that the deterioration of the living conditions of nomadic herders led to a reduction in the number of nomads. This phenomenon of massive sedentarization of nomadic herders was characterised by the appearance of a multitude of new villages along the transhumance routes and asphalted roads. OSS (2015) with regards to livestock, mentioned that “*The constant increase in pastoral pressure by the birth of a new method of peri-urban livestock farming of cattle and especially camels for the marketing of milk production has caused a strong degradation of the environment.*”<sup>10</sup> The following facts were noted:

- Disappearance of nomadic systems or even regression of transhumant systems with spatial and temporal reduction of transhumance of cattle herds (and regression of solidarity values among the people).
- Fixation of animals around the agglomerations leading to more burdens and domestic work for the woman and the young people.
- Increase in the monetary needs of livestock breeders who, as a result, tend to sell their animals earlier, especially in the case of female heads of household.

According to the OSS (2015), “*previously extensive, the livestock has suffered greatly from the latest droughts that have caused a reduction in pastureland. This is the reason for a massive sedentarization resulting from a major rural exodus which de-structured most of the old production systems.*” Thus, these profound social changes have resulted in a growing number of villages, where the population is mostly composed of women and children (MDR, 2012).

<sup>7</sup> MDR, 2002 and MDR, 2016

<sup>8</sup> FAO. The Road of Hope: control of moving sand dunes in Mauritania. Available at: <https://www.fao.org/3/y2795e/y2795e07.htm>

<sup>9</sup> Strengthening the resilience of ecosystems and populations in four regional hubs in northern Mauritania, Trends analysis, Eco solutions.

<sup>10</sup> OSS, 2015. Mauritanie : Atlas des cartes d'occupation du sol» Projet Amélioration de la résilience des populations sahéniennes aux mutations environnementales – REPSAHEL, 250p.

### 3.1.9. Infrastructure

The degree or intensity of silting with regards to infrastructures and environment (palm groves, wells, etc.) is a critical issue (4). Silting is mainly focusing here on sand movements, generated by wind from Sahara. Silting affects all production systems in Tamcheket and reduces the resilience of communities and ecosystems. The biodiversity in this area is also affected by the impacts of climate change.

*Source: Based on Focus Group Discussions with Communities and Local administrative authorities met by the team of national experts during field data collection mission.*

In addition, in contrast to the persistent drought and the aridification in all the hubs, devastating floods are observed in the four hubs. These flooding events often result in loss of human and livestock life, destruction of palm groves, human habitats, ecosystems and crop fields, damage to hydraulic road and socio-cultural infrastructures and reduced means of subsistence. The flood-related impacts also reduce crop production, decrease incomes, facilitate the extension of shantytowns, and contribute towards the urban push that favours the rural exodus of rural community members. For example, the dam of Toueymirt, about 10 km south-east of the town of Tamcheket, was destroyed the year it was built due to flooding and the town downstream of Tintane in Hodh el Gharbi disappeared flooded by water from the El Aguer plateau in the Moughataa of Tamcheket. These impacts adversely impact communities' livelihoods and wellbeing, while increasing pressure on their surrounding ecosystems.

With regards to health, the worsening of the worrying nutritional situation (WFP, 2015) and the increase in the prevalence of nutritional pathologies are noted, thus favouring the appearance of infectious and parasitic diseases in children under five. For several years, the country has experienced heat waves along the Tagant and Assaba mountain ranges, causing deaths among the elderly and deaths from thirst. The 4<sup>th</sup> Mauritania National Communication to UNFCCC (*République Islamique de Mauritanie*, 2019) highlighted health issues in these terms: "Due to the first climatic casualties recorded in 2012 as a result of heat waves, the health sector was selected as a priority sector but was not included due to the lack of reliable data reported by the expert."<sup>11</sup> Climate change has increased the severity of certain diseases and mortality rates through more frequent heat waves during the summer. The 'urban heat island' phenomenon is also worth watching. Since it is generally warmer, people in the area are more often engaged in activities that expose them to the sun's ultraviolet rays. This may partly explain the current increase in skin cancers. These diseases are difficult to detect in the collection area.

Mauritania is characterised by a worrying nutritional situation<sup>12</sup> (WFP, 2015<sup>13</sup>), aggravated by difficult environmental conditions, which leads to an increase in the prevalence of nutritional pathologies, thus favouring infectious and parasitic diseases, in particular diarrhoea and ARI (Acute Respiratory Infection; Ozer, 2006<sup>14</sup>). Among children under five, infant mortality is dominated by ARI (21%), malaria (15%) and diarrhoeal diseases (13.5%) according to the Demographic and Health Survey (EDSM). These three conditions alone account for 5% of the causes of death among children under 5 years of age and 35% of children over 5 years of age. In addition, 32% of children under 5 years of age suffer from chronic malnutrition and underweight, of which 17% and 10% respectively in their severe forms.

This highlights the persistence of a worrying nutritional situation aggravated by the droughts. This general information is confirmed in the *collection area by the Focus Group*: people have lost lives due to heat waves over the last two years (2 in the Aoujeft pole and 2 in the Tamcheket pole). According to the medical staff of the commune of Aoujeft, it is confirmed that health consequences related to the degradation and deterioration of the natural environment include, inter alia: i) increased incidence of malaria as a result of the proliferation of mosquitos; ii) high blood pressure in response to increasing temperatures; iii) diseases related to reproductive health; iv) malnutrition and nutritional anaemia as a result of food deficiencies.

In conclusion, the impacts on health in the four hubs, apart from the pathologies listed above, vector-borne diseases, schistosomiasis, venereal diseases, pregnancy at risk, Rift Valley fever outbreaks, dysenteries, trachoma, conjunctivitis (Interview with the Direction Régionale pour l'Action Sanitaire Interview -Dras - of Tagant) were noted. AfdB (2018)<sup>15</sup> confirms health matters in Mauritania related to

<sup>11</sup> National Communication to the UNFCCC (NC) *République Islamique de Mauritanie*, 2019, p.19

<sup>12</sup> <https://www.thenewhumanitarian.org/analysis/2015/05/26/food-worries-widen-mauritania>

<sup>13</sup> WFP, 2015b. Mauritania Situation Report #26 March 2015, 2p.

<sup>14</sup> Ozer P. 2006. Dust in the Wind and Public Health: Example from Mauritania, pp. 55-74. In: Desertification: Migration, Health, Remediation and Local Governance., Royal Academy for Overseas Sciences, Bruxelles, Belgique

<sup>15</sup> AfdB, 2018. National Climate Change Profile, 27p.

climate change: “[...] negative health impacts resulting from deteriorating water quality; increased incidence of heat stress and stroke.”



#### 4. THE PROJECT

---

A summary description of the project intervention strategy (activities, outputs and outcomes) are provided in the sections below. Also refer to Appendix 3 for the detailed project logical framework.

##### *The proposed project*

The proposed project aims to increase the resilience to the current and projected impacts of climate change of the populations living in the growing regional rural-urban hubs along the most vulnerable strip of Mauritania (the southern border of the Sahara - the northern border of the Sahel), contributing at the same time to stop desertification moving further south and affecting the country's very fragile and most fertile lands.

Vulnerability is one of the factors that should be used to identify intervention sites under the broader project programmatic approach. In all communities, the participation and empowerment of women and vulnerable persons will be prioritised to increase their resilience to climate change impacts as well as their participation in community-level decision-making. The specific needs of women in rural communities will be considered in all proposed options for investment. Existing women's groups, vulnerable persons and community organisations will be engaged early on in the project activity planning processes to ensure their representation and participation therein.

##### *Project intervention strategy*

The project components (activities, outputs and outcomes) that collectively inform the project intervention strategy are summarized in the following sections and are also depicted in figure 3.1 below.

At the Project outputs and outcomes level, the following objectives have been put forward:

#### **Outcome 1. Increased implementation and upscaling of Ecosystem-based Adaptation (EbA) measures across the Sahara-Sahel boundary in Mauritania**

**Output 1.1.** Governance structures are strengthened to support the implementation of EbA measures and the integration of climate change considerations and EbA into government plans, policies and budgets.

**Output 1.2.** Knowledge products developed and disseminated to support decision making and upscaling.

#### **Outcome 2. Communities in four rural-urban hubs along the Sahara-Sahel boundary in Mauritania have increased livelihood and water security as a result of investment in EbA measures, water access, and sustainable land- and natural resources management practices.**

**Output 2.1.** Green-grey dune fixation infrastructure is established to control sand encroachment, enhance the provision of ecosystem services and slow the rate of desertification within the four target hubs.

**Output 2.2.** Improved access to water for agricultural and land rehabilitation activities.

**Output 2.3.** Climate-resilient agricultural livelihoods based on sustainable land- and natural resource-use are developed and/or strengthened to reduce land degradation and support climate-resilient income-generation by community members within the target regions.

The sections that follow describe the related project activities and sub-activities in more detail.

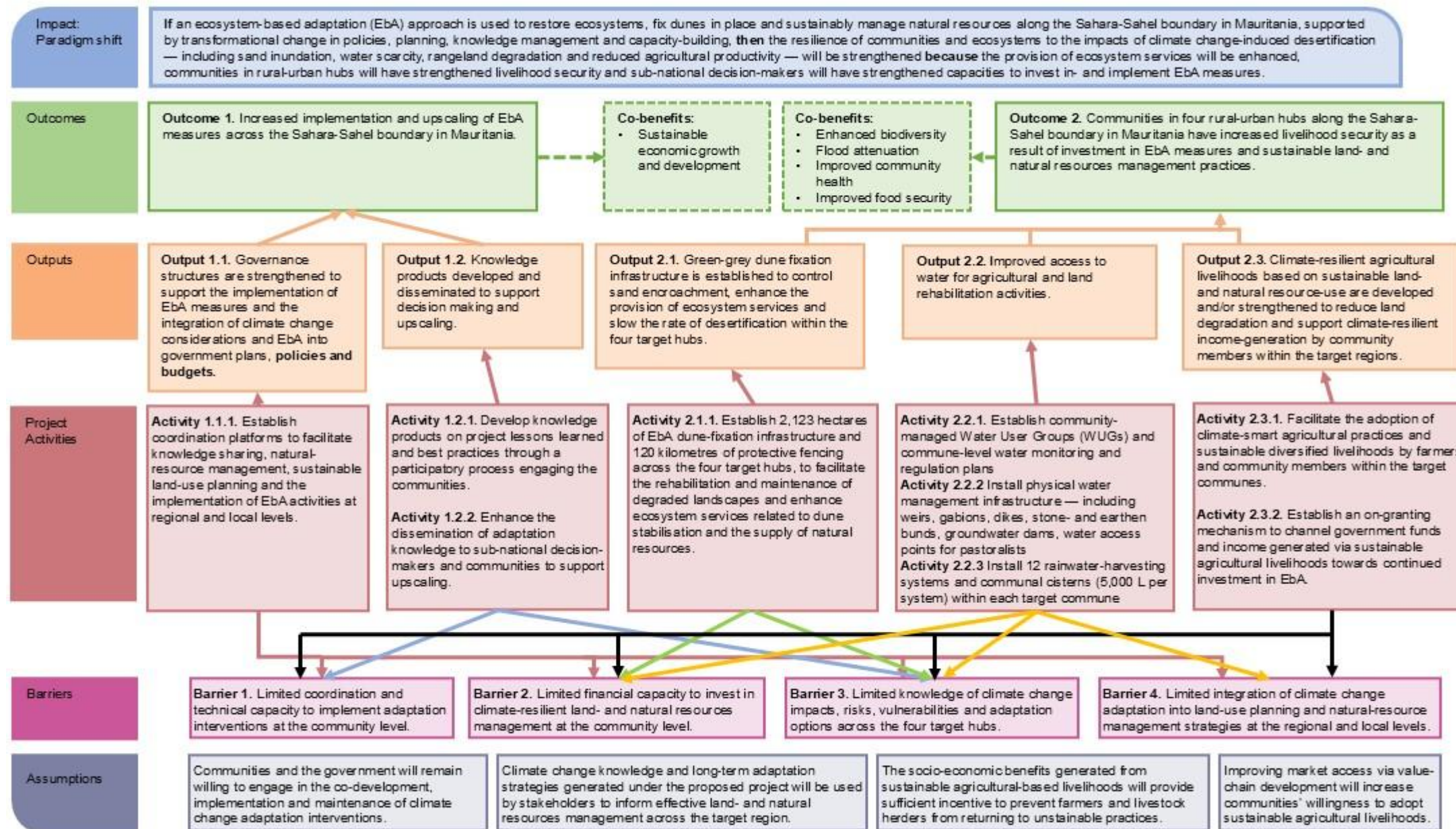


Figure 3.1: Project Theory of Change (Source: C4 Ecosolutions (Pty) Ltd.)



**Output 1.1.** Governance structures are strengthened to support the implementation of EbA measures and the integration of climate change considerations and EbA into government plans, policies and budgets.

**Activity 1.1.1.** Establish coordination platforms and train participants to facilitate knowledge sharing, natural-resource management, sustainable land-use planning and the implementation of EbA activities at regional and local levels.

Under Activity 1.1.1, the proposed GCF project will:

- establish 12 commune-level technical committees (CTCs) across the four target hubs;
- enhance capacity for coordination and knowledge-sharing between local and regional stakeholders within the target hubs; and
- support the integration of climate change considerations and EbA into sub-national plans, policies and budgets.

To maximise the impact potential project activities, given the finite nature of financial resources and human capital<sup>16</sup>, CTCs will be established within the 12 priority communes targeted by the project (i.e., most vulnerable and exposed), with the view to upscale project interventions to additional communes in the future.

Table 1. The 12 priority communes for the proposed project

	Hub			
	Aoujeft	Rachid	Tamcheket	Nema
<b>Target communes</b>	<ul style="list-style-type: none"> <li>• Ain Savra</li> <li>• El Medah</li> <li>• Maeden</li> <li>• Aoujeft</li> </ul>	<ul style="list-style-type: none"> <li>• Tidjikja</li> <li>• El Wahat</li> </ul>	<ul style="list-style-type: none"> <li>• El Mabrouk</li> <li>• Gueate Teidoume</li> </ul>	<ul style="list-style-type: none"> <li>• Oualata</li> <li>• N'Beiket Lahwach</li> <li>• Noual</li> <li>• Jreif</li> </ul>

Representatives of the CTCs will coordinate with DREDD directorates in each target wilayah to oversee the following mandates:

- enhance cross-sectoral coordination for CCA between national, regional and local stakeholders;
- ensure that target communities' needs and concerns are considered when developing and implementing natural-resource management and sustainable land-use plans and policies;
- facilitate two-way information- and knowledge-sharing between local-level stakeholders and regional authorities<sup>17</sup>;
- support the training of community members to implement and maintain adaptation interventions introduced under proposed the project;
- support the integration of climate change considerations into regional- and commune-level policies, plans and budgets for natural-resources management and land-use planning; and
- develop the technical and institutional capacities of relevant stakeholders to drive scalable and sustainable climate action.

In accordance with Mauritanian law, the 12 CTCs will be formally established via announcement; however, over the course of the project, their legitimacy in the relevant legislature will be pursued via registration with the Ministry of the Interior. Formalisation of these project structures will maintain their medium- to long-term sustainability and facilitate community ownership of project activities beyond the project implementation period.

Each CTC will be chaired by the mayor of its respective commune and members will include, *inter alia*, representatives from the regional environmental delegation (DREDD), 1-2 members of the Communal Council, civil society representatives, and community members. Existing community structures and

<sup>16</sup> Human capital describes the skills, knowledge, and experience possessed by individuals or a population, viewed in terms of their value or cost to an organisation or country.

<sup>17</sup> CTCs will provide a platform for regular engagement between stakeholders at all administrative levels. This will facilitate the two-way flow of information between representatives at the village, commune, moughataa, wilayah and national levels, as shown in Table 10.

systems — such as already established Associations for Natural Resources (AGLCs) — will be leveraged, where applicable, to accelerate the establishment of the CTCs and support their sustainability.

Sub-activities implemented to deliver this activity are:

- **Sub-activity 1.1.1.1.** Establish project commune-level technical committees (CTCs) within each priority commune in the four target hubs.
- **Sub-activity 1.1.1.2.** Deliver training workshops to CTCs, enhancing members' capacities to implement and manage project activities, support the integration of climate change in regional- and commune-level policies, plans and budgets, and facilitate knowledge sharing between regional- and local-level stakeholders.
- **Sub-activity 1.1.1.3.** Train CTC members and government staff to use the NAP Knowledge Management Platform and facilitate the collection and dissemination of climate information and adaptation best practices by CTC members.
- **Sub-activity 1.1.1.4.** Conduct a review of existing wilayah-, moughataa- and commune-level development plans, policies and budgets and prepare policy briefs for the integration of climate considerations and gender-responsiveness into these documents.
- **Sub-activity 1.1.1.5.** Convene training workshops for Regional and Communal Councils and relevant sectors to support the integration of climate change in regional- and commune-level policies, plans and budgets, including through the presentation of the policy briefs prepared under Sub-activity 1.1.1.4.

**Output 1.2.** Knowledge products developed and disseminated to support decision making and upscaling.

**Activity 1.2.1.** Develop knowledge products on project lessons learned and best practices through a participatory process engaging the communities.

To ensure that knowledge generated through the project is widely accessible and supports long-term climate change adaptation efforts, the proposed project will facilitate the dissemination of knowledge products through both national and international platforms. The primary mechanism for this will be the NAP knowledge management platform, which is currently under development in Mauritania, where monitoring reports, GCF evaluation reports, community engagement reports, records of the validation workshop, final policy briefs and best practices generated under Activity 1.1.2 will be uploaded and stored. This centralised repository will enhance access to critical adaptation information for policymakers, practitioners and community-level stakeholders.

To extend the reach of these knowledge products beyond digital platforms, the project will strengthen the dissemination of stored materials through community-based communication channels. A communications expert will be consulted to design knowledge-management campaigns that are adapted to the local context. These campaigns will include targeted knowledge-sharing efforts via local radio stations, TV programmes and printed materials such as flyers distributed by DREDD officers. These efforts will ensure that information is accessible to local beneficiaries, including vulnerable populations with limited internet access, thereby supporting enhanced awareness, informed decision-making and the replication of best practices at the community level.

Sub-activities contributing to the delivery of Activity 1.2.1. are:

- **Sub-activity 1.2.1.1.** Hold bi-annual gender-inclusive discussions between representatives from the PMU, CTCs and communities in the target hubs on project intervention successes and challenges, and develop these discussions into community engagement reports.
- **Sub-activity 1.2.1.2.** Identify lessons learned and best practices used in project interventions, and develop these into implementation guides and best practice reports.

**Activity 1.2.2.** Enhance the dissemination of adaptation knowledge to sub-national decision-makers and communities to support upscaling.

To ensure that knowledge generated through the project is widely accessible and supports long-term climate change adaptation efforts, the proposed project will facilitate the dissemination of knowledge products through both national and international platforms. The primary mechanism for this will be the NAP knowledge management platform, which is currently under development in Mauritania, where

monitoring reports, GCF evaluation reports, community engagement reports, records of the validation workshop, final policy briefs and best practices generated under Activity 1.2.1 will be uploaded and stored. This centralised repository will enhance access to critical adaptation information for policymakers, practitioners and community-level stakeholders.

To extend the reach of these knowledge products beyond digital platforms, the project will strengthen the dissemination of stored materials through community-based communication channels. A communications expert will be consulted to design knowledge-management campaigns that are adapted to the local context. These campaigns will include targeted knowledge-sharing efforts via local radio stations, TV programmes and printed materials such as flyers distributed by DREDD officers. These efforts will ensure that information is accessible to local beneficiaries, including vulnerable populations with limited internet access, thereby supporting enhanced awareness, informed decision-making and the replication of best practices at the community level.

Sub-activities contributing to the delivery of Activity 1.2.2. are:

- **Sub-activity 1.2.2.1.** Upload knowledge products (e.g. implementation guides, monitoring and evaluation reports, community engagement reports, policy briefs, lessons learned and best practice reports) onto the MEDD adaptation knowledge management platform.
- **Sub-activity 1.2.2.2.** Package knowledge in the MEDD adaptation knowledge management platform into formats that are accessible at local level (e.g. brochures, TV and radio programmes, awareness-raising materials).
- **Sub-activity 1.2.2.3.** Disseminate locally-accessible knowledge products in target and non-target communes across the four project wilayahs to catalyze upscaling, with support from the DREDDs and CTCs.

**Output 2.1.** Green-grey dune fixation infrastructure is established to control sand encroachment, enhance the provision of ecosystem services and slow the rate of desertification within the four target hubs.

**Activity 2.1.1.** Establish 2,123 hectares of EbA dune-fixation infrastructure and 120 kilometres of protective fencing across the four target hubs, to facilitate the rehabilitation and maintenance of degraded landscapes and enhance ecosystem services related to dune stabilisation and the supply of natural resources.

Under this activity, ~2,123 hectares (ha) of EbA dune-fixation measures will be implemented across the four target hubs. These measures will include:

- ~1,138 ha of protective green belts (buffer zones); and
- ~985 ha of mechanical and biological dune-fixation infrastructure.

Green belts in strategic locations will slow sand encroachment and subsequent desertification under future climate change conditions, with natural vegetation serving as a barrier to approaching sand dunes (as shown in Figure 142 in Annex 2). This will involve restoring degraded ecosystems and actively planting protective tree lines along the boundaries of priority communes, to create buffer zones between vulnerable communities and mobile sand dunes (for an example of protected tree lines, see Figure 143 in Annex 2). Each green belt will be ~500 m wide, with restored ecosystems and planted treelines forming a continuous barrier against southward-shifting sand dunes. The strategic positioning of these buffer zones along the north-eastern boundaries of Aoujeft, Rachid and Tamcheket will, in turn, shield south-western communes against the impacts of sand encroachment in the long-term. Using GIS software, the number of hectares of EbA dune-fixation measures needed to establish proposed buffer zones in each hub was calculated (Table2).

Table2. Total area of EbA dune fixation measures needed to establish proposed buffer zones in each target hub.

Hub	Area of proposed buffer zone (ha)
Aoujeft	325
Rachid	296
Tamcheket	333
Nema	185

Total	1,139
-------	-------

Mechanical dune-fixation will involve the construction of windbreak hedges via wattling (Figure 145 in Annex 2 **Error! Reference source not found.**), to form ‘stop dunes’, or ‘check dunes’ (see Figure 146 in Annex 2). These structures form a physical barrier between advancing sand dunes and target communities, while the checkerboard pattern assists with capturing sand as it is carried by prevailing winds. Green-grey dune-fixation infrastructure will be installed along the perimeter of each vulnerable town, to ensure that all critical infrastructure is loosely enclosed by treelines, wattling and check dunes. Each of the five towns in Figure 147 in Annex 2 has an area of ~74 ha (740,000 m<sup>2</sup>); therefore, a total of ~370 ha of green-grey dune-fixation infrastructure (fences, wattling and check dunes) are needed to protect critical infrastructure against sand encroachment at these sites.

Community members in the target hubs of Aoujeft, Rachid, Tamcheket and Nema identified several important sites requiring biological and mechanical dune-fixation during stakeholder consultations—outlined in Table3 below. Details regarding why these sites were selected are provided in Section 6 of Annex 2. The total area of mechanical- and biological dune fixation infrastructure required to protect vulnerable sites identified via GIS software and stakeholder consultation is equivalent to 985 ha.

Table3. Number of hectares (ha) of green-grey dune-fixation infrastructure required to protect each of the vulnerable sites identified by stakeholders within the four target hubs.

Hub	Site	Area of green-grey dune-fixation infrastructure (ha)	Proposed dimensions (m)	Perimeter (m)
Aoujeft	Toueïguidit	125	2,500 x 500	6,000
	Ain Savra	70	7,000 x 100	14,200
Rachid	The road on the Hssey Lgara–Touajil axis	350	35,000 x 100	70,200
Tamcheket	Tamcheket town	20	2,000 x 100	4,200
Nema	City of Noual	50	5,000 x 100	10,200
Total		615		104,800

Fencing will be installed around green-grey dune-fixation sites, to protect vegetation against foraging and trampling by free-roaming animals. Accordingly, fences will be erected around each of the dune-fixation sites identified in Table3 above. The planting of treelines for biological dune fixation in buffer zones will follow the best practices described in Section 6 of Annex 2: Feasibility Study and all tree seedlings used during planting exercises will be sourced from local nurseries established under Activity 2.2.1, to support livelihood diversification efforts undertaken by the project. Treelines will comprise a mixture of fast- and slow-growing, climate-resilient species, in accordance with the best practices and lessons learned outlined in Section 6 of Annex 2: Feasibility Study.

Regional livestock cooperatives and breeders’ associations exist within all of the proposed project’s target wilayah; therefore, the proposed project will collaborate with representatives from these organisations — via the commune-level CTCs — to facilitate the adoption of climate-resilient livestock-management practices. Measures will include replacing local livestock breeds with climate-resilient breeds, growing climate-resilient fodder varieties for supplementary feeding during the lean season<sup>18</sup>, and establishing ‘set-aside’ rotational grazing systems to rehabilitate degraded ecosystems and rangelands. Additionally, pastoral water points and livestock corridors will be established to reverse sedentarisation trends among historically transhumant pastoralist communities, reducing anthropogenic pressure on natural ecosystems and minimising conflict between land users competing for natural resources. By employing these strategies, livestock farmers’ resilience to climate change-induced desertification within the four target hubs will be enhanced.

Sub-activities contributing to the delivery of Activity 2.1.1. are:

- **Sub-activity 2.1.1.1.** Support CTCs to co-develop commune-level land rehabilitation plans in collaboration with village-level stakeholders, members of project management teams and DREDD representatives.

<sup>18</sup> The period between successive wet seasons and harvests

- **Sub-activity 2.1.1.2.** Install ~2,123 ha of dune-stabilisation infrastructure (1,138 ha of green belts; 985 ha of biological and mechanical dune-fixation infrastructure) at strategic sites across the four target hubs — to protect critical areas against the impacts of sand inundation.
- **Sub-activity 2.1.1.3.** Install ~120 km of fence lines around dune-fixation sites established under sub-activity 2.1.1.2, to protect biological dune-fixation infrastructure against damage from livestock and unsustainable use of natural resources.
- **Sub-activity 2.1.1.4.** Train livestock herders within the target communes to implement climate-resilient livestock management practices, such as rotational grazing, transhumance, supplementary feeding, agro-silvopasture, collective herding and 'livestock collar re-seeding'.

**Output 2.2.** Improved access to water for land rehabilitation and agricultural activities.

**Activity 2.2.1.** Establish community-managed Water User Groups (WUGs) and commune-level water monitoring and regulation plans.

Commune-level water user groups (WUGs) will be formed in the 12 priority communes. Each WUG will be led by elected community leaders from the respective priority communes and will report to the CTCs. WUG members will comprise local community members and representatives from livestock cooperatives, farmer-based organisations and women's farmer groups in each target commune. WUGs will be trained to monitor water availability and usage within their respective communes and to oversee and manage the construction, operation and maintenance of infrastructure for capturing surface water, managing runoff flow, increasing groundwater recharge and reducing flood risks.

A team of national experts — comprising two hydrogeologists from the Ministry of Water and Sanitation (MHA<sup>19</sup>) and two meteorologists from the National Development Plan (NDP) — will conduct hydrogeological studies to quantify and map groundwater and surface water resources within each of the target hubs. In particular, this team will be mandated to identify flood-risk areas and determine the interconnectivity of aquifers, informing the selection of strategic sites to install: i) groundwater dams, for improving aquifer recharge; ii) gabions, dikes and stone bunds for reducing flood risks; and iii) reservoirs, boreholes, well points and rainwater-harvesting systems to increase rainwater capture and storage. The selection of target sites for water management infrastructure will be summarised in the form of commune-level water management plans.

Sub-activities contributing to the delivery of Activity 2.2.1. are:

- **Sub-activity 2.2.1.1.** Establish community-managed Water User Groups (WUGs) within each target commune and train members to implement and maintain water-related activities introduced under Activity 2.2.2 of the project.
- **Sub-activity 2.2.1.2.** Support CTCs to raise awareness about sustainable water usage and co-develop commune-level water monitoring and regulation plans in collaboration with WUGs.
- **Sub-activity 2.2.1.3.** Conduct hydrogeological studies (or consult existing hydrogeological maps, where applicable) and engage with WUG members to identify priority sites to install water-management infrastructure (Sub-activities 2.2.2.1, 2.2.2.2 and 2.2.3.1) in each target commune. Summarise the finding of site selection into a commune-level water management plan for each priority commune.

**Activity 2.2.2.** Install physical water management infrastructure — including weirs, gabions, dikes, stone- and earthen bunds, groundwater dams and water access points for pastoralists.

Under Activity 2.2.2, water security within the proposed project's target hubs will be strengthened by installing flood management infrastructure — including weirs, gabions, dikes, stone bunds, earthen bunds and groundwater dams — in each priority commune. These measures will reduce surface water runoff, increase groundwater infiltration and recharge rates, and enhance the capture of rainfall for use in supporting sustainable agriculture and climate-resilient livelihoods.

Additionally, pastoral water access points — that is, boreholes equipped with solar pumps — will be established in *graras* and along historical transhumance routes, to support year-round agricultural production and transhumance and reverse sedentarisation trends among nomadic pastoralists. These

<sup>19</sup> Ministère de l'Hydraulique et de l'assainissement

physical measures will: i) improve the availability of fresh water for use in agriculture and livestock farming; ii) reduce unsustainable abstraction from aquifers; and iii) ensure the long-term sustainability of climate-resilient livestock management, agricultural practices and livelihoods introduced under Output 2.3.

The extent of physical water-management infrastructure installed within each target hub should not exceed: i) four groundwater dams (each with a storage capacity of ~10,000 m<sup>3</sup>); ii) 4 km of clay dikes; iii) 4 km of stone gabions; and iv) 80 ha of stone bunds arranged in 50 x 50 m squares.

Sub-activities contributing to the delivery of Activity 2.2.2. are:

- **Sub-activity 2.2.2.1.** Install physical water management infrastructure — including weirs, gabions, dikes, stone- and earthen bunds, groundwater dams and solar-powered pumps — at strategic sites within each target commune, to improve water access and availability, increase groundwater recharge rates and reduce flood risks in the target hubs.
- **Sub-activity 2.2.2.2.** Establish water access points along historical transhumance routes and in *graras*, to improve nomadic pastoralists' access to water and reduce sedentarisation among livestock herders.

**Activity 2.2.3.** Install 12 rainwater-harvesting systems and communal cisterns (5,000 L per system) within each target commune

Under Activity 2.2.3 of the proposed project, the installation of rainwater harvesting (RWH) systems and communal cisterns will increase the capture of surface water runoff during extreme rainfall events and increase target communities' capacities to store water for use during prolonged periods of drought. To promote fair access, sites located near communal buildings (town halls, schools and health posts) and agricultural areas (including market gardens and nurseries) will be given preference, to ensure water is used for agricultural activities and sustainable livelihoods introduced under the proposed project.

To establish the RWH systems and communal cisterns, local labour will be employed and supervised by trained WUG members. Twelve RWH systems and communal cisterns, with a capacity of 5,000 litres each, will be distributed to each of the 12 priority communes, totalling 144 RWH systems and cisterns across the four target hubs.

Sub-activities contributing to the delivery of Activity 2.2.2. are:

- **Sub-activity 2.2.3.1.** Install 12 rainwater-harvesting systems and communal cisterns (5000L per system) within each target commune across the four hubs, to improve access to water for agricultural livelihood activities.

**Output 2.3.** Climate-resilient agricultural livelihoods based on sustainable land- and natural resource-use are developed and/or strengthened to reduce land degradation and support climate-resilient income-generation by community members within the target regions.

**Activity 2.3.1.** Facilitate the adoption of climate-smart agricultural practices and sustainable, diversified livelihoods by farmers within the target communes

The project will facilitate the adoption of climate-resilient practices (Activity 2.3.1). The project will encourage livelihood diversification by supporting the uptake of sustainable income-generating activities such as beekeeping, poultry farming and value-added processing, reducing dependence on traditional agricultural activities and building resilience against climate-related risks. To further improve rural farmers' resilience to the impacts of climate-change desertification, MEDD and the Ministry of Rural Development (MDR) extension officers will supply local nurseries with an initial stock of climate-resilient<sup>20</sup> seed varieties for sale and distribution to local farmers and market gardeners within each of the target hubs and train nursery operators to maintain sustainable stocks (or seed banks).

Horticultural centres established in each priority commune will be supplied with the initial materials needed to commence business operations. These may include beehives for apiculture, climate-resilient seed varieties for seed banks and irrigation kits for market gardens. Access to markets to sell

<sup>20</sup> Crop varieties with drought- and heat-resistant genotypes



horticultural produce will be improved by: i) organising weekly markets in each priority commune — arranged by CTCs — to facilitate trade between local community members; and ii) using ‘community carts’<sup>21</sup> to transport goods to larger, urban markets within the target hubs and surrounding areas. Please refer to Table 82 in Annex 2 for a summary of the types of climate-smart agriculture (CSA) practices currently implemented and Table 84 in Annex 2 for a summary of potential alternative livelihoods.

Sub-activities contributing to the delivery of Activity 2.3.1 are:

- **Sub-activity 2.3.1.1.** Establish nurseries and seed banks in each target commune to supply activities related to land rehabilitation and dune fixation (Activity 2.1.1), CSA practices (Sub-activity 2.3.1.3) and horticultural activities such as market-gardening (Sub-activity 2.3.1.4).
- **Sub-activity 2.3.1.2.** Collect cuttings and seeds from agricultural crop species, as well as indigenous grass and tree species, to serve as stock material for nurseries and seed banks established under Sub-activity 2.3.1.1.
- **Sub-activity 2.3.1.3.** Train farmers within the target communes to practice climate-resilient crop agriculture and use improved agricultural technologies, including drip irrigation kits, solar powered pumps, integrated pest management strategies, zai pits and half-moons.
- **Sub-activity 2.3.1.4.** Conduct site visits and provide technical support to facilitate the uptake of sustainable livelihood activities — including horticulture (market-gardening), apiculture, poultry farming, livestock feed production and the collection and sale of non-timber forest products — by community members within the target communes.
- **Sub-activity 2.3.1.5.** Supply farmers and horticulturalists with water-efficient irrigation equipment and climate-resilient crop varieties to support the uptake of agricultural activities adopted under Sub-activities 2.3.1.3 and 2.3.1.4.
- **Sub-activity 2.3.1.6.** Improve access to urban markets and develop value chains for offloading agricultural produce within each target commune, to enhance income generated from sustainable agricultural livelihoods.

**Activity 2.3.2.** Establish a small grants facility to facilitate continued investment in upscaling successful EbA activities and sustainable livelihoods.

A project Small Grants Facility (SGF) will be established to enhance local communities’ access to finance to upscale successful EbA interventions and sustainable, agriculture-based livelihoods introduced under the project. The on-granting mechanism will promote and support community-led initiatives, fostering the autonomous uptake of EbA practices by community members. GCF Proceeds will be used to finance the sub-grants. The SGF will be housed in MEDD, and sub-grant agreements will be executed between MEDD and each sub-grant recipient.

An SGF Steering Committee will be instituted to guide and oversee the establishment and operations of the SGF. It will be chaired by UNEP as the project AE, and will include representation from MEDD and other relevant Ministries (the Ministry of Finance; the Ministry of Agriculture; the Ministry of Livestock Farming; the Ministry of Housing, Urbanism and Regional Planning), as well as from UNDP (to ensure links and synergies with the Small Grants Programme it manages) and 2-3 Civil Society Organizations. The SGF Steering Committee will review the recommended funding proposals and jointly make the grant award decisions. UNEP as the chair of the SGF Steering Committee will report on its operations to the PSC. Table 81 in Annex 2 outlines the preliminary proposed design of the SGF, and the process for submitting and screening sub-grant proposals. The screening begins with CTCs (including representatives of vulnerable groups and CSOs) and is completed by the SGF team housed in MEDD (see below), before submission to the SGF Steering Committee.

Establishing and operating a project SGF requires procuring an SGF management team to be housed in MEDD, to: i) oversee the facility’s operation and maintenance; and ii) manage the approval, disbursement and monitoring of small grants throughout the project implementation period. Prior to the SGF establishment, an international consultant (finance expert) will develop the SGF’s policies, frameworks and guiding principles. These will be built on lessons learned and best practice from other projects in the region. For example, the experience with the project *Enhancing resilience of communities*

<sup>21</sup> ‘Community carts’ (horse-, ox-, or donkey-drawn carts) provide a means of transport in rural areas — for example, for transporting trees to be planted in protected areas, water for agriculture and nurseries, and stones for the construction of stone bunds. This transport can be used by individuals for a small fee, to generate income and maintain the condition of animals

to the adverse effects of climate change on food security in Mauritania (PARSACC) showed that building social and capital was a key success factor. The international consultant will also design a funding proposal template and accompanying selection criteria for the SGF, streamlining the small-grants approval process.

Capacity building support will be provided to MEDD to strengthen MEDD's institutional, operational and financial capacity for the design, execution and oversight of the SGF. This consultancy will also provide technical backstopping to MEDD on these aspects throughout the implementation of the SGF. As a first step, building on the findings of the HACT micro-assessment undertaken in 2023, specific capacity or process gaps will be identified that may impact the management of the SGF. In addition, experiences and lessons learnt from MEDD's ongoing small grants programme will be reviewed. This programme has been operational since 2022, with \$250,000 awarded annually to approximately 20 local NGOs, cooperatives and other CSOs for climate change adaptation and environmental initiatives.

Furthermore, to increase the capacity of potential recipients of the grants, a suitable service provider will be contracted to work with potential recipients to: i) strengthen their organisational and financial management capacity; ii) increase their capacity to develop and submit project concepts so as to access funds from the SGF; and iii) improve their capacity to successfully implement EbA measures funded through the SGF. It is anticipated that 5 projects per year in each of the 12 target communes will receive grants (60 grants per year) over the final four years of the proposed project. Sub-grants will only be awarded to low risk projects, and will be screened to avoid duplication of other project activities.

Other indicative criteria for projects to be awarded sub-grants:

- Recipients should be legally registered entities, such as NGOs, CSO, cooperatives, associations or local enterprises.
- The proposed initiative to be financed by the sub-grant should support households or communities to adapt to specific climate change risks.
- The proposed initiative should support the uptake or strengthening of climate-resilient livelihoods, or EbA approaches that build the resilience of households or communities.
- The proposed initiative should include measures to ensure the long-term sustainability of the impacts to be achieved with the sub-grant financing.
- The proposed initiative should ensure the development of business skills and market linkages, where relevant. Level of co-financing contribution (cash or in-kind).
- The recipient entity should provide the required ratio of co-financing contribution (cash or in-kind) – to be set at SGF inception stage.
- Maximum request of ~\$25,000.

Indicative criteria for sub-grant recipients are included in Section 11 of Annex 2: Feasibility Study.

These criteria will be finalised during the initial stage of project implementation, in alignment with existing commune-level adaptation plans.

Sub-activities contributing the delivery of this activity are:

- **Sub-activity 2.3.2.1.** Establish and operationalise a Small Grants Facility (SGF) to facilitate continued investment in upscaling successful EbA activities and sustainable livelihoods introduced under the project.
- **Sub-activity 2.3.2.2.** Prepare budget briefs for directing regional government funds into the SGF established under Sub-activity 2.3.2.1. to promote government investment in CCA.
- **Sub-activity 2.3.2.3.** Develop monitoring and reporting mechanisms to ensure the traceability and risk management of funds between the SGF and local-level stakeholders.
- **Sub-activity 2.3.2.4.** Produce annual monitoring and evaluation reports for sub-projects funded via the on-granting mechanism established under Sub-activity 2.3.2.1.



The anticipated project benefits arising from these activities is discussed below.

#### *Anticipated project benefits*

Directly, the project aims to increase the resilience to the current and projected impacts of climate change of around 204,171 very vulnerable individuals living in the growing regional rural-urban hubs of Aoujeft, Rachid, Tamcheket and Nema along the most vulnerable strip of Mauritania. Indirectly, the project will also benefit the country's very fragile and most fertile and populated lands located in the south of the country, by stopping desertification moving further southwards. The project will therefore directly and indirectly contribute to the achievement of the GCF's objectives in terms of the implementation of adaptation strategies and activities.

The project will contribute to promoting a sustainable management of natural resources, including pastures, water bodies and forest, through the participatory development of strategic management plans, which will be informed by rigorous assessments of the impacts and the respective hubs' vulnerabilities to climate change. In addition to improving planning and management, the project will also involve specific activities on land rehabilitation and reducing land degradation such as dune fixation and the introduction of agriculture and livestock practices that help retain soil and grasslands.

The proposed project contributes to a shift from a highly vulnerable to climate change development path to a more resilient one in the four target hubs, in line with the GCFs goals and objectives, supporting Mauritania moving forward to a more sustainable and adaptive pathway. In this sense, the project contributes to a shift from a situation where development and physical planning is weak and not informed by sound knowledge on the impacts, risks, and vulnerability to climate change and investments made on the ground are scarce, isolated and vulnerable, to a situation where development and physical planning is done using a participatory approach informed by sound and exhaustive knowledge on climate change and local development issues and barriers and substantive investments are made leading to land rehabilitation, improved integrated water management and adapted and diversified livelihoods, including agriculture, resulting in increased resilience to the impacts of climate change.

The project will achieve this change by addressing the key barriers for implementing the preferred solution in a strategic, integrated and sustainable way, the different components, outcomes and outputs complementing each other to put in place a systemic change nationally and at the hub level. This is based on the following:

- The project is comprehensive and integrated in terms of strengthening the enabling environment at the national and sub-national level in terms of information, planning and institutions, including testing payment mechanisms for ecosystem services. It implements adaptation measures in four urban-rural hubs which seek to establish a positive ecosystem management model that assures adaptation resilience.
- The project is comprehensive and integrated in spatial terms: it considers the links between rural and urban areas and their potential for landscape and migration benefits that would increase people's adaptive capacity and reduced vulnerability to climate change.
- The project will involve all relevant stakeholders, including a wide range of them, from different scales and sectors of government to the beneficiaries, via the civil society, including NGOs and the private sector, favouring the relevant engagement of women. Importantly, while the project clearly focuses on four regional hubs, it is a strategic imperative to stop the desertification process moving further south, protecting the more fertile and densely populated regions of the country, thereby promoting a systemic understanding of climate change impacts and ecosystem dynamics.
- Finally, the project will build evidence on the impacts, risks and vulnerability to climate change and document and disseminate lessons on adaptation strategies, contributing to knowledge on climate change in the four target hubs and more broadly in Mauritania and links to the existing NAPA process.

The anticipated project co-benefits of the include:

- **Economic co-benefits:** the project will protect and restore ecosystems, which will result in increased ecosystem provision services, with direct economic benefits given an increase in production. Diversification will also increase the GDP. Moreover, the protection and restoration of

ecosystem will result in increased regulation services, which will increase resilience, thus reducing losses related to climate variability and change. This will create jobs, both directly, through increased sustainable use of ecosystems, and indirectly, through demand for technical experts on climate change adaptation and sustainable land management that can provide technical advice. Moreover, this will improve government's budget. On the one hand, the government will increase its collection of taxes, given economic growth. On the other hand, it will be more resilient to shocks, that is, less vulnerable to climate variability and change, which often result in emergency assistance.

- **Social co-benefits:** the project will raise awareness and strengthen capacities of a wide range of stakeholders through different approaches, from training workshops to radio programmes. The project will also contribute to improve safety and health. The protection and restoration of ecosystems will enhance their regulation services. These imply increased resilience to droughts and heavy rains (which can result in floods). Increased regulation ecosystem services also contributes to improved health, given that ecosystems contribute to purify the soil, water and air, regulate the climate (i.e. reducing heat stress), and help control diseases. Increased availability of diverse food and of water will also contribute to a better nutrition and therefore health. Potentially, increased availability of medicinal plants would also have a positive impact on health. Furthermore, the protection and restoration of ecosystems achieved by the project will promote the cultural services provided by them. In this sense, the protection and restoration of oasis will preserve the population's attachment to their land. Moreover, the participatory management of natural resources will help reduce conflicts and maintain social cohesion.
- **Environmental co-benefits:** by protecting and restoring ecosystems through dune fixation and an integrated approach the project will prevent soil erosion and improve its quality, control water flow and purify it, and improve local air quality. Although in a small scale, the project will also decrease ghg emission by reducing deforestation and increasing carbon sequestration. Moreover, the project will contribute to protect and enhance biodiversity.
- **Gender sensitive development impact:** diversification will create formal and informal jobs within rural communities, benefiting women in particular. The project will be particularly careful to ensure the participation of women in all planning exercises. This together with the project's contribution to decrease poverty and increase water and food security will contribute to gender equality.

The project will also target the most vulnerable people within the target communities by paying a special attention to women and young people. The project will ensure they participate in the activity planning exercises and ensure that activities conducted on the ground benefit them in terms of land rehabilitation, access to water and livelihood improvement and diversification.

## 5. LEGAL, INSTITUTIONAL AND POLICY FRAMEWORKS

---

This chapter provides a summary of the legal, institutional and policy frameworks that the project considered during its design phase and will adhere to throughout implementation. These frameworks include national laws, strategies, established development priorities and international agreements, as well as the requirements and regulations of UNEP as the Accredited Entity and the GCF as the project funder.

### *National legal framework*

A brief overview of the most project relevant national legislation is provided below. The list is not exhaustive but provides an indication of the acts and regulations to be considered during the respective project activity's design and E&S risk screening phases.

Key Mauritanian environmental and social (labour conditions) legislation of potential applicability to the project is listed below:

- The Constitution;
- The Environment Code (Law No. 2000-045);
- Law No. 2000-042 On The Protection Of Plants;
- The Labour Code (Law No. 2004-017 Of 6 July 2004);
- The Code of Water (Ordinance No. 85-144 Of 4 July 1986);
- The Code on Hunting and the Protection of Nature (Law No. 97- 006 Of 20 January 1997);
- The Pastoral Code (Law No. 2000-044); and
- The Forest Code (Law No. 97-007 Of 20 January 1997).

While the project and attendant ESMP has been developed in accordance with the above legislation, additional consideration should be given to possible E&S compliance obligations prior to – and during – the implementation of each relevant activity. To support this, the ESMP includes an E&S risk assessment process, which can be utilised at site level to confirm the project-level risk assessments and ensure compliance with relevant legislation

### *National institutional & policy framework*

#### 5.1.1. Project alignment with national priorities

The project aligns with the country's national climate strategies and priorities. In particular, the project is congruous with the following of Mauritania's climate ambitions:

- The restoration of natural grasslands;
- The realisation of water resources availability analysis;
- Strengthening of ecosystem resilience towards climate change;
- Strengthening of vulnerable populations, especially in rural areas; and
- Strengthening of institutional and technical capacities of national and local structures with regards to planning, financing, and implementation of adaptation measures.

In addition, the project is consistent with the NAPA framework, which following a sectoral approach defined priority adaptation measures (PAM), mainly technical and environmental interventions. The high priority PAMs to which the project will contribute directly are:

- Better knowledge of the cycle of the surface waters;
- Construction of flooding breakdown dikes in pluvial and oasis zones;
- Promotion of water-saving techniques in oasis zones;
- Participatory reforestation for energy and agroforestry in agricultural zones; and
- Reorganisation of the communities adversely affected by climate change.

The project will build on NAPA activities by:

- Building capacity of policy-makers and relevant staff from relevant government institutions;
- Building capacity of vulnerable groups in collaboration with key ministries; and

- Developing and implementing at least one awareness-raising campaign in each wilayah for local authorities, civil society organisations (CSOs) and local communities

Building on the NAPA activities, the proposed project will further raise awareness of the need for adaptation and build capacities for adaptation planning and implementation in the target hubs via training and learning by doing, which will provide additional political drivers for engagement and leadership in subsequent iterations of the NAPA.

Furthermore, the project is coherent with Mauritania's spatial planning strategy, which is promoting regrouping and resettlement of villages towards an oasis-centred administrative structure. In an area of Aoujeft (tewemend) the government is grouping several villages, including building water and sanitation and energy infrastructure and health and education facilities.

The project will also contribute to the Sendai framework for Disaster Risk Reduction 2015-2030<sup>22</sup>, through the strengthening of local capacities for assessing climate risks and planning interventions at the community, commune and hub levels.

A full list of the relevant environmental and social sector policies, as well as their provisions and relevance to the project are included in the table below.

Table 4.1: Relevant Environmental and Social Sector Policies

Policy	Policy description, gaps assessment and relevance to the proposed project
Climate change policies	
<i>National Adaptation Programme of Action to Climate Change (2004)</i>	<p>The National Adaptation Programme of Action to Climate Change (NAPA-Rim)<sup>23</sup> acknowledges the severity of climate change and the need for international support to adapt to impacts, given Mauritania's least-developed country (LDC) status. The NAPA-Rim was drafted by the former Department of the Environment, and highlights desertification and the associated consequences as the most notable impact of climate change in Mauritania. Several other impacts are also listed and include, <i>inter alia</i>, increasing water scarcity, lowered water tables, reduced fish stocks and sea-level rise in coastal areas.</p> <p>The NAPA-Rim notes that, in the past, pastoralism has been undermined as a strategy for adapting to climate variability when, in fact, it offers many benefits. Promoting pastoralism and nomadism should, therefore, be a critical consideration in future plans that aim to improve country adaptation. Other adaptation priorities in the NAPA-Rim include: i) investing in water-saving techniques and technology; ii) restoring small dykes and wetlands; and iii) promoting integrated land management.</p> <p>The proposed project aligns with the NAPA-Rim in that both recognise that desertification is the most considerable climate change impact in the country. The Policy includes the implications of desertification in different sectors, such as livestock, agriculture and oases economies. Some identified adaptation options in the Policy are also recommended in the proposed GCF project, such as stabilising dunes, strengthening nomadism, promoting oasis economies, and improving water monitoring and use. The Policy addresses the need to prioritise institutional mechanisms for nature conservation and climate change adaptation. In addition, it acknowledges that the GoM does not have the financial capacity to implement climate change-adaptation projects, identifying the need for tapping into international funding mechanisms. However, its proposed adaptation</p>

<sup>22</sup> Sendai Framework for Disaster Risk Reduction 2015-2030 | Department of Economic and Social Affairs (un.org)

<sup>23</sup> GoM. 2004. National Adaptation Programme of Action to Climate Change. Available at: <https://unfccc.int/resource/docs/napa/mau01e.pdf> Accessed on 27 August 2022.

	<p>options and projects do not include land use planning at the regional level, only in Nouakchott, nor does the Policy address gender.</p> <p>The proposed GCF project is superseded by the National Adaptation Plan (NAP), which is described below.</p>
<i>National Adaptation Plan</i>	<p>Mauritania's NAP is currently under development. The government is receiving readiness and preparatory support from the GCF to capacitate local institutions, which will aid the NAP's development.</p> <p>The proposed GCF project will complement the ongoing NAP efforts through its proposed activities, discussed in Section B.3. of the Funding Proposal.</p>
<i>National Communication on Climate Change IV (2019)</i>	<p>The National Communication on Climate Change IV emphasises Mauritania's heightened vulnerability to climate change<sup>24</sup>. Impacts highlighted in this communication include: i) projections that water availability will decrease by 15%; ii) the expansion of the Sahara Desert toward the south of the country; and iii) desert encroachment into agricultural land. These impacts are expected to negatively affect agricultural yield, and food and water security in the country.</p> <p>The proposed project will complement recommendations stipulated in the National Communications on Climate Change IV. Proposed efforts that align are discussed in Section B.3. of the Funding Proposal and include measures to strengthen natural resource management and governance and increase gender inclusion.</p>
<i>Nationally Determined Contributions (2021)</i>	<p>The Nationally Determined Contributions (NDCs) delineate Mauritania's adaptation needs<sup>25</sup>. The impacts of climate change on water availability, agriculture and livestock are discussed in the document. It also provides an overview of the identified priority sectors for adaptation, which include nature conservation, agropastoral systems and fisheries.</p> <p>The activities proposed by the project will advance the NDCs through the implementation of sustainable livestock-breeding practices, reforestation interventions and strengthened institutional capacity, with a strong focus on improving the adaptation capacity of rural communities along the Sahara-Sahelian border. Interventions that aim to decrease the impact of desertification in these communities will contribute toward the adaptation goals stipulated in the NDC document. The climate adaptation interventions proposed by the project have been designed in line with the land-use planning, gender responsiveness, institutional requirements and financial needs described in the NDC.</p>
<i>Environment and conservation policies</i>	
<i>National Action Plan against Desertification in Mauritania (National Plan Against Desertification in Mauritania; 2002)</i>	<p>The <i>Programme d'Action National de Lutte Contre la Desertification en Mauritanie 2022</i> (PAN-LCD) highlights the multifaceted nature of desertification. With this foundational understanding, it aims to ensure that the challenges around desertification are incorporated into a sustainable, national development plan that encompasses technical, socioeconomic, judicial and institutional facets.</p> <p>The PAN-LCD has resulted in the formulation of several sustainable development programmes and created awareness of the role that socioeconomic-development objectives play in addressing desertification. In addition, the Plan defines the regulatory and institutional frameworks to combat desertification in Mauritania, including potential internal and</p>

<sup>24</sup> GoM. National Communication on Climate Change IV. Available at: <https://unfccc.int/documents/200088> Accessed on 30 August 2022.

<sup>25</sup> GoM. 2021. Contribution Determinee Nationale Actualisee (CDN) 2021–2030. Available at: [https://unfccc.int/sites/default/files/NDC/2022-06/CDN-actualis%C3%A9%202021\\_%20Mauritania.pdf](https://unfccc.int/sites/default/files/NDC/2022-06/CDN-actualis%C3%A9%202021_%20Mauritania.pdf) Accessed on 30 August 2022.

	<p>external funding streams. The proposed GCF project aligns with the PAN-LCD in that it also acknowledges the multifaceted nature of desertification. Similar to the recommendations in the PAN-LCD, it proposes that strategies to combat desertification be incorporated across different plans, policies and government bodies.</p> <p>Several gaps are identified in the PAN-LCD. These include the need for: i) an operational land-use planning authority, <i>the Schéma National d'Aménagement du Territoire</i> (SNAT), to coordinate local development plans; and ii) coordination with United Nations conventions, such as climate change (UNFCCC) and biodiversity (CBD), and institutional actions to mainstream desertification. Gaps in the PAN-LCD itself include gender equity being incorporated in planning mechanisms.</p> <p>Upon its completion, the NAP (discussed above) will supersede the PAN-LCD.</p>
<i>Political Declaration of the Environment and Sustainable Development (2011)</i>	<p>The <i>Déclaration de Politique d'Environnement et de Développement Durable</i> (PDEDD) is centred around addressing poverty, state transparency and the conservation of natural resources<sup>26</sup>. The following national priorities are stated within the document: i) promoting sectoral reforms based on the development of human, material and financial resources; ii) establishing Good Environmental Governance (<i>Bonne Gouvernance Environnementale</i>), which is a framework for planning, implementing, monitoring and evaluating national interventions; iii) abiding by international conventions on climate change adaptation and biodiversity conservation; iv) promoting renewable energy; v) engaging with international, national and regional mechanisms for the research, education and dissemination of sustainable management; and vi) improving urban management. These priorities will be achieved through the reinforcement of institutional capacity in environmental management, integrated resource management and the implementation of international conventions on climate, such as the UNFCCC and the Kyoto Protocol.</p> <p>Although comprehensive, the PDEDD has several gaps, including the absence of land-use planning and gender considerations. In addition, there is no mention of financing sources for the proposed international reforms — despite the identification of ratified international convention for financing. A full review of the PDEDD will be conducted under the proposed GCF project, identifying necessary measures to integrate land use planning and gender considerations into the project design.</p> <p>The proposed GCF project aligns with PDEDD's objectives of improving institutional capacity and governance for environmental management and sustainable development. The PDEDD also includes climate change considerations in its narrative. For example, one PDEDD action is to implement international conventions, such as climate change, biodiversity and desertification. It is also acknowledged that institutional capacity needs to be strengthened to implement environmental and sustainable development goals.</p>
<i>National Action Plan for the Environment II (2012–2016)</i>	<p>The <i>Plan d'Action Nationale pour l'Environnement II</i> (PANE II) was elaborated to create a framework that supports all environmental policies<sup>27</sup>. The objective of the plan includes the development of best practices for environmental conservation and natural resource management. Climate change is recognised as a threat to livelihoods and food security, particularly</p>

<sup>26</sup> GoM. 2011. Déclaration de Politique d'Environnement et de Développement Durable. Available at: <https://aires-marines.ugar.ca/27/1/DPEDDRIM.pdf> Accessed on 27 August 2022.

<sup>27</sup> GoM. 2012. Plan d'Action National pour l'Environnement 2012-2016 (PANE II). Available at: <https://www.fao.org/faolex/results/details/en/c/LEX-FAOC146663> Accessed on 27 August 2022.

	<p>in rural settings, with the mainstreaming of sustainable development and environmental affairs proposed to address this challenge.</p> <p>PANE II is subdivided into seven sub-programmes: i) environmental evaluation and regulation; ii) sustainable management of natural resources; iii) conservation, restoration and management of biodiversity; iv) prevention of extreme weather events; v) adaptation to climate change; vi) information, education and communication of environmental affairs; and vii) institutional reforms. Through PANE II, the MEDD becomes an independent institution to implement environmental management practices across sectors.</p> <p>The proposed GCF project complements PANE II's objective of mainstreaming natural resource management and reinforcing institutions and governance. In addition, PANE includes a governance apparatus for environmental conservation, climate change and natural resource management. It contains information regarding the existing legislation on natural resource management, which is discussed as uncoordinated in the absence of clearly-defined roles and responsibilities of relevant institutions. The conflicting framework hinders effective natural resource management and the implementation of land-use planning and environmental protection interventions.</p> <p>The proposed GCF project will not review the PANE II under activity 1.1.1 as the Policy has been superseded by the National Strategy and Plan of Action for the Environment and Sustainable Development (SNEDD; discussed below).</p>
<p><i>National Strategy and Plan of Action for the Environment and Sustainable Development (2017–2030) and National Action Plan for Environment and Sustainable Development (PANEDD).</i></p>	<p>The <i>Stratégie Nationale de l'Environnement et du Développement Durable</i> (SNEDD) supersedes PANE II. It provides a strategic foundation for integrating environmental, climate and sustainable development goals into other sectoral policy frameworks<sup>28</sup>. The implementation of SNEDD through the National Action Plan for Environment and Sustainable Development (PANEDD), is part of the wider national institutional framework for development policies.</p> <p>SNEDD and accompanying PANEDD underpin the GoM's coordination mechanisms for monitoring environmental challenges. The initiative is divided into four strategic components: i) integrated environmental governance adapted to challenges; ii) integrated and sustainable management of natural resources and terrestrial biodiversity; iii) sustainable management of the marine and coastal environment; and iv) strengthened prevention and management of pollution and anthropogenic threats. PANEDD operationalises the necessary actions for each of these four strategies, including the relevant implementing institution, financing plan and a monitoring and evaluation plan.</p> <p>The SNEDD includes gender considerations in the proposed institutional reforms for integrated environmental management and suggests women-only positions in the organisations involved in the implementation of the PANEDD. It also includes measures to improve environmental governance in the context of climate change and baseline challenges, including partnerships between institutions, financing streams, and institutional reform. Financing mechanisms for the implementation of various actions are considered.</p> <p>The proposed GCF project aligns with the SNEDD and PANEDD through shared goals of strengthening land-use management and institutional governance, both of which address climate change impacts. Notably, climate change is mainstreamed into the SNEDD plan, with desertification</p>

<sup>28</sup> GoM. 2017. Available at: <https://www.fao.org/faolex/results/details/es/c/LEX-FAOC175844/#:~:text=Sp%C3%A9cification%2C%20la%20SNEDD%20vise%20%C3%A0,%C3%A9cosyst%C3%A9miqu es%20et%20des%20ressources%20naturelles>. Accessed on 27 August 2022.



	considered a priority. In addition, local and decentralised natural resource management is recognised within land-use planning considerations. These considerations are not, however, included in the PANEDD, with land-use planning activities largely absent. Under activity 1.1.1 the proposed GCF project will complement the SNEDD with a review to advance land-use planning considerations.
<i>National Biodiversity Strategy and Plan of Action (2011–2020)</i>	<p>The <i>Strategie et Plan d'Action National de la Biodiversité</i><sup>29</sup> is aligned with the Convention on Biological Diversity. The Strategy's primary goals include the conservation of wetlands, coastal ecosystems and forests through the long-term maintenance of ecosystem functions. These functions include their capacity to adapt to environmental change, particularly desertification and climate change. The Strategy describes six major focal areas: i) creating the desire to act on behalf of biodiversity; ii) preserving life and its ability to evolve; iii) investing in biodiversity conservation; iv) assuring the sustainable and equitable use of biodiversity; v) assuring policy coherence and the effectiveness of actions; and vi) developing, sharing and using knowledge<sup>30</sup>. National targets and accompanying actions, indicators and implementation costs have been established to support these goals.</p> <p>Within the abovementioned framework, the Strategy includes measures to ensure the sustainable management of rangelands and reduced pressure on pastoral and forest resources. In addition to ensuring the structural integrity of ecosystems, this Strategy contributes to Mauritania's poverty-reduction efforts and also explicitly addresses the inclusion of women and pastoralists in biodiversity management and governance participation.</p> <p>Several gaps are highlighted in the Strategy. These include limited coordination between multiple agencies involved in biodiversity conservation and an outdated institutional and administrative framework for coordinating biodiversity actions. In addition, the inclusion of women and pastoralists in biodiversity management is limited to only one of the Strategy's activities. Climate change considerations, monitoring mechanisms and a detailed overview of financing sources are also absent from the Strategy. Under activity 1.1.1, the proposed GCF project will present a review of the Strategy to include climate change and gender considerations and further expand financing sources to strengthen the National Biodiversity Strategy and Plan of Action.</p> <p>The proposed GCF project aligns with the National Biodiversity Strategy through the promotion of nature-based solutions that support biodiversity conservation, alternative natural resource-based sustainable livelihoods and sustainable livestock practices. Similar to the proposed project, the Strategy recommends addressing desertification to bolster biodiversity. A national land-use plan (SNAT) is also suggested to address the challenge of rural migration to urban centres.</p>
<i>National Strategy for Wetland Conservation (2014)</i>	The <i>Strategie Nationale de Conservation des Zones Humides</i> highlights the urgency of wetland conservation in Mauritania, with emphasis on their value, uniqueness and fragility <sup>31</sup> . The goal of the Strategy is to outline the approach to conservation restoration and sustainable management of wetland ecosystems. Locally, wetland systems are referred to as, <i>inter alia</i> ,

<sup>29</sup> GoM. 2011. *Stratégie et Plan D'action National de la Biodiversité 2011-2020*. Available at: <https://www.fao.org/faolex/results/details/en/c/LEX-FAOC160741/>. Accessed on 27 August 2022.

<sup>30</sup> GoM. 2014. *Strategie nationale de conservation des zones humides*. Available at: <https://rim-rural.org/2019/10/01/snczh-strategie-nationale-de-conservation-des-zones-humides-en-mauritanie/>. Accessed on 27 August 2022.

<sup>31</sup> GoM. 2014. *Strategie Nationale de Conservation des Zones Humides*. Available at: <https://www.fao.org/faolex/results/details/en/c/LEX-FAOC177461/#:~:text=Il%20s'agit%20pour%20la,les%20zones%20humides%2C%20soutenir%20la>. Accessed on 27 August 2022.

	<p><i>tamourts, gâats, oueds, tichillits, oases and sebkhas</i> and include perennial, semi-permanent or temporary water bodies.</p> <p>Several principles for wetland management are described in the Strategy and include: i) participatory management; ii) transparency, equity and social justice; iii) shared responsibility for the environment; iv) decentralisation of decision-making; v) precautionary and preventative measures; and vi) the coordination of synergies. Its objectives are to: i) implement a wetland governance system; ii) implement a legal framework specific to wetlands; iii) preserve and restore wetlands; iv) regulate access to wetland resources; v) maintain and improve the state of wetlands; vi) improve watershed management; vii) develop sustainable agricultural and animal husbandry practices in wetlands; viii) implement the strategy of wetland management; ix) strengthen institutional and human capacity; x) strengthen technical and scientific capacity; xi) promote sustainable exploration practices of natural resources; xii) develop income-generating activities compatible with the sustainable management of wetlands; and xiii) implement a financing mechanism.</p> <p>The proposed project aligns with the Wetland Conservation National Strategy in its approach to strengthening community management of natural resources, including wetlands. The Strategy establishes governance principles for the wetland conservation plan, such as decentralised decision-making, and aims to implement a governance system for wetland conservation, and also reinforces existing institutional capacities. It also incorporates an overview of national and international financing sources, although the specific amounts required to operationalise interventions are not disclosed.</p> <p>Several gaps are present in the National Strategy for Wetland Conservation. First, good wetland management is described as a suitable method for preventing and addressing the challenge of desertification. However, the Strategy only refers to climate change projects and policies in Mauritania without including climate change scenarios in its design. Moreover, the Strategy does not disclose land-use planning activities for wetland conservation under the action plan despite being informed by existing land-use policies. Finally, the Strategy does not include gender considerations in its plans. Given these gaps, the proposed GCF project will review the National Strategy of Wetland Conservation to include climate change, gender and land-use planning considerations under Activity 1.1.1.</p>
<i>Great Green Wall Implementation Strategy and Plan of Action (2009)</i>	<p>Albeit not a national policy, Mauritania is included in the Great Green Wall (GGW) Implementation Strategy and Plan of Action. The GGW is a project implemented across 22 countries in the Sahel that aims to regenerate land along the southern and northern border of the Sahara Desert, where annual rainfall is below 400 mm. In particular, the GGW strengthens the implementation of national action plans to address desertification, targeting sustainable development and poverty reduction in the desert margin south of the Sahara.</p> <p>The MEDD is responsible for the implementation of the GGW in Mauritania. These activities are expected to: i) help slow soil erosion; ii) restructure degraded soil; iii) revive, develop and diversify agriculture and stock breeding; iv) restore biodiversity; v) increase forest coverage; vi) control water resources; and vii) reverse rural migration. Over 550 ha have been seeded and 225 ha of dunes have been fixed under the project<sup>32</sup>.</p>

<sup>32</sup> MEDD website. Available at: <http://www.environnement.gov.mr/fr/index.php/features/le-medd-en-chiffres>. Accessed on 29 August 2022.

	The proposed GCF project is aligned with the Great Green Wall interventions of dune fixation and reforestation and will advance its efforts through the activities proposed for implementation in the four regional hubs.
<i>Economic development and livelihood policies</i>	
<i>National Plan for Rural Women (2009–2012)</i>	<p>The Plan d'Action National pour la Femme Rural is spearheaded by the Ministry of Social Affairs, Childhood and Family (Ministère des Affaires Sociales, de l'Enfance et de la Famille)<sup>33</sup>. This National Plan forms part of the long-term plan to address poverty in the country, deriving from the Strategy Framework Against Poverty (CSLP). Within this plan, it is recognised that women experience worse socioeconomic conditions than men. These disparities include susceptibility to poverty, abandonment, insufficient access to basic services, exclusion from development plans, and the deprivation of political, economic and social rights.</p> <p>The National Plan for Rural Women has the following six primary objectives: i) promoting women's rights through mass communication and popularisation; ii) improving rural women's health; iii) strengthening women's access to education; iv) developing infrastructure; v) promoting the employment of women through, inter alia, professional training and credit access; and vi) strengthening the institutional capacity of the institutions responsible for rural women.</p> <p>Similar to the Plan's inclusion of women in rural development, the proposed GCF project incorporates gender-responsive activities in its design. One of the objectives of the Plan is to strengthen institutional capacity, including a coordination and monitoring plan for the rural woman, a legislative review, the creation of a National Centre of Rural Women Studies, the institutionalisation of district-level councils for gender-related challenges, and the support of organisations for rural women. The Plan also includes national financing sources.</p> <p>The Plan is limited in that it does not include climate change or land-use planning considerations in its design, despite the presence of proposed reforestation interventions. The Plan is also relatively outdated.</p> <p>The proposed GCF project will offer a review to update the rural women policy for gender equality development in Mauritania and include climate change considerations under Activity 1.1.1.</p>
<i>Strategic Framework Against Poverty III (2011–2015)</i>	The <i>Cadre Stratégique de Lutte contre la Pauvreté III</i> (CSLP III) directs poverty-reducing policy towards interdependent and decentralised sectorial policies to spur economic growth <sup>34</sup> . The CSLP III instils country ownership in addressing poverty through national institutions and processes. It is structured around four strategic pillars: i) macroeconomic stabilisation; ii) the inclusion of the poorest in economic growth; iii) human capital development and access to essential services; and iv) governance improvements and institutional-capacity strengthening. This Framework was superseded by the National Strategy for Accelerated Growth and Shared Prosperity II (SCAPP II), described below.
<i>National Accelerated Growth and Shared Prosperity Strategy II (2016–2030)</i>	The <i>Stratégie Nationale de Croissance Accélérée et de Prospérité Partagée II</i> (SCAPP II) is a national development plan aligned with the 2030 Agenda

<sup>33</sup> GoM. 2008. Plan d'Action pour la Femme Rural. Available at: <https://www.ilo.org/dyn/natlex/docs/MONOGRAPH/96687/114335/F1693895911/MRT-96687.pdf> Accessed on 27 August 2022.

<sup>34</sup> GoM. 2011. Cadre Stratégique de Lutte contre la Pauvreté 2011-2015. <https://www.fao.org/faolex/results/details/en/c/LEX-FAOC145913/#:~:text=S'agissant%20de%20la%20r%C3%A9duction,p%C3%A4che%20artisanale%20c%C3%B4ti%C3%A8re%20et%20continentale>. Accessed on 27 August 2022.

	<p>for Sustainable Development<sup>35</sup>. SCAPP II is composed of three axes. The first axis promotes strong, durable and inclusive economic growth through economic diversification and transformation, developing the infrastructure that supports economic growth and a competitive private sector. The second axis addresses human capital development by increasing access to basic social services, such as quality education and professional training, health and nutrition, and employment. The third axis is the reinforcement of governance across all dimensions. SCAPP II recognises the dual importance of ecosystem conservation and restoration to support Mauritania's development and capacity to adapt to climate change.</p> <p>The SCAPP's third objective is to strengthen all governance systems appropriate to economic development and growth. It also includes cost implications of the suggested programmes and quantifies the necessary co-financing amounts, but not financing partners.</p> <p>The proposed GCF project recommends an ecosystem-based approach (EbA) to address climate change adaptation. This approach is supported by the Strategy, which describes EbA as critical in strengthening the country's resilience to climate change. Climate change considerations also underpin the Strategy's strategic plan, which translates into climate-resilience elements for each sectoral objective. In addition, the Strategy includes land-use planning to strengthen and solidify decentralisation, proposing a regional approach. Gender considerations are integrated into the SCAPP II, which includes gender-disaggregated indicators in its diagnostic section and gender objectives in its vision section. The Strategy also addresses gender inclusion under two of its directive sub-programmes, namely: i) improving the resilience of the most vulnerable groups; and ii) improving women's citizen participation, which encompasses national, regional and community-level governance structures.</p>
<i>Development Strategy for the Rural Sector, Horizon 2025 (2012)</i>	<p>The <i>Stratégie de Développement du Secteur Rural</i> (SDSR)<sup>36</sup> was developed together with SCAPP II. It establishes the framework for the development of agropastoralism in Mauritania. The SDSR aims to: i) implement infrastructures adapted to rural settings; ii) foster innovation and development through research, education and professional training and the inclusion of actors in the value chain; iii) ensure sufficient financing adapted to the country's context; and iv) support commercial services by strengthening the appropriate government departments. The Strategy further aims to promote the inclusion of the youth and women in rural economies. It identifies the need to create public-private partnerships and foster the conditions to attract investment, and also delineates the need to develop and implement the Law for Agropastoral Orientation. The National Agricultural Development Plan offers an actionable plan for the SDSR.</p> <p>The proposed project and SDSR's objectives are aligned in that both aim to develop agriculture and pastoralism through a natural resource-management approach. Regarding rural development governance, the Strategy recognises the importance of participatory and co-management approaches to natural resource management and planning. It also aims to adapt the institutional and judicial framework to enhance rural development further. The SDSR recognises the limited financial contribution of the banking system to the rural and agricultural sectors in its diagnosis. It further details the financing needs for each sectoral Policy objective (livestock,</p>

<sup>35</sup> GoM. 2016. Available at: <https://www.fao.org/faolex/results/details/fr/c/LEX-FAOC190616/#:~:text=La%20Strat%C3%A9gie%20nationale%20de%20croissance,de%20soutien%20%C3%A0%20la%20croissance%2C> Accessed on 27 August 2022.

<sup>36</sup> GoM. 2013. *Stratégie de Développement du Secteur Rural* (SDSR) Available at: <https://rim-rural.org/2021/02/16/strategie-de-developpement-du-secteur-rural-sdsr-horizon-2025/> Accessed on 27 August 2022.

	<p>agriculture, rural development, natural resource management and institutional framework strengthening).</p> <p>The SDSR acknowledges the uncertainty of climate change effects and impacts and Mauritania's exacerbated vulnerability to climate change. However, it does not include climate-resilience objectives or results, nor does it describe the implication of desertification on rural development. Moreover, the SDSR does not mention the stark difference between arid landscapes and the Senegal River Valley in the logical framework's objectives and expected results. In addition, the Strategy does not have any land-use planning objectives or outcomes. The proposed GCF project will review the SDSR to include climate change and regional considerations under Activity 1.1.1.</p>
<p><i>National Agricultural Development Plan (2015–2025)</i></p>	<p>The <i>Plan National de Développement Agricole (PNDA)</i><sup>37</sup> follows the 2012 SDSR and the Law of Agropastoral Orientation (<i>Loi d'Orientation Agropastoral</i>). It is aligned with CSLP and the National Strategy for Food Security (<i>Stratégie Nationale de Sécurité Alimentaire, SNSA</i>). The goals of the PNDA are to: i) promote the intensification and diversification of agricultural products to meet national needs; ii) promote agricultural competitiveness; iii) promote the sustainable and participatory management of natural resources; and iv) increase the operationalisation of the structures that support the agricultural sector. Its action points are structured around local development, natural resource management, and adaptation of the institutional and judicial framework and its supporting structures, namely infrastructure, research, rural councils and financing rural-sector development.</p> <p>The proposed GCF project's approach to local development, natural resource management and institutional strengthening aligns with the PNDA, which is underpinned by climate considerations. For example, climate resilience forms a critical element of the PNDA's first objective, which aims to promote climate-resilient rural and peri-urban economies. Desertification is also acknowledged as a considerable challenge. The PNDA also includes a proposal to create an environmental hazards fund for rainfed agricultural producers. This fund will be used to support food security in vulnerable communities. The absence of long-term climate models does, however, create a gap in this component.</p> <p>The PNDA is informed by the existing land-use planning framework and considers different objectives for oases, and arid and irrigated agricultural zones. Its sub-programme 3.1 includes directorial land access and redistribution plans to improve agricultural land use, protection and rehabilitation. Women's employment forms one of the PNDA's pillars, and women's associations are included in the stakeholder list of the PNDA's steering committee. Gender considerations also appear to be incorporated in the PNDA's action plan's objectives.</p> <p>The PNDA includes the institutional strengthening of i) agricultural support systems provided by the Ministry of Agriculture, <i>inter alia</i>, research and development, extension services, training; and of ii) producers' associations and organisations. In addition, it presents the costs associated with the proposed programmes and potential financing partners, including its alignment with ongoing, internationally funded projects. Under Activity 1.1.1, the proposed GCF will review the PNDA and its integration with the other policies, <i>inter alia</i>, the SDSR, the SNEDD or SNADEA.</p>

<sup>37</sup> GoM. 2015. Plan National de Développement Agricole. Available at: <https://www.fao.org/faolex/results/details/en/c/LEX-FAOC175842/>. Accessed on 27 August 2022.



<p><i>National Water and Sanitation Policy and Strategy (2016–2030)</i></p>	<p>The objective of the <i>Stratégie Nationale pour un Accès Durable à l'Eau et l'Assainissement</i> (SNADEA)<sup>38</sup> contributes to Mauritania's sustainable development framework, recognising the political priority of the water sector and its strategic importance to the success of other sectors, such as agricultural development. It recommends appropriate solutions to water-related problems to prevent water scarcity from becoming a limiting factor to economic and social development. The SNADEA is based on an assessment of the country's water inventory. Its strategy is divided into five themes: i) extending the knowledge on monitoring and protecting water resources; ii) improving access to drinking water; iii) improving access to water for agriculture and livestock; iv) improving access to sanitation and hygiene; and v) improving governance of the water sector. The SNADEA further breaks down each theme into recommended programmes and projects, including the appropriate executing agency, institutional partners, project components and outcomes, indicators and implementation budgets. The sectoral objectives in SNADEA 2016–2030 are incorporated into the SCAPP II, introduced above.</p> <p>The proposed GCF project aligns with the Policy's objective of expanding knowledge on, monitoring and protecting water resources. The SNADEA recognises the impacts of climate change on water availability and use. It also incorporates climate change scenarios and their implications on rainfall patterns and includes climate resilience in its programme's objective.</p> <p>Despite the acknowledgement of climate change impacts, desertification is not distinctly mentioned in the Strategy. In addition to climate change considerations, the SNADEA's fifth theme focuses on strengthening the water and sanitation sector's governance apparatus and identifies the institutional partners necessary for implementing the proposed programmes. The SNADEA's strategy includes foreseen costs for programme implementation and potential financing sources. However, while the Strategy acknowledges the role of the water and sanitation sector in addressing women's vulnerability, it does not detail any gender-specific objectives or gender-responsive activities. The SNADEA is also absent of land-use planning considerations. Under Activity 1.1.1, the proposed GCF project will review the SNADEA to integrate water cycles into land-use planning for sustainable water management and gender considerations.</p>
<p><i>National Livestock Development Plan (2018–2025)</i></p>	<p>The <i>Plan National de Développement d'Élevage</i> (PNDE) is structured around five pillars: i) supporting and securing traditional pastoral livelihoods, ii) developing livestock breeds for productivity and competitiveness; iii) improving animal health care; iv) strengthening research and development capacity; and v) strengthening the institutional framework and capacity<sup>39</sup>. Each pillar is supported by programme and sub-programme guidelines. For example, the development of a sustainable management system for water resources. The PNDE is to be enacted by a Steering Committee composed of different actors, representatives of the livestock sector and relevant government agencies. The Steering Committee is also responsible for the implementation of monitoring and evaluation.</p> <p>The proposed GCF project's approach to traditional pastoral livelihoods is aligned with the PNDE's goal of developing the livestock sector. The PNDE acknowledges the impacts of climate change on the livestock sector but does not explicitly use climate change scenarios to inform it. It does, however, include an assessment of climate change impacts on the livestock sector. Desertification is addressed in the PNDE as a climate change impact, while pastoralism is recognised as an adaptive strategy that should</p>

<sup>38</sup> GoM. 2016. *Stratégie Nationale pour un Accès Durable à l'Eau et l'Assainissement*. Available at: <https://www.fao.org/faolex/results/details/en/c/LEX-FAOC190613/> Accessed on 27 August 2022.

<sup>39</sup> GoM. 2017. *Plan National de Développement d'Élevage*. Available at: <https://www.fao.org/faolex/results/details/en/c/LEX-FAOC190618/> Accessed on 27 August 2022.

	<p>be reinforced. The PNDE also aims to strengthen governance and institutions under its fifth pillar and includes cost estimates and co-financing needs for each proposed programme.</p> <p>The PNDE incorporates land-use planning considerations in its approach to natural resource management as a condition for strengthening agropastoral livelihoods. However, it does anticipate land-use planning specific activities or objectives. The PNDE also includes gender-specific objectives and activities relating to employment and livelihoods. Despite these gender-specific activities, other activities in the Plan do not have gender considerations clarified. Given the seeming policy gaps, the proposed GCF project will review the PNDE to include gender and land-use planning considerations under Activity 1.1.1.</p>
--	---

### *UNEP Safeguards and Gender Policies*

As the Accredited entity implementing the project, UNEP is responsible overseeing project implementation to ensure that risks are adequately minimized and/or mitigated and that project benefits are equitably distributed across all beneficiaries. UNEP's Environmental and Social Safeguards Standards are monitored and enforced by the agency in all UNEP projects. These standards have been classified into eight Safeguards Standards and are guided by the human rights and precautionary principles. These standards are as follows:

- SS 1: Biodiversity, Ecosystems and Sustainable Natural Resource Management
- SS 2: Climate Change and Disaster Risks
- SS 3: Pollution Prevention and Resource Efficiency
- SS 4: Community Health, Safety and Security
- SS 5: Cultural Heritage
- SS 6: Displacement and Involuntary Resettlement
- SS 7: Indigenous Peoples
- SS 8: Labour and working conditions

This project has been assessed with respect to these standards using the UNEP Safeguard Risk Identification Form (Appendix 5). This screening tool determined the project to fall into the **Moderate risk category** and has informed the development of the safeguard instruments. The outcomes of this screening, alongside a broad review of the activities in the discrete context in which they will be implemented have been used to reduce identified risks by modifying project activities. Additionally this information formed the basis for the mitigation actions as described in the ESMP Table. The outcome of this risk screening is discussed further in Chapter 5.

### *Green Climate Fund Safeguards, Gender and Indigenous Peoples Policies*

The project will additionally adhere to the GCF Environmental and Social Management System and any obligations UNEP would incur in the Accreditation Master Agreement and the Funded Activity Agreement. The GCF currently utilises the IFC framework as their interim safeguards framework, which broadly aligns with UNEP's own Safeguards Standards. These standards are as follows:



- PS 1: Assessment and Management of Environmental and Social Risks and Impacts;
- PS 2: Labour and Working Conditions;
- PS 3: Resource Efficiency, Pollution Prevention and Management of Chemicals and Wastes;
- PS 4: Community Health, Safety, and Security;
- PS 5: Land Acquisition and Involuntary Resettlement;
- PS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources;
- PS 7: Indigenous Peoples; and
- PS 8: Cultural Heritage.

Given the alignment between the UNEP and GCF Safeguards Standards, and the role of UNEP as the AE, the project has been assessed against UNEP, rather than GCF Standards in this document. In terms of the GCF project risk categorisation scale, however, the proposed project is deemed to be a Category B (Moderate risk) Project, whereby there are some potential for minor, moderate and generally reversible impacts that can be mitigated through good practice and the implementation of discrete and specific risk management processes. This characterisation, its justification and further information on the risk screening process is covered in a subsequent chapter.

The project development has also been undertaken with cognisance of the following GCF guidance:

- GCF environmental and social safeguards (2015);
- GCF environmental and social policy (2018);
- GCF gender policy (2019);
- GCF Indigenous Peoples Policy (2019);
- GCF Information Disclosure Policy (2019);
- GCF Programming Manual (2020);
- GCF Procedures and Guidelines of the Independent Redress Mechanism (2019);
- Sustainability guidance note: screening and categorizing GCF financed activities (2019); and
- Sustainability guidance note: designing and ensuring meaningful stakeholder engagement on GCF-financed activities (2022).

### *Other Considerations*

#### Sexual Exploitation, Assault and Harassment (SEAH) and Gender Based Violence (GBV)

- As discussed in this ESMP and elsewhere — including in the Gender Analysis and Action Plan (Annex 8) — there are a range of gender-related risks associated with the project. Both the GCF and UNEP have a zero tolerance for SEAH and GBV as evidenced by their internal policies and guidance notes on the subject.
- The project will take a zero-tolerance approach to SEAH and GBV and will implement a dedicated GRM to address this potential concern, as well as ongoing training on SEAH and GBV as an aspect of the training described in the GAAP.

Mauritania is a signatory to a host of international agreements and treaties, those of which have potential relevance to the project are listed below:

- Convention on International Trade Against Endangered Species (CITES);
- United Nations Convention On Biological Diversity (UNCBD);
- The Ramsar Convention for the Conservation and Sustainable Utilization of Wetlands;
- The 1992 United Nations Framework Convention on Climate Change (UNFCCC);
- Convention on the Rights of the child;
- Convention on the Elimination of all Forms of Discrimination Against Women; and
- International Labour Organization (ILO) - various conventions.
- UNDRIP

The applicability of the above requirements will be considered on an individual project activity basis during its screening and design phases. Further detail on social institutions and policies relevant to the proposed project is provided in Annex 2: Feasibility Study.

---

## 6. PROJECT E&S RISK CONSIDERATIONS

---

This chapter provides an overview of the general project implementation risks that have been identified to date, as well as the potential E&S risks that have been identified at the project activity level.

### 6.1. *Potential Project Execution Risks & Barriers To Implementation*

There are several barriers to implementing an integrated, climate-resilient approach to managing the target hub landscapes and water resources, namely (Project Funding Proposal, 2023):

#### *Barrier 1: Limited knowledge of the impacts and risks of, and vulnerability to, climate change*

Communities in rural areas, particularly farmers and pastoralists, are uninformed about current and expected climate change impacts on agricultural production and other land-use practices, as well as how water resources are affected. The target communities possess limited technical knowledge on how to adapt to these changes and increase climate resilience. For example, one adaption strategy is to slow dune advancement. This could be done by stabilising dunes and blocking winds from the Sahara. However, attempts to stabilise dunes in the four target hubs have rarely been consistent, strategic or integrated into comprehensive plans. These actions have often failed to complement other dune-fixation interventions in the project area. As a result, few successful instances have been documented of halting the process of desertification using the mentioned strategies. The communities' vulnerability is exacerbated by low practical and technical experience in establishing and managing local, diverse and financially sustainable livelihoods.

#### *Barrier 2: Limited integration of climate change into land-use planning and natural-resource management strategies*

Although urban plans developed for Nema and Rachid include some degree of climate-risk reduction, mainstreaming adaptation and mitigation strategies into these plans has largely been overlooked. This limitation is highlighted in the second national report on sustainable development, which states that Nema's urban plan failed to consider environmental challenges strategically. As a result, local development activities and construction in these two target hubs are often ill-equipped to withstand the impacts of climate change. In the past, failure to recognise the importance of a participatory approach has resulted in low coordination between climate change-related projects and associated activities within the target region while water-management plans exist - albeit minimally - pasture and rangeland-management plans that consider climate change are largely absent in the target hubs.

The absence of climate change considerations in both land-use and natural resource management strategies prevents the adequate implementation of adaptation plans in the targeted oases. For example, few interventions have been implemented to address the impacts of climate change on water availability. With the declining availability of groundwater, many of the wells in the target area are no longer deep enough to ensure adequate provision. Few newly constructed wells in the target hubs were designed to factor in projected climate change or recharge the water table. As a result, there is limited infrastructure in the target hubs to harvest rainfall during heavy precipitation periods and effectively store it for distribution during droughts; this remains a critical challenge in coping with rainfall variability. In addition to insufficient water-storage infrastructure, there has been minimal investment in solutions that maximise water infiltration, leading to a considerable amount of water runoff during precipitation events. This has also led to high levels of soil erosion, increasing flash floods and their impacts. Without a defined land-use strategy, the fragile ecosystems in the target hubs are likely to become over-harvested and degraded, increasing their vulnerability to climate change and decreasing their capacity to supply critical ecosystem services.

#### *Barrier 3: Limited coordination and capacity to implement/execute adaptation interventions*

Implementing entities, government and non-governmental stakeholders in Mauritania have insufficient institutional capacities, low opportunity and incentive to coordinate efforts to address climate risks,

thereby restricting climate change adaptation efforts in the four target hubs. For example, government officers at national, regional and local levels, as well as staff from critical sectors at the local level, have limited technical capacity to develop and implement adaptation initiatives. Local authorities and stakeholders (i.e. community leaders) at the forefront of managing climate change impacts have, in most instances, not received adequate training on how to incorporate climate change considerations into decision-making, nor how to design and implement climate-resilient natural resource management and land-use planning. This is largely the result of limited coordination between existing governance structures - particularly those with mandates transecting rural and urban areas - and the limited technical and institutional capacities of regional directorates to oversee participatory, sustainable and adaptation-focused decision-making.

*Barrier 4: Limited financial capacity to invest in climate-resilient natural-resource and land-management strategies*

Most urban centres in Mauritania are characterised by the predominance of informal trade, limited infrastructure and public-service coverage, high levels of self-employment and generally low human capital - characteristics that are largely unfavourable for attracting private-sector investment in sustainable development and climate change adaptation. Although the GOM has introduced a number of regulatory and legislative reforms in an attempt to boost the private sector by 2025 - for example, through the establishment of the higher council for investment in 2020 - a number of obstacles still inhibit local and foreign investment in sustainable development. These obstacles include: i) difficulty in accessing microfinance for local business development; ii) limited market access within rural and semi-urban areas; iii) low levels of technical and professional training; iv) limited governance within the financial services sector; and v) weak private-sector organisation. As a result of these constraints, past projects have not been able to mobilise substantive private-sector investment in climate change adaptation. For this reason, the proposed project will leverage public-sector funding, as opposed to private-sector funding, to co-finance adaptation interventions.

Although acquiring public-sector finance for adaptation is more feasible than engaging private-sector investors in Mauritania, limited access to the GOM's financial records makes it difficult to assess the availability of fiscal space for adaptation within both national and regional budgets. Moreover, as a result of the country's high public debt and limited GDP growth, the GOM's capacity to invest in the acquisition of data and development of strategies to improve vulnerable communities' climate resilience is limited. Further assessments of fiscal space within the GOM's accounts are necessary to determine the extent to which mainstreaming climate change into sectoral policies is possible. To address this barrier, the project technical team is actively engaging with in-country experts to gain access to national and regional budgets. Once acquired, all available financial records will be assessed so that opportunities for channelling public funds towards investment in EbA measures can be identified.

This ESMP does not address the above, or the more general project implementation risks associated with public-sector financed interventions, in detail. These risks will need to be identified, monitored and managed by the EE (MEDD), the PSC and PMUs respectively.

*Potential E&S risks or impacts at the project activity level*

The Project activities related to Outcome 2 are deemed to have a higher overall E&S risk significance than the planning, strategy development and capacity building interventions associated with Outcome 1. These risks stem from the nature of the on-the ground interventions, which have higher inherent risk of unintended outcomes as well as occupational health and safety (H&S) risks that temporarily employed communal labour or contractor employees may be exposed to while implementing these activities. These activities may pose some minor risks to surrounding communities in proximity to these interventions during the implementation phase of the project. Additionally, some activities have potential longer term environmental and social risks, whereby the interventions – if implemented improperly – may result in unintended outcomes. Possible E&S risks posed by these interventions to the beneficiary communities are discussed in tables 5.1 and 5.3 below and again in relation to proposed mitigation measures in the ESMP in Chapter 7.

Risks of school-going, child or underage labour being employed by the project, or any contractors or suppliers, is also deemed to be low significance if standard measures in this regard are applied (identity documents, proof of age, verification by community members etc.).

No groups meeting the definition of Indigenous Peoples, as outlined in the GCF Indigenous Peoples Policy, have been identified within the project area. While nomadic pastoralist communities are present, they do not self-identify as Indigenous Peoples, are not recognized as such by the Mauritanian Government, and do not exhibit the distinct cultural, linguistic or institutional characteristics typically associated with Indigenous Peoples under the GCF policy. These groups are integrated into mainstream society within the project area and have not expressed a desire to be treated as culturally distinct or separate.

During participatory stakeholder consultations, concerned nomadic pastoralists indicated that the term 'Indigenous Peoples' was inappropriate and potentially offensive, reflecting a preference for inclusion rather than differentiation. In line with these preferences and the integrated nature of these communities, no separate consultations were held.

Given this context, the development of a dedicated Indigenous Peoples Plan (IPP) or Indigenous Peoples Planning Framework (IPPF) has been assessed to be unnecessary during the project development stage. If during project implementation the need for an IPP or IPPF is identified, one will be developed. Furthermore, the project recognizes the need for inclusive engagement of all stakeholders, particularly vulnerable and mobile populations. As such, mechanisms for meaningful participation, benefit-sharing, and ongoing engagement have been integrated into the Environmental and Social Management Plan (ESMP) to ensure equitable access to project benefits for these groups.

A dedicated Gender Action Plan (see section 6.11) has been developed for the project that addresses gender-specific considerations and the mainstreaming of these into project activities and resilience building initiatives at the local level.

It is not anticipated that the project will impact on known cultural heritage resources, and the proposed activities represent a very low risk of resulting in chance finds of significance. However, The ESMP does make provision for this risk to be screened at the commune level.

None of the proposed activities are considered to be of high residual significance (i.e., post-mitigation) from a general E&S risk perspective if they are appropriately screened and managed through: i) good practice and; ii) the implementation of the mitigation measures listed in the ESMP implementation plan. The following list outlines the risks that will generally need to be considered at the project activity level. These risks are largely derived from: i) the outcomes of the UNEP risk screening; ii) consideration of local legal requirements; and iii) general good practice principles in the context of the proposed project interventions. The organisation of these risk aspects in tables 5.1, 5.2 and 5.3 are structured around the ESMP implementation considerations:

**Table 5.1: E&S Aspects/Considerations at the Project Activity Level**

Risk aspect	Observations
Legal compliance	<ul style="list-style-type: none"> <li>• There are project related activities where compliance to the relevant legal obligations will need to be adhered to.</li> <li>• From a project labour working conditions and terms of employment etc, the majority of the project interventions run a low risk of legal non-compliance if these activities are appropriately managed by the relevant bodies (PMU). Appropriate record keeping of employment contracts, reporting of any injuries on duty and any other documentation requirements required by national law or regulations will be necessary to demonstrate compliance and ensure good practice.</li> </ul>

Risk aspect	Observations
	<ul style="list-style-type: none"> <li>Activities involving utilisation of hazardous materials or substances (such as fuel), waste generation and disposal, as well dune stabilisation and landscape rehabilitation interventions will need to be suitably screened for E&amp;S/H&amp;S risks at the local level. Any identified risks and compliance obligations resulting from the risk screening should be reflected in a dedicated safe work instructions or method statements as required – this is detailed further in chapter 6.</li> </ul>
Stakeholder engagement	<ul style="list-style-type: none"> <li>Fundamental to project success is ensuring that all stakeholder engagement processes, outputs and outcomes are appropriately considered and planned for during the activity implementation lifecycle. Chapter 8 discusses these requirements in more detail.</li> <li>The engagement and consultation approaches, resources and stakeholder collaboration requirements will be more intensive, time consuming and challenging during the Outcome 1 development phases of the project (early stages of implementation) as compared to implementing the activities under Outcome 2.</li> <li>Exclusion of vulnerable minority groups and nomadic pastoralists is a notable risk if stakeholder engagements are not implemented in a manner that prioritises accessibility for these groups. While members from nomadic pastoralist groups indicated a preference to participate in general processes, stakeholder engagement during implementation should include targeted approaches to enable participation and opportunities for these groups to provide inputs into the development and implementation of relevant activities.</li> </ul>
Biodiversity / ecological	<ul style="list-style-type: none"> <li>While the project interventions and associated outcomes have been designed to reduce degradation and improve the provisioning of ecosystem services, there are ecological risks associated with the on-the-ground project activities under Outcome 2.</li> <li>Poorly designed and implemented interventions could exacerbate the status quo situation or result in downstream impacts, if for example, they lead to erosion, increased sand inundation, siltation of water resources, proliferation of alien invasives or affect normal hydrological functioning and the provision of ecosystem services for downstream communities.</li> <li>The highest risks in this category relate to dune stabilisation and the establishment of water infrastructure. It is expected that appropriate practices can largely mitigate these risks.</li> </ul>
Project labour H&S	<ul style="list-style-type: none"> <li>All activities requiring physical labour hold an implicit H&amp;S risk for project employees and/or participants. As discussed further below, it is the physical construction activities, dune fixation and water resource desilting interventions that potentially pose the highest order H&amp;S risks to project labour. All physical activity or construction works that are related to project activities should include dedicated risk-management processes to minimise H&amp;S risks to project labour.</li> <li>The H&amp;S risks associated with construction works and other physical activities are also potentially significant if not managed through appropriate training interventions, issuance and maintenance of suitable personal protective equipment (PPE), constant supervision and compliance monitoring by the employees themselves, their site management and the PMU.</li> <li>Vehicular transport of employees, personnel and equipment poses both a labour and community H&amp;S risk that will need to be managed accordingly as is detailed below.</li> </ul>
Community H&S	<ul style="list-style-type: none"> <li>Project related vehicle movements and transport of employees also poses a minor but inherent H&amp;S risk to the communities that these vehicles will be used in. The implementation of appropriate management processes (such as</li> </ul>

Risk aspect	Observations
	<p>ensuring only licensed drivers are utilised by the project), and the active monitoring and enforcement of these processes will minimise the risk of serious accidents or injuries/fatalities.</p> <ul style="list-style-type: none"> <li>• It is expected that the participating communities will provide the majority of the project labour needs, and the project labour risks listed above should also apply to any community members engaged by the project.</li> <li>• It is advisable that a basic project labour and community H&amp;S plan be developed for each of the sites in which more significant interventions will be implemented (see section 6.12). The requirements for this plan will need to be determined on a case-by-case basis, but at minimum it should factor in adequate risk assessment and prevention measures, as well as standardised operational control and emergency response measures that will be required to address identified risks. This plan will need to be revised and contextualised for each of the participating communities in the design and development phases of these respective project activities.</li> </ul>
Community conflict	<ul style="list-style-type: none"> <li>• Related to the project implementation risks detailed above, financial mismanagement, capacity trust and sustainability of projects can also lead to potential inter-and-intra-community conflict if perceptions of preferential or differential benefits stemming from project activities becomes an issue, or an observable reality.</li> <li>• The stakeholder engagement approaches employed by the project to date, and going forward, have focussed on the need for transparency, accountability regular feedback and information disclosure on project activity performance to the participating communities. This is fundamental to ensure that any potential for nepotism, fraudulent or corrupt practices as it relates to project financial management that are often the cause of community conflicts, and ultimate failure of similar type interventions in other contexts to date, is eliminated</li> <li>• Any potential social conflicts that may arise from the above situation will need to be assessed and managed through the appropriate project consultation forums that will be constituted by relevant stakeholders (residents, commune council representatives and leadership etc.). Additionally, the GRM will serve as an important pathway for community members to voice concerns in an anonymous manner.</li> <li>• Tensions over water resources are already existing in the target hubs and the project will need to ensure that these realities and constraints are suitably identified and addressed during the project development and implementation periods.</li> <li>• The project stakeholder engagement processes and grievance mechanisms place an emphasis on the early identification and resolution of avoidable conflict situations or scenarios.</li> </ul>
Gender / vulnerable persons	<ul style="list-style-type: none"> <li>• Gender considerations such as the equitable participation of women in the project, and the issues of bias or their potential exclusion - including vulnerable groups or persons – have been subject to analysis and incorporation in the project activity design processes.</li> <li>• Crucially, the project will need to ensure that none of its activities lead to situations where women and girls will be sexually exploited, assaulted, harassed (SEAH), or otherwise victimized by another person who may be involved therein. The project will implement a dedicated SEAH and GBV GRM to ensure adequate support for potential survivors should such a situation occur.</li> <li>• The project will use the initial and ongoing training sessions to emphasise the fundamental principles of human rights and gender equality in all activities,</li> </ul>



Risk aspect	Observations
	<p>benefits and decision-making processes related thereto. These considerations have been subject to extensive discussion in the project development processes to date.</p> <ul style="list-style-type: none"> <li>• To further ensure that project activities generate equitable benefits, an ESS Specialist and a Gender Specialist will be employed to monitor these aspects, as well as to oversee the implementation of the ESMP and the Gender Action Plan.</li> <li>• The risks and potential for negative impacts on vulnerable groups located in the vicinity of the target hubs is deemed to be minimal, with substantial benefits likely to be accrued by vulnerable groups (such as nomadic pastoralists and women) in these areas. Overall, the project interventions are likely to increase the provisioning of ecosystem services on which they rely, while simultaneously enabling these groups to strengthen their resilience through enhanced knowledge of climate resilient practices.</li> <li>• The project will engage vulnerable groups in order to provide opportunities to enhance their participation in the development and implementation of project interventions. This will include the organization of targeted (i) consultations between government and other relevant stakeholders (including representative organizations of the nomadic pastoralist groups); and (ii) consultation meetings and other forms of engagement with vulnerable groups and their representatives, but also different members of the groups. The objectives of these engagements will include involving vulnerable groups more explicitly in the planning of the project activities prior to implementation.</li> </ul>
Indigenous peoples	<ul style="list-style-type: none"> <li>• No groups meeting the definition of Indigenous Peoples, as outlined in the GCF Indigenous Peoples Policy, have been identified within the project area. This is based on a detailed review of the four defining characteristics of IPs under the GCF IPP (2019), which are: i) self-identification and recognition by others; ii) collective attachment to territories; iii) distinct cultural/social/political systems; and iv) distinct languages.</li> <li>• While nomadic pastoralist communities are present in the project area and were consulted during the project development process, it was concluded that they do not meet these criteria. Specifically, they do not self-identify as Indigenous Peoples, are not recognized as such by the Mauritanian Government, and do not exhibit the distinct cultural, linguistic or institutional characteristics typically associated with Indigenous Peoples under the GCF policy. These groups are integrated into mainstream society within the project area and have not expressed a desire to be treated as culturally distinct or separate. During participatory consultations, affected groups expressed a strong preference not to be labelled as 'indigenous', finding the term inappropriate. This is also confirmed by the findings of the Safeguard Risk Identification Form (SRIF) screening that was completed during project development.</li> <li>• It is concluded that a dedicated Indigenous Peoples Plan is not required at this stage. However, should Indigenous Peoples be identified during project implementation, an IPP or an IPPF will be developed.</li> </ul>

The above observations and considerations, alongside the UNEP SRIF have informed the high-level risk assessment ratings attached to the risks listed in table 5.3 below, which summarizes the anticipated (unmitigated) risks associated with the respective project activities. These risks are rated according to the rankings listed in Table 5.2 below, which align with the categorisation of UNEP and GCF:

**Table 5.2:** E&S Risk Ranking Scale



---

Risk Ranking	Description
High	Potential for significant negative impacts (e.g. irreversible, unprecedented, cumulative, significant stakeholder concerns); environmental and social impact assessment (ESIA) or Strategic Environmental and Social Assessment (SESA) including a full impact assessment may be required, followed by an effective comprehensive safeguard management plan.
Moderate	Potential negative impacts, but limited in scale, not unprecedented or irreversible and generally limited to programme/project area; impacts amenable to management using standard mitigation measures; limited environmental or social analysis may be required to develop an Environmental and Social Management Plan (ESMP). Straightforward application of good practice may be sufficient without additional study.
Low	Negative impacts minimal or negligible: no further study or impact management required other than a responsive implementation methodology that follows good practice principles and ensures basic risk screening is undertaken by the PMU and Safeguards Officer.

**Table 5.3:** Potential (unmitigated) E&S/H&S risks at the project activity level

Project activity	Implementation risk	Potential E&S aspect/risk							
		Legal Compliance	Stakeholder Engagement	Biodiversity / Ecological	Project Labour H&S	Community H&S	Community Conflict	Gender / Vulnerable Persons	Indigenous Peoples
Activity 1.1.1. Establish coordination platforms to facilitate knowledge-sharing, natural resource management, sustainable land-use planning and the implementation of EbA activities at the regional and local levels.	<ul style="list-style-type: none"> <li>Local governance and community-based management structures will need to be sufficiently capacitated and in agreement as to where these areas will be designated</li> <li>Owing to the numerous stakeholders involved, with varying degrees of knowledge, capacity and resources, this activity will be an implementation risk if there is insufficient buy-in and cooperation from all stakeholders.</li> </ul>	<ul style="list-style-type: none"> <li>No significant risks anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>Extensive stakeholder engagement is required to ensure the success of this activity.</li> </ul>	<ul style="list-style-type: none"> <li>No significant risks anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>No significant risks anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>No significant risks anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>There is a potential risk that the development of land management plans exacerbates conflict between land-users with different priorities. (This in a moderate, rather than a high risk because the project is developing briefs, and not policies).</li> <li>Stakeholder engagement to ensure adequate representation of diverse needs is a prerequisite for this activity.</li> </ul>	<ul style="list-style-type: none"> <li>Inclusion of women and vulnerable or otherwise marginalised people (including nomadic pastoralists) in engagements for this activity is critical to ensure their participation in the governance and coordination structures, and that needs are incorporated into policy briefs and other planning documents produced under the project.</li> <li>This is largely mitigated by the GAP and gender disaggregated targets.</li> <li>Suitable and targeted engagement modalities are required to ensure engagement of nomadic pastoralists in land-use planning.</li> </ul>	N/A
Activity 1.2.1. Develop knowledge products on project lessons learned and best practices through a participatory process engaging communities.	<ul style="list-style-type: none"> <li>Limited community participation due to language barriers, cultural differences, or lack of trust, which may result in incomplete or biased knowledge products that do not fully reflect the perspectives and experiences of all community members.</li> </ul>	<ul style="list-style-type: none"> <li>No significant risks anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>Extensive stakeholder engagement is required to ensure the success of this activity.</li> </ul>	<ul style="list-style-type: none"> <li>No significant risks anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>No significant risks anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>No significant risks anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>No significant risks anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>Inclusion and targeted engagement modalities for women and vulnerable or otherwise marginalised people (including nomadic pastoralists) in engagements for this activity is critical to ensure their needs are incorporated into the</li> </ul>	N/A

Project activity	Implementation risk	Potential E&S aspect/risk							
		Legal Compliance	Stakeholder Engagement	Biodiversity / Ecological	Project Labour H&S	Community H&S	Community Conflict	Gender / Vulnerable Persons	Indigenous Peoples
								knowledge products developed under the project. <ul style="list-style-type: none"> <li>This is largely mitigated by the GAP and gender disaggregated targets (see Annex 8).</li> </ul>	
Activity 1.2.2. Enhance the dissemination of adaptation knowledge to sub-national decision-makers and communities to support upscaling.	<ul style="list-style-type: none"> <li>Ineffective dissemination of adaptation knowledge due to limited access to communication channels or low capacity of sub-national decision-makers and communities to interpret and apply the information.</li> </ul>	<ul style="list-style-type: none"> <li>No significant risks anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>Extensive stakeholder engagement is required to ensure the success of this activity.</li> </ul>	<ul style="list-style-type: none"> <li>No significant risks anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>No significant risks anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>No significant risks anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>No significant risks anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>Targeted knowledge dissemination modalities for women and vulnerable or otherwise marginalised people (including nomadic pastoralists) are critical to ensure that the knowledge products are accessible to these groups.</li> <li>This is largely mitigated by the GAP and gender disaggregated targets (see Annex 8).</li> </ul>	N/A
Activity 2.1.1. Establish 2,123 hectares of green-grey infrastructure across the four target hubs, to facilitate the rehabilitation and maintenance of degraded landscapes and enhance ecosystem services related to dune stabilisation and the supply of natural resources.	<ul style="list-style-type: none"> <li>This is a resource and collaboration intensive intervention requiring coordination across a range of stakeholders and commune level participants to implement successfully.</li> </ul>	<ul style="list-style-type: none"> <li>No significant risks anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>Stakeholder engagement is an important requirement for this activity to succeed to i) ensure that these on-the-ground activities are aligned with needs and expectation of stakeholders and communities; ii) that infrastructure does not inhibit access or movement; iii) that species are selected with the support of the community; and iv) that communities are</li> </ul>	<ul style="list-style-type: none"> <li>Badly designed and implemented dune stabilisation measures can potentially accelerate sand inundation and/or siltation.</li> <li>Potential species for biological fixation is an identified invasive (<i>Prosopis Juliflora</i>). In some cases, this is an effective strategy in specific circumstances (such as highly</li> </ul>	<ul style="list-style-type: none"> <li>H&amp;S risks associated with these activities are known and avoidable.</li> <li>Adoption of safe work instructions and usage of PPE will minimise these risks to acceptable or negligible levels.</li> </ul>	<ul style="list-style-type: none"> <li>No significant risks anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>No significant risks anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>No significant risks anticipated.</li> </ul>	N/A

Project activity	Implementation risk	Potential E&S aspect/risk							
		Legal Compliance	Stakeholder Engagement	Biodiversity / Ecological	Project Labour H&S	Community H&S	Community Conflict	Gender / Vulnerable Persons	Indigenous Peoples
			engaged to support dune stabilisation efforts until they become fully established.	mobile dune environments). Extreme caution should be exercised when selecting this species over other indigenous options.					
Activity 2.2.1. Facilitate the adoption of climate-smart agricultural practices and sustainable diversified livelihoods by farmers and community members within the target communes	<ul style="list-style-type: none"> <li>No significant risks anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>No significant risks anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>As above, but this activity also emphasises the importance of ensuring that all stakeholders and social groups in the hubs are aligned with these approaches.</li> <li>Care will need to be exercised with the nomadic pastoralists utilizing these resources to avoid conflict between them and sedentary land users and residents.</li> </ul>	<ul style="list-style-type: none"> <li>No significant risks anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>No significant risks anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>No anticipated H&amp;S risks outside of those associated with the general agricultural activities that communities undertake as a norm.</li> </ul>	<ul style="list-style-type: none"> <li>Potential conflict arising from persons or groups being excluded or prejudiced in engaging with these interventions is also possible.</li> </ul>	<ul style="list-style-type: none"> <li>Exclusion or bias against women and vulnerable or otherwise marginalized persons participating in these activities is a possibility.</li> <li>Suitable and targeted engagement modalities are required to ensure that the needs of nomadic pastoralists are fully considered in the implementation of this activity.</li> </ul>	N/A
Activity 2.2.2. Install physical water management infrastructure — including weirs, gabions, dikes, stone- and earthen bunds, groundwater dams and water access points for pastoralists.	<ul style="list-style-type: none"> <li>No significant risks anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>No significant risks anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>No significant risks anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>Water infrastructure (such as boreholes, solar-powered pumps, groundwater dams, weirs and dykes) could pose a risk to normal hydrological functions, groundwater levels and/or the provision of ecosystem services, including through the overextraction of groundwater. Design, siting and</li> </ul>	<ul style="list-style-type: none"> <li>Moderate H&amp;S risks can be anticipated for the physical construction interventions.</li> </ul>	<ul style="list-style-type: none"> <li>Moderate H&amp;S risks can be anticipated for larger-scale physical construction interventions.</li> <li>Minor potential for health risks associated with water infrastructure (including proliferation of water-and-vector-borne diseases).</li> <li>Adequate O&amp;M and compliance with international standards will</li> </ul>	<ul style="list-style-type: none"> <li>As for activity 2.2.1 above.</li> </ul>	<ul style="list-style-type: none"> <li>Suitable and targeted engagement modalities are required to ensure that the needs of vulnerable and marginalized groups (including nomadic pastoralists) are fully considered in the implementation of this activity.</li> </ul>	N/A

Project activity	Implementation risk	Potential E&S aspect/risk							
		Legal Compliance	Stakeholder Engagement	Biodiversity / Ecological	Project Labour H&S	Community H&S	Community Conflict	Gender / Vulnerable Persons	Indigenous Peoples
				establishment will require input from experts and should be informed by hydrological studies to ensure downstream risks as well as the risk of overextraction of groundwater are minimised.		largely mitigate this risk			
Activity 2.2.3. Install 12 rainwater harvesting systems and communal cisterns (5,000 L per system) within each target commune.	<ul style="list-style-type: none"> <li>No significant risks anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>No significant risks anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>No significant risks anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>The installation of rainwater harvesting systems and communal cisterns may disturb local ecosystems, particularly during construction (e.g., soil erosion, vegetation clearing).</li> </ul>	<ul style="list-style-type: none"> <li>Moderate H&amp;S risks can be anticipated for the physical construction interventions.</li> </ul>	<ul style="list-style-type: none"> <li>Minor potential for health risks associated with water infrastructure (including proliferation of water-and-vector-borne diseases).</li> <li>Adequate O&amp;M and compliance with international standards will largely mitigate this risk</li> </ul>	<ul style="list-style-type: none"> <li>The introduction of new communal infrastructure may cause social tensions or conflicts over ownership, responsibility, or access to the rainwater harvesting system</li> </ul>	<ul style="list-style-type: none"> <li>No significant risks anticipated.</li> </ul>	N/A
Activity 2.3.1. Facilitate the adoption of climate-smart agricultural practices and sustainable, diversified livelihoods by farmers within the target communes.	<ul style="list-style-type: none"> <li>No significant risks anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>No significant risks anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>Extensive stakeholder engagement is required to ensure the success of this activity.</li> </ul>	<ul style="list-style-type: none"> <li>No significant risks anticipated</li> </ul>	<ul style="list-style-type: none"> <li>No significant risks anticipated</li> </ul>	<ul style="list-style-type: none"> <li>No significant risks anticipated</li> </ul>	<ul style="list-style-type: none"> <li>The shift to climate-smart agricultural practices and diversified livelihoods may disrupt traditional agricultural practices, causing resistance from farmers or leading to unintended social impacts, such as loss of cultural heritage or community cohesion.</li> </ul>	<ul style="list-style-type: none"> <li>Marginalised groups, such as women or low-income farmers, may have limited access to resources, training, or support needed to adopt climate-smart practices, exacerbating existing inequalities.</li> <li>This is largely mitigated by the GAP and gender disaggregated targets (see Annex 8).</li> </ul>	N/A
Activity 2.3.2 Establish an on-granting mechanism to channel government funds	<ul style="list-style-type: none"> <li>There are implementation risks associated with this activity that are largely</li> </ul>	<ul style="list-style-type: none"> <li>Potential non-compliance to existing legal and fiscal laws and</li> </ul>	<ul style="list-style-type: none"> <li>Extensive stakeholder engagement is required to ensure</li> </ul>	<ul style="list-style-type: none"> <li>No significant risks anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>No significant risks anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>No significant risks anticipated.</li> </ul>	<ul style="list-style-type: none"> <li>Should perceptions of bias or issue or mismanagement of project funds</li> </ul>	<ul style="list-style-type: none"> <li>There are risks associated with equitable access to benefits (opportunities). The</li> </ul>	N/A

Project activity	Implementation risk	Potential E&S aspect/risk							
		Legal Compliance	Stakeholder Engagement	Biodiversity / Ecological	Project Labour H&S	Community H&S	Community Conflict	Gender / Vulnerable Persons	Indigenous Peoples
and income generated via sustainable agricultural livelihoods towards continued investment in EbA.	outside of the control of project proponents. <ul style="list-style-type: none"> <li>The engagement and resource requirements will be significant for this activity.</li> </ul>	mechanisms is a potential risk if these are not adhered to.	the success of this activity.				eventuate in these communities, a strong risk for conflict situations to arise exists	selection criteria for beneficiaries should be well-defined and ensure equitable access for people from different groups, including vulnerable and marginalized groups.	

---

## 7. E&S RISK ASSESSMENT & MANAGEMENT AT THE PROJECT ACTIVITY LEVEL

---

Potential E&S risks that have been generally identified but lack site-specific details will need to be assessed and managed according to the proposed assessment and mitigation measures. This chapter provides an overview of the risk screening and assessment approaches to be utilised at the project activity level, as well as the management and planning action options available to mitigate them. These mitigation measures are also listed in the ESMP (Chapter 7).

### *Risk identification, screening & assessment approach*

A summary of the risk screening and assessment approach to be adopted at the project activity design and development phase is as follows:

Legal obligations or considerations: when the legal compliance obligations are identified and considered, it does serve to prioritise any additionally required risk control measures that may be required for a given project activity.

Where obvious legal compliance obligations are applicable to a given risk (occupational incident or accident investigation and reporting requirements for example), these should ideally be captured in a compliance obligations register established at the PSC level and reflected in the individual project activity safe work instructions or method statements (discussed further in section 6.3 below).

**Risk identification, screening and assessment:** While the general risks associated with the project activities have been identified during the project development phase, the implementation of activities needs to be undertaken in such a manner as to ensure that local level risks and impacts are identified and/or confirmed. This will ensure that the proposed mitigation measures are sufficient in the context of the activities and will highlight any major risks prior to the implementation of activities. More importantly, it also serves to identify aspects or hazards of higher order risk that have been overlooked, or may require the development of additional or more detailed control measures. For example, establishing a groundwater dam in an area that has limited hydrological data may require more in-depth feasibility or impact assessments to ensure that the proposed infrastructure does not result in major impacts. Key to this is assessing raw risk, and then determining residual risk after the implementation or considerations of the existing, known and available control, management and mitigation measures for these hazards and risks.

Those sub-activities that remain of high residual risk may need to implement additional dedicated safe work instructions or method statements that specify the management, control and mitigation measures to be implemented by project personnel. An indicative project sub-activity E&S risk screening checklist is provided in **Appendix 1**. The objective of this checklist is to identify potentially higher order significance risks associated with finalised local level activities, with the ultimate goal of determining whether a given project activity requires the development of a dedicated safe work instruction or method statement. This checklist deals with the following aspects or considerations:

- Legal compliance: does the activity pose a risk of contravening any national laws, local regulations or international conventions?
- Biodiversity and ecological risks: Are there clear environmental risks associated with the activity and/or the potential for negative environmental impacts? Is there any uncertainty regarding potential environmental impacts?
- Project labour and community H&S risks: Is the implementation and operational phase of the activity likely to result in risks to community members, project employees or contractors?
- Gender bias or discrimination / exclusion of vulnerable persons: Is the activity inclusive and does it demonstrate a consideration for the diverse needs and interests of different stakeholders? Have a variety of groups been adequately engaged to ensure the activity is responsive to the needs of



different stakeholders, including vulnerable and marginalized groups? Does the activity pose a risk to the livelihood or resource access of these groups?

- Community conflict risks: Is the activity likely to exacerbate or intensify the potential for community conflict? Are there mechanisms (including institutional and/or community-level mediation processes) that can be implemented to resolve conflict?

**Project team and community skills capacity analysis:** it will be necessary at the outset of the project implementation period to determine whether there is sufficient capacity in each locality to assess risk and develop/implement proposed mitigation measures as outlined in this chapter and in the ESMP implementation plan. While the necessary training or upskilling interventions should not necessarily be defined at this stage, establishing the need therefore is the main objective of this assessment component - specifically as it relates to higher H&S risk activities involving the use of temporary workers or communal labour.

**External expertise:** for specific project activities, external expertise will be required for the design, development, implementation and monitoring thereof - specifically the water infrastructure construction programmes, dune stabilisation control and climate resilient agricultural practice interventions. The required involvement of these external experts has been determined during the project development phase, but the degree of involvement in each locality needs to be confirmed prior to implementation. This will help ensure experts can distribute their time accordingly and ensure that localities that demonstrate a more complex implementation landscape receive sufficient expert support.

#### *Risk assessment*

As per the outcomes of the initial activity level screening exercise, and informed by specialist expertise where required, a dedicated risk assessment needs to be undertaken for each activity that demonstrates a moderate degree of risk. This assessment should also include input from all key stakeholders and participating community members where relevant and will be used in the development of the safe work instruction / method statements. This process will help determine the E&S aspects of the project's activities and associated impacts in order to determine what they can control or manage. This requires undertaking the respective assessments on its activities and a uniform approach to this will need to be adopted by the project and reflected in the safe work instruction / method statement documents.

The results of all reviews and assessment exercises should be recorded as a project aspect/risk register. An annual review of the aspect/risk register shall be timed to produce a list of prioritized E&S aspects and potential impacts for consideration during the setting of related objectives for the following year.

#### *Safe work instructions / method statements*

Safe work instructions or method statements can be for once-off tasks or a series of tasks which are often repeated. The E&S/H&S risks associated with these tasks are identified during the various work stages when a safe work instruction / method statement is prepared. Steps taken to reduce the potential risk associated with these stages can then be determined. The sequential steps and actions to be followed by the persons carrying out the works are written down. This sequence of steps should include all environmental and safety aspects relevant to the task being executed and should be completed before the commencement of any activity requiring these safeguard measures.

Project personnel or any potential contractors shall develop a written safe work instruction / method statement setting out the following:

- The type of activity being undertaken;
- Locality where the activity will take place;
- Identification of impacts that might result from the activity;

- Identification of activities or aspects that may cause an impact;
- Methodology and/or specifications for impact reduction or prevention for each activity or aspect;
- Emergency incident response and reaction procedures; and
- Treatment and continued maintenance of the site or locations environment.

The known and available mitigation measures and planning actions that can be implemented to control hazards and risks that are deemed to be of significance will form the basis of the respective safe work instructions or method statements for project activities. The overall objective of these documents is to ensure that project activities are executed in a way that:

- Ensures that construction activities are properly managed in respect of E&S/H&S aspects, risks and impacts;
- Enables construction or rehabilitation activities to be undertaken without significant disruption to other land uses and activities in the area, project related vehicle traffic and general noise or nuisance impacts and effects on residents
- Minimises the impact on the indigenous natural vegetation and habitats of possible ecological value (i.e. water courses or grasslands/rangelands).
- Minimises impacts on any remnant fauna still using or inhabiting any of the project sites; and
- Establishes and monitors project performance against an established E&S/H&S baseline where possible.

Control and mitigation measures are specific actions or instructions (specifications) that are developed for activities that can have significant E&S/H&S impacts. In the case of safe work instructions / method statements, operational controls refer to instructions or specifications that are mostly associated with the management of H&S risks associated with project activities.

These are detailed specifications that need to be undertaken or adhered to by all project personnel, workers, contractors and service providers. These specifications need to be developed in parallel with the final site-level selection of interventions (as they rely on currently unavailable data, such as specific siting of infrastructure, equipment requirements, construction methodologies etc.) and constructive input should be invited from the beneficiary communities and other project stakeholders, as well as the necessary external technical experts where required. All control measures detailed in the safe work instructions or method statements must be the subject of "toolbox" talks prior to the initiation of works. By introducing or reaffirming these measures during the "toolbox" talk, everyone involved should have a clear understanding of the work to be carried out, as well as the safe work method sequences and equipment required.

Appendix 2 provides an overview of the indicative minimum content of a safe work instruction / method statement.

#### *Legal compliance obligations*

A legal or compliance obligations register must be generated by the project that details what these obligations mean for a given activity, and what any reporting or demonstration of compliance requirements may be applicable. The project will need to establish and maintain processes to determine what up-to-date legal and other requirements that are applicable to related activity hazards, risks and the overall development and implementation of the safe work instructions / method statements. Crucial to ensuring that this is undertaken correctly is defining what these legal (and other voluntary obligation) requirements are, and what needs to be communicated in this regard and to whom - both internally and externally.

#### *Roles, responsibilities, competencies and resources*

The project shall ensure that the responsibilities and authorities for relevant safe work instruction / method statement implementation roles within the organisation are assigned and communicated at all levels therein. Employees and workers at each level of the project organisation shall assume

responsibility for those aspects of the ESMP and safe work instructions / method statements over which they have control. Crucial to this is ensuring that the development team and project personnel in general are subject to an assessment that:

- Determines the necessary competence of workers that affects or can affect its E&S performance.
- Ensures that workers are competent (including the ability to identify E&S/H&S hazards) on the basis of appropriate education, training or experience; and
- Where applicable, take actions to acquire and maintain the necessary competence, and evaluate the effectiveness of the actions taken.

The project will need to document their training needs analyses and related interventions in this regard, if and where, shortfalls are identified. All personnel and tasks related to the safe work instruction / method statement development and implementation processes need to be appropriately resourced and financed by the project.

#### *Stakeholder engagement*

Communication approaches for both internal and external stakeholder communication will need to be developed and adopted. As per the chapter 8 discussion in this regard, project outcomes specific stakeholder engagement plans (SEPs) will need to define who the stakeholders and affected persons are as it relates to specific project activities and interventions in each of the hubs.

The stakeholder identification and analysis process, as well as extensive engagements with the initially participating communities and government bodies, have been undertaken in the project preparation work undertaken to date. The need for a dedicated SEP for each hub will need to be established going forward.

#### *Emergency preparedness & response*

Risks are also to be considered and ranked on the potential for incidents and emergency situations on the basis of past experience, results of ongoing audits, any non-conformances to ESMP specifications (discussed in the following section) and any legal compliance obligations that may be relevant to these situations. Each safe work instruction / method statement (where necessary) will produce an emergency response plan to cover each potential accident and emergency situation. The safe work instruction / method statement in itself is not intended to be a comprehensive instruction for handling the emergency. This can only be achieved through training and regular practice drills by project personnel communal labour and any contractor employees. The broad categories of emergencies anticipated to be covered therein are:

- Workplace injuries;
- Serious injury and/or medical evacuation;
- Bushfire emergencies;
- Floods and storms;
- Political instability, industrial action or civil unrest;
- Armed robbery and/or violence; and
- Vehicle accidents.

Possible emergency situations identified will need to be dealt with in accordance with the following information:

- Event;
- Immediate action to take;
- Who to call – internal;

- Who to call – external; and
- Clean-up / post-emergency activities.

The responsibility of who will communicate what relevant information and when will be contained and described in the emergency response sections of the recommend project labour and community H&S plan.

Emergency preparedness and response information and training shall be conducted to ensure that relevant parties are able to respond in the required manner according to their duties and responsibilities. Planned emergency response actions will be practiced and tested regularly during the implementation phase of the respective activities, and annually thereafter. These drills will include evacuation, assembling of emergency teams, mobilisation of emergency response equipment (first aid, firefighting equipment etc.) And bush or building fire simulations for example.

#### *Nonconformity, incident reporting & corrective action*

Action will need to be taken to control or correct any nonconformity to ESMP specifications (including the safe work instructions / method statements to be developed by the project implementation teams. This shall specifically include a determination of whether similar nonconformities exist, or could potentially occur, in terms of adherence to the safe work instruction / method statement specifications, planning actions and control measures. The root cause of each non-conformance/incident must be identified to ensure that the appropriate corrective and subsequent preventive action can be implemented to avoid their re-occurrence. The following questions will need to be answered when undertaking the assessment:

- What is the problem?
- What are the symptoms?
- What circumstances prompted this problem to arise?
- What caused the problem?
- Are there other problems related to this problem?

When non-conforming conditions are identified the auditor, or manager responsible for the affected area, will propose a corrective action as informed by the root cause assessment.

Non-conformances are usually identified through the incident and “near-miss” reporting processes. Incident reports will need to be raised due to any of the following scenarios during project implementation:

- Any injury or near misses, disabling injuries or fatalities
- Emergency events
- Vehicular accidents
- Damage to equipment, or near misses
- Incidents involving the public or surrounding communities

These reports shall be submitted to the PMU and the hub level CTCs for review. The PMU shall evaluate the incident reports and decide when a nonconformance report should be raised. Nonconformance report can be raised due to any of the following:

- Any hazard or condition that arises and could threaten the safety and health of any person or result in damage to property or the environment;
- Any condition, hazard, or other that is in contravention of any legislation, regulation, standard or directive that applies to the project, ESMP and safe work instructions / method statements; and
- Any condition that does not comply with the ESMP and safe work instructions / method statements specifications and objectives.

Corrective action requests will need to be defined in these with the aim of avoiding the reoccurrence thereof. Where required, the project aspects/risk register will be revised to reflect the corrective actions taken to prevent reoccurrences and communicated throughout the project organisation.

---

*Performance evaluation & reporting*

ESMP performance will need to be subject to biannual review by the PMU/PSC for the duration of the project, along with the O&M and M&E plans.

This is subject to further discussion in chapter 10.

*Identification of ESMP deficiencies & opportunities for improvement*

Deficiencies with the ESMP or safe work instruction / method statements can be identified from nonconformities, incident reports and associated corrective action measures which then provides opportunities for improvement in the general risk assessment and management approaches. To recognize such improvements the deficiencies that exist need to be identified and the reason why they exist need to be understood. This can be achieved by analysing the root causes of the nonconformity or incident. Sources of information for continual improvement include:

- Experienced gained from nonconformities and related corrective actions;
- External benchmarking against best practices;
- Internal and other audit results (as available);
- Evaluation and analysis of monitoring and measurement results;
- New legislation or proposed changes to existing legislation; and
- Views of interested parties and other stakeholders (as reported via the GRM or other forums).

When opportunities for improvement are identified, they will be evaluated to determine what actions will be taken. The actions for improvement will be planned and all necessary changes to the ESMP and safe work instruction / method statement will be effected accordingly and communicated to all relevant project proponents (e.g. PMU, CTCs, Communities).

This same continual improvement approach will be applied to the below described plans that should be developed for the project and contextualised for each of the target hubs on a needs basis.

*Gender action plan*

A gender action plan has developed for the project (Annex 8: Gender Assessment and Action Plan) that adheres to the GCF requirements in this regard<sup>40</sup>. This plan should be referred to by all project personnel.

*Indigenous peoples plan*

Although no indigenous people have been identified in the project area, vulnerable groups such as nomadic pastoralists have been identified. Therefore, if deemed necessary by the Safeguards Officer during project implementation, a dedicated engagement strategy, or engagement framework will be developed and implemented by the project to ensure that all vulnerable groups meaningfully engage in project activities. Furthermore, should indigenous people be identified during the project implementation phase, an Indigenous Peoples Plan or Planning Framework will be developed.

*Project labour and community health & safety plan*

Construction and operation of the project activities may present a number of hazards to project labour, contractor employees and local communities. As such, the development of health and safety plans for each site is advisable. This plan should include a detailed assessment of all hazards associated with

---

<sup>40</sup> GCF Gender Policy (2019)

---

construction and maintenance operation of project activities and infrastructure facilities that may impact negatively on local communities. It will also include a clear set of procedures aimed at minimizing harm to project employees and community members. These plans will need to be developed at a site level, taking into consideration the specific interventions and implementation methodologies that are ultimately selected in each locality.

---

## 8. ESMP

---

The following two tables provide details on the operationalisation of the ESMP and includes: i) an overview of the various project-wide actions that will be undertaken by the project proponents (such as the PMU, Safeguards Officer, CTC's and Contractors) to help reduce and/or manage risk (Table 7.1); and ii) an ESMP implementation plan, which links specific activity level risks identified during project development with appropriate mitigation actions (Table 7.2).

As some activities, as well as their implementation modality, need to be confirmed at the site-level the ESMP implementation plan offers recommended actions, which need to be confirmed and/or implemented via the project wide actions listed in Table 7.1. This structure is intended to provide the PMU and the Safeguards Officer with a sufficient number of established structures, recommended actions and resources to ensure risks are adequately managed, while enabling flexibility at a site-level to identify unforeseen risks and adjust mitigation measures accordingly.



**Table 7.1: Project-level ESMP Actions**

Project-level ESMP Activities, Plans and Resources		
Aspect	Description	Responsibility
Site level risk assessments	A process for conducting site-level risk assessments for each intervention implemented under the project. A template for this process is included in the ESMP. These should be submitted to the PMU on a biannual basis.	CTC, contractors, community members for compiling assessments Safeguards Officer for monitoring
Safe work instructions / Method Statements	A specific set of step-by-step instructions or a method statement that applies to a specific intervention, taking into account the nature of the intervention, the implementation methodology and any site-specific details that may affect implementation.	Safeguards Officer/Contractors for development and monitoring Contractors, community members for implementation
Legal Compliance Obligations Register	A CTC level register that lists the legal obligations associated with specific activities (e.g. construction regulations for water infrastructure) and compliance thereof. These reports should be submitted alongside the risk assessment.	Safeguards Officer for development and monitoring CTC, contractors for implementation
Emergency preparedness and response plans	An CTC level emergency response and preparedness plan developed to ensure the safety and security of project personnel in the event of an emergency. This should be developed at a PMU level by the Safeguards Officer and customised by CTCs for the site level.	Safeguards Officer for development CTC for site-level customisation, implementation and monitoring
Operation, Monitoring and Maintenance (and/or control) Plans	An intervention specific plan developed by the Safeguards Officer in collaboration with CTCs and input from experts. These plans are intended to ensure safe operation of infrastructure (such as rainwater harvesting systems) and monitor interventions (such as biological dune fixation where potentially invasive species are established).	Safeguards Officer and CTC for development (with technical input from specialists) CTCs, communities for implementation and monitoring

Project-level ESMP Activities, Plans and Resources		
Incident Reporting Register	A CTC level register that is used to record all incidents or accidents that occur as a result of project interventions. This register should be submitted to the PMU on a biannual basis.	Safeguards Officer for development & monitoring CTC for maintaining the register
Construction Reports	Upon completion of each activity that includes construction a construction report should be produced, detailing the design, construction methodology and final infrastructure. These should be compiled by the CTC or contractor and submitted to the PMU on a biannual basis.	Safeguards Officer for development and monitoring CTC, Contractor for compiling and implementation
Community Level Health and Safety Plan	Health and Safety plans developed at the PMU level and customised to address site level risks. This plan should be implemented by the CTC's and communicated to contractors and communities as required. It should take into account all specific site-level risks and risks associated with each expected intervention to be implemented at the site.	Safeguards Officer for development at the PMU level CTC for customisation at a site level CTC and Contractors for implementation and monitoring
Grievance Redress Mechanism	A mechanism for recording and addressing complaints as raised by affected or concerned parties, this mechanism includes a process for receiving grievances, addressing grievances and recording both grievances and outcomes.	CTC/Safeguards Officer/PMU for implementation Safeguards Officer/PMU for monitoring
Key Performance Areas/Indicators	A set of indicators to assess and monitor performance across the different project interventions and risk management categories. These indicators will inform the plans listed above and be inputs into the Monitoring and Evaluation Framework	Safeguards Officer/PMU for development and monitoring CTC, Contractors, Communities for implementation

Table 7.2: Environmental and Social Management Plan

ESMP						
Risk	Environmental and Social Management Plan					
	Mitigation measures	Significance <sup>41</sup>	Responsible party/person	Schedule	Expected results	Cost/Budget
<p><i>Environmental risks associated with mechanical and biological dune-fixation activities (Activity 2.1.1.).</i></p> <p>The project will implement dune-fixation on 2,123 ha to protect communities across the four project hubs. These risks include potential for proliferation of invasive alien species, accelerated land degradation (including sand inundation and/or erosion). Overall, the potential for accelerated land degradation is considered to be low and mitigated through good practice in the design and establishment of these interventions.</p>	<p>The inclusion of <i>Prosopis Juliflora</i> as a potential species for biological dune-fixation is considered to be necessary risk within very specific contexts (such as highly mobile dune environments where indigenous species are not able to establish). However, there is a high risk of proliferation, and the potential difficulty of removing these plants is well established. In this context, some communities have indicated that they do not want to use <i>Prosopis</i> in their localities. The project is implementing this activity with full cognisance of this risk and has several approaches that will help to manage attendant impacts. These are listed below:</p> <ul style="list-style-type: none"> <li>Indigenous species will be prioritised wherever possible, and species such as <i>Prosopis Juliflora</i> will only be selected in specific circumstances and</li> </ul>	Moderate	<p><b>Extension Officers, CTCs and Technical Experts</b> are responsible for ensuring indigenous species are prioritised and use of <i>Prosopis</i> is justified if proposed for use in specific circumstances. This will include compiling the risk assessment and a monitoring and control plan at a site level.</p> <p><b>Beneficiary communities and CTCs</b> are responsible for monitoring any <i>Prosopis Juliflora</i> stands established under the project.</p> <p>The <b>Safeguards Officer</b> is responsible for working with the <b>Technical Experts</b> to develop the monitoring and control plan and additionally for aggregating the site-level risk</p>	Yr. 2-6	<p>The establishment of biological dune fixation prioritises indigenous species wherever possible.</p> <p>Species selection is undertaken through a consultative process and includes material inputs from institutional actors, technical specialists and community-level stakeholders.</p> <p>Where potentially invasive species are utilised, it is done as a 'last resort' and only implemented after the completion of a site level risk assessment. Additionally, if deemed necessary, monitoring and control plans are</p>	<p>Safeguards Officer (\$60,000 Annual Salary)</p> <p>Site-level ecosystem restoration &amp; rehabilitation management plans (\$16,000)</p> <p>Additional risk management actions are incorporated in the activity cost</p>

<sup>41</sup> The risk significance is evaluated assuming implementation of mitigation measures.

ESMP						
Risk	Environmental and Social Management Plan					
	Mitigation measures	Significance <sup>41</sup>	Responsible party/person	Schedule	Expected results	Cost/Budget
There is a more substantial risk, however, related to the potential proliferation of invasive alien vegetation (i.e., <i>Prosopis Juliflora</i> ) as this species, which was identified as a priority option for biological dune fixation is not indigenous and has a demonstrated invasive potential based on existing literature and stakeholder input.	<p>through consensus by the project proponents, affected communities and experts.</p> <ul style="list-style-type: none"> <li>The project will engage the support of technical specialists, who will work with communities to ensure that the most appropriate species are selected for each site, based on a local level analysis and associated cost-benefit analysis approach.</li> <li>When <i>Prosopis Juliflora</i> is selected for a specific site, a risk assessment will be undertaken and will be submitted and recorded at a central level by the Safeguards Officer.</li> <li>The Project will Site-level ecosystem restoration &amp; rehabilitation management plans, which will ensure adequate monitoring and management of risks associated with <i>Prosopis Juliflora</i>.</li> </ul>		<p>assessments and any monitoring or impact reports submitted by CTC's or communities on an annual basis.</p> <p>The <b>PMU</b> is responsible for ultimate oversight and review of monitoring and evaluation indicators.</p>		developed and disseminated to community members.	

ESMP						
Risk	Environmental and Social Management Plan					
	Mitigation measures	Significance <sup>41</sup>	Responsible party/person	Schedule	Expected results	Cost/Budget
<p><i>Unequal access risks associated with the on-granting mechanisms (Activity 2.3.2).</i></p> <p>There is a risk that the on-granting mechanism developed under the project is not equally accessible to all individuals and groups, particularly between men and women. For example, women in the hubs may be exposed to exclusion from the decision-making processes or eligibility for grants, particularly in traditionally male-dominated agricultural settings. This marginalisation could reinforce existing gender inequalities and expose women to economic vulnerabilities, increasing their risk of SEAH. While the types of initiatives that can be supported under the mechanism are clear the beneficiary selection</p>	<p>To support accessibility for the on-granting mechanism, the Safeguards Officer (with support from the Gender Officer) will support the consultants developing the on-granting mechanism to ensure that it is developed in a manner that includes eligibility criteria and a fair and transparent application and selection processes that incorporates input from relevant stakeholders (institutional actors, technical specialists and potential beneficiaries). In addition, the on-granting mechanism will be designed to explicitly include women and vulnerable groups as priority beneficiaries. This will include providing tailored financial literacy and training to women to empower them to apply for and manage grants effectively.</p>	Low	<p><b>Consultants and Institutional Representatives</b> developing the on-granting mechanism are responsible for ensuring that there are well-defined equitable beneficiary selection processes.</p> <p>The <b>Safeguards Officer</b> and <b>PMU</b> are responsible for ensuring those developing the on-granting mechanism understand the need for transparent process and for providing support to ensure that eligibility criteria and beneficiary selection processes consider local level contexts and needs.</p> <p>The <b>Safeguards Officer</b> is additionally responsible for developing appropriate awareness-raising initiatives to ensure adequate knowledge and access to the on-granting mechanism.</p>	Yr. 2-6	<p>The on-granting mechanism is developed in a manner that includes eligibility criteria and a fair and transparent application and selection process.</p> <p>Potential beneficiaries / applicants are equally informed of the on-granting mechanism and that they understand the eligibility requirements and process required to apply for support via the mechanism.</p>	<p>Safeguards Officer (\$60,000 Annual Salary)</p> <p>Gender Officer (\$60,000 Annual Salary)</p> <p>Additional risk management actions are incorporated in the activity cost</p>

ESMP						
Risk	Environmental and Social Management Plan					
	Mitigation measures	Significance <sup>41</sup>	Responsible party/person	Schedule	Expected results	Cost/Budget
process (and criteria) is yet to be established. Additionally, the mechanisms through which this grant-making mechanism can be accessed is not clear, nor where information on the mechanism will be made available to communities and potential applicants.	Additionally, the project will support the development of awareness raising processes to ensure potential beneficiaries are informed of, and understand the process for, applying for support via the mechanism		The <b>Gender Officer</b> is responsible for providing input where required to ensure the on-granting mechanism is developed in a manner that enables gender equity in terms of eligibility and access.			
<i>Environmental and social risks associated with the establishment of water infrastructure (boreholes, solar-powered pumps, groundwater dams, weirs and dykes). This includes the potential for disruptions in normal hydrological cycles/groundwater levels with an associated risk to ecosystem services for downstream communities, including through the overextraction of groundwater (Activity 2.2.2.).</i>	The establishment of boreholes, solar-powered pumps, groundwater dams and other water-provisioning infrastructure poses both short-term (impacts on water quality and potential for pollution associated with construction) and longer-term (including groundwater overextraction, river-flow disruptions and reduced water provisioning for downstream users) risks. The overall scale of these water-provisioning infrastructure interventions is, however, expected to be small with minimal attendant risks. The good practice principles listed below will be implemented to this	Low	<b>CTCs</b> and <b>Contractors</b> are responsible for developing safe work instructions/method statements and the application of general good practice principles during the establishment of infrastructure. These groups are also responsible for compiling site-level risk assessments and construction reports after construction is complete.  <b>Technical experts</b> engaged under the project are responsible for ensuring that the design	Yr. 3-6	Boreholes, solar-powered pumps, groundwater dams and other water infrastructure are established in a safe manner that ensures short-term risks and potential for pollution is minimised.  This infrastructure is also implemented considering the local hydrological profile and other long-term risk elements and these interventions result in local level enhancement	Safeguards Officer (\$60,000 Annual Salary)  Site-level project labour and community H&S management plans (\$12,000)  Safe Work Procedures / Training (24,000)

ESMP						
Risk	Environmental and Social Management Plan					
	Mitigation measures	Significance <sup>41</sup>	Responsible party/person	Schedule	Expected results	Cost/Budget
<p>There is a risk that boreholes, solar-powered pumps, groundwater dams and other water infrastructure established under the project may affect the hydrology (including groundwater availability) of the areas in which they are implemented. While the potential impact of this risk is minor given the nature of the interventions, comprehensive screening for these risks will need to be completed during implementation as sites for these interventions will be determined during the implementation period.</p> <p>While potential exposure to minor pollution as well as impacts on water quality for downstream users may occur during the construction phases the nature of groundwater dams (and the proposed</p>	<p>end and operationalised through the safe work instructions and method statements developed at a site level for each on-the-ground activity:</p> <ul style="list-style-type: none"> <li>To minimise short-term impacts, construction should be phased to minimise impacts on water quality (such as increased siltation) and good practice principles should be adhered to by contractors or construction teams (this includes adequate provisioning of supplies to minimise the construction period, safe handling and storage of potentially pollutive materials such as fuels, lubricants etc.).</li> <li>To reduce the significance of long-term impacts, site selection will be undertaken through a methodological process that includes input from relevant experts referencing available hydrological data (including maps of existing boreholes,</li> </ul>		<p>specifications of infrastructure and site selection processes take hydrological profiles into consideration and are undertaken in a manner that considers safety and the potential for negative environmental impacts.</p> <p>The <b>Safeguards Officer</b> is responsible for oversight and aggregating local-level risk assessment and construction reports.</p> <p>The <b>PMU</b> is responsible for ultimate oversight and review of M&amp;E indicators.</p>		<p>of water provisioning and/or water retention without impacting groundwater levels or downstream communities or ecosystems.</p>	<p>Additional risk management actions are incorporated in the activity cost</p>



ESMP						
Risk	Environmental and Social Management Plan					
	Mitigation measures	Significance <sup>41</sup>	Responsible party/person	Schedule	Expected results	Cost/Budget
scale of said dams) means that long-term impacts to both quantity and quality of water provisioning are expected to be minimal.	<p>dams, hydrological profiles, reports and assessments etc.). In areas where hydrological data are not available the project will conduct assessments and develop profiles for these areas. This will help ensure that the siting and scale of the boreholes, pumps, dams and other water-provisioning infrastructure is appropriate and that the risk of groundwater overextraction is minimized, while simultaneously capacitating communities on the water carrying capacity of their own localities.</p> <ul style="list-style-type: none"> <li>The new solar-pumped boreholes will be sited based on hydrogeological assessments (either existing or new) to avoid over-abstracted aquifers. Moreover, the risk of considerable increases in abstraction will be limited by the low number of new boreholes (four per</li> </ul>					

ESMP						
Risk	Environmental and Social Management Plan					
	Mitigation measures	Significance <sup>41</sup>	Responsible party/person	Schedule	Expected results	Cost/Budget
	community) and the establishment of regulating bodies (Water User Groups, see below).					
<p><i>Risk of unequal access to water provisioning infrastructure (Activity 2.2.2.).</i></p> <p>There is a minor risk that the siting of water infrastructure (or other factors) could inhibit all community members from equitably accessing water infrastructure developed under the project. This pertains to rainwater harvesting systems, and water drawing points for other water infrastructure (groundwater dams, weirs and dykes).</p> <p>Although the risk is minor, an additional potential gender risk includes that water access points for pastoralists could become sites of conflict, and</p>	<p>The project has been designed from the outset to ensure equal access to water provisioning infrastructure. To this end the site selection process for well-points and rainwater harvesting systems will be conducted in a manner that considers both technical considerations <i>and</i> access considerations. In certain cases, technical considerations will need to take precedence (e.g., for safety reasons).</p> <p>To further support equitable access, the siting of infrastructure will take into consideration inputs from community representatives. Given that the CTC's (which include community members) will be implementing the project it is expected that concerns relating to access can be well managed.</p> <p>Reporting and assurance on these processes (i.e., community</p>	Low	<p><b>CTCs, Technical Experts and Contractors</b> are responsible for ensuring the infrastructure is established in locations that can ensure adequate and equitable access for community members. Considerations related to access should be included in the risk screening and construction reports.</p> <p>The <b>Safeguards Officer</b> is responsible for oversight in ensuring that <b>CTC's, Technical Experts and Contractors</b> understand the risk assessment and construction report requirements. The Safeguard officer is additionally responsible for aggregating the risk and</p>	Yr. 3-6	Water infrastructure, and particularly access points for this infrastructure is implemented in a manner that prioritises accessibility for all community members, including women, marginalised, vulnerable and/or disabled persons.	<p>Safeguards Officer (\$60,000 Annual Salary)</p> <p>Additional risk management actions are incorporated in the activity cost</p>

ESMP						
Risk	Environmental and Social Management Plan					
	Mitigation measures	Significance <sup>41</sup>	Responsible party/person	Schedule	Expected results	Cost/Budget
women may be exposed to harassment or violence when attempting to use the infrastructure.	engagement and assuring accessibility) will be included as an aspect on the site-level risk assessments and construction reports completed by those involved with the construction of infrastructure.  To mitigate the likelihood of the gender related risk, physical monitoring of the water points will be established with gender-inclusive oversight to prevent harassment or exploitation.		construction reports on an biannual basis.  The <b>PMU</b> has ultimate responsibility for oversight of the risk management and for review of M&E indicators			
<i>Health and safety risks for project personnel, contracted labour and/or communities associated with construction and dune fixation. (Activities 2.1.1. and 2.2.2.).</i>  There are some health and safety risks inherent to undertaking construction activities. These risks apply to project personnel, contracted labour as well	The risks associated with these activities are inherent risks associated with construction. Overall, these risks are of low significance because of the type and scale of the proposed interventions, but general safety methodologies will be implemented via the safe work instructions and community health and safety plans to support safe practices. The proposed measures are listed below.	Low	<b>CTCs</b> and <b>Contractors</b> are responsible for ensuring that construction activities are adhere to safety standards as stipulated in any contracts, construction plans and safe work instructions, compiling risk assessments for proposed construction and preparing reports on construction activities undertaken.  <b>Safeguards Officer</b> and <b>PMU</b> are responsible for	Yr. 2-6	Construction activities are implemented in a safe manner that adheres to good practice and reduces risk for labourers and communities alike. Site level safe work instructions and method statements guide the implementation approach for each intervention, ensuring that interventions are	Safeguards Officer (\$60,000 Annual Salary)  Site-level project labour and community H&S management plans (\$12,000)

ESMP						
Risk	Environmental and Social Management Plan					
	Mitigation measures	Significance <sup>41</sup>	Responsible party/person	Schedule	Expected results	Cost/Budget
<p>community members residing in, contributing to, or traveling through, the vicinity of the construction activities.</p> <p>Determining the specific risks associated with construction activities to be implemented under the project is not possible as certain details pertaining to these activities need to be confirmed (including siting, equipment requirements and construction methodology).</p> <p>However, generally the proposed interventions include risks resulting from physical hazards associated with construction sites and equipment as well as hazards resulting from an influx of vehicles in the area.</p>	<p>International best practices (such as the ILO standards on Occupational Safety and Health) and national regulations will be followed to avoid and minimise safety risks and impacts on public health during construction. These practices will be considered during the development of the safe work instructions under the project.</p> <p>This will include measures such as proper planning of construction activities as well demarcation at construction sites (warning signs), fencing of construction sites, road safety measures if deemed necessary and minimum safety requirements for contractors, which will be stipulated in employment contracts.</p> <p>Additionally, the procurement process for the project will include guidelines for managing health and safety during construction to ensure contractors and employed labourers are cognisant of, and adhere to, appropriate safety practices.</p>		<p>ensuring that requirements for safe work standards are included in any contracts or construction plans.</p> <p>The <b>Safeguards Officer</b> is additionally responsible for: i) ensuring that CTC's and Contractors understand the process for compiling risk assessments and construction reports; and ii) for aggregating these assessment and reports on an annual basis.</p> <p>The <b>PMU</b> is responsible for ensuring employment contracts have minimum safety stipulations as well as ultimate responsibility for oversight of the risk management and for review of M&amp;E indicators.</p>		<p>implemented in a safe and consistent manner.</p> <p>The project management unit and safeguards officer receive and log regular reports on the implementation of activities to ensure safe practices are followed.</p>	<p>Safe Work Procedures / Training (\$24,000)</p> <p>Additional risk management actions are incorporated in the activity cost</p>

ESMP						
Risk	Environmental and Social Management Plan					
	Mitigation measures	Significance <sup>41</sup>	Responsible party/person	Schedule	Expected results	Cost/Budget
<p><i>Health and Safety risks from establishment of water provisioning infrastructure (Activity 2.2.2.).</i></p> <p>There are some minor risks that rainwater harvesting, and other water provisioning infrastructure (such as groundwater dams, weirs and dykes) could pose a health and safety risk to community members.</p> <p>These include safety risks associated with the design and construction of the infrastructure as well as the potential for health risks related to the transmission of vector-or-water-borne diseases that are associated with standing water or poor hygiene practices.</p>	<p>Overall, there are limited safety risks associated with the proposed infrastructure as a result of the types of interventions – groundwater dams for example have very few structural risks if designed and constructed appropriately.</p> <p>Water-provisioning infrastructure will therefore only be installed in appropriate locations and with input from relevant technical experts (such as engineers, hydrologists etc.). These inputs will be captured in activity-level safe work instructions or method statements and the final design and construction will be recorded and reported to the PMU via a construction report.</p> <p>With regard to rainwater harvesting systems and the potential increase in water-borne disease risk, these systems more likely to decrease the incidence of water-and-vector borne diseases, provided that the infrastructure is maintained in good working order. To this end Operations,</p>	Low	<p>The <b>CTCs</b> will be responsible for ensuring that awareness-raising activities are undertaken with communities, that they are aware of the potential risks associated with poor maintenance of the infrastructure and that they are able to implement the Operating, Maintenance and Monitoring plans.</p> <p>The <b>Beneficiary Communities</b> will be responsible for implementing the Operational, Maintenance and Monitoring plans, and for reporting any defects or system failures during the project lifespan.</p> <p>The <b>Safeguards Officer</b> will be responsible for compiling the Operations, Maintenance and Monitoring plan using locally appropriate content. They will also be responsible for</p>	Yr. 3-6	<p>Rainwater harvesting systems and other water provisioning infrastructure is established in a manner that ensures safety for local communities and any risks associated with construction or operations are captured in the Community level H&amp;S plan and disseminated to the community.</p> <p>Communities are capacitated to operate monitor and maintain any established infrastructure, ensuring adequate and consistent operation, thereby enhancing the provisioning of water resources while simultaneously reducing, rather than increasing the incidence of vector-and-water-borne diseases.</p>	<p>Safeguards Officer (\$60,000 Annual Salary)</p> <p>Site-level project labour and community H&amp;S management plans (\$12,000)</p> <p>Operations, Maintenance and Management Plans (\$8,000)</p> <p>Safe Work Procedures / Training (\$24,000)</p> <p>Additional risk management actions are incorporated in the activity cost</p>

ESMP						
Risk	Environmental and Social Management Plan					
	Mitigation measures	Significance <sup>41</sup>	Responsible party/person	Schedule	Expected results	Cost/Budget
	<p>Maintenance and Monitoring Plans will be developed in an accessible and appropriate format.</p> <p>This information will be provided to communities where rainwater harvesting systems are installed to ensure they are fully aware of and capable of implementing the appropriate practices.</p> <p>In addition to the above, and to ensure safety at a site level during construction and operation, the Safeguards Officer will develop Community Health and Safety plans in collaboration with CTCs.</p>		communicating these plans to the CTCs who will be responsible for disseminating this information to communities			
<p><i>Risk of unequal access to benefits or project activities (Project-wide).</i></p> <p>Includes:</p> <ul style="list-style-type: none"> <li>• Employment opportunities</li> <li>• Access to project benefits</li> </ul>	<p>Overall, this risk is assessed to be low in significance and is largely mitigated through the project approach.</p> <p>For gender considerations, the project has developed – and will be implementing – a Gender Action Plan (GAP). This will help ensure that benefits are more</p>	Low	The <b>CTC's</b> are responsible for ensuring that the activities are implemented in a manner that prioritises (or otherwise considers) the needs of the most vulnerable or other marginalised community members. They are additionally responsible for ensuring that adequate	Yr. 1-6	The project is implemented in a manner that prioritises equity across the beneficiary communities. It furthermore implements an adaptive management approach	<p>Safeguards Officer (\$60,000 Annual Salary)</p> <p>Gender Officer (\$60,000 Annual Salary)</p>

ESMP						
Risk	Environmental and Social Management Plan					
	Mitigation measures	Significance <sup>41</sup>	Responsible party/person	Schedule	Expected results	Cost/Budget
<ul style="list-style-type: none"> <li>Representation in engagements</li> </ul> <p>There are minor risks that benefits derived by the target communities will not be equally distributed amongst all beneficiaries. This risk should be considered to be a project-level risk but is more pertinent for specific activities. This risk is particularly relevant when considering the distribution of benefits across different genders, vulnerable or marginalised persons and those subscribing to different cultural or livelihood practices (including nomadic pastoralists).</p> <p>Negative outcomes from this risk include <i>inter alia</i> perceptions of discrimination and the potential to lead to (or exacerbate) inter/intra</p>	<p>equitably distributed across different genders.</p> <p>In the case of vulnerable or marginalised persons as well as people who subscribe to different cultural or livelihood practices, the project will employ an approach that prioritises these groups. For example, most beneficiary communities have been pre-selected based on their baseline vulnerability (established through a multifactorial assessment). This will be further supported by extensive stakeholder consultations during implementation.</p> <p>To support equitable access at the local level, the project will ensure that local implementing bodies (CTCs) are capacitated to prioritise vulnerable groups and that beneficiary selection mechanisms are communicated during stakeholder engagement processes.</p> <p>It is also recommended that the project employ an adaptive management approach on the</p>		<p>engagement is undertaken with communities and that grievances or concerns that are raised with them are either appropriately resolved or escalated to the Safeguards Officer and/or PMU.</p> <p>The <b>Safeguards Officer</b> is responsible for ensuring that the CTC's are adequately capacitated to both understand the need for – and approach to – prioritising vulnerable and/or marginalised communities. This includes the needs to ensure adequate consultation and equitable benefits.</p> <p>The <b>PMU</b> is responsible for ultimate oversight and (are there M&amp;E indicators here?</p>		<p>that is responsive to the context on the ground.</p> <p>The implementation of all activities is done in an agile manner that focuses on representative community consultation and incorporates any grievances and concerns raised by community members or concerned parties, allowing the project to modify implementation modalities and/or shift site prioritisation to reduce risks where they emerge, and/or ensure that benefits can be more equitably shared wherever possible.</p>	



ESMP						
Risk	Environmental and Social Management Plan					
	Mitigation measures	Significance <sup>41</sup>	Responsible party/person	Schedule	Expected results	Cost/Budget
group conflict as well as increased exposure to SEAH and GBV, particularly for women.	whole, and be responsive to any concerns, grievances or suggestions raised through the GRM or other forums.					

---

## 9. ROLES, RESPONSIBILITIES AND CAPACITY BUILDING

---

The project ESMP implementation roles, responsibilities and capacity building requirements are detailed in this chapter.

### *Roles and responsibilities*

#### 9.1.1. Accredited Entity

UNEP as the AE will be responsible for overseeing the implementation, financial management, evaluation, reporting and closure of the project, in coordination with the national-level PSC and PMU. As the AE, UNEP will: i) sign a project cooperation agreement with the EE to establish clear roles and responsibilities for project execution; ii) ensure that the project is executed in accordance with GCF and UNEP standards; iii) supervise, oversee and manage the implementation of project interventions; iv) report on project progress; v) co-chair the PSC; and vi) ensure that project activities are well coordinated and aligned with national priorities.

A programme officer (po) will be responsible for project supervision to ensure consistency with GCF and UNEP policies and procedures. In addition, the po will: i) participate in biannual PSC meetings; ii) facilitate interim and final evaluations; iii) prepare annual performance reports and relevant documentation; and iv) conduct technical reviews of project outputs.

#### 9.1.2. Executing Entity

As the EE, the MEDD will coordinate the national-level implementation of the project and will be accountable to UNEP as the AE for project execution, as well as for the effective and efficient use of project resources.

#### 9.1.3. Project Steering Committee

The PSC will provide oversight and advisory support for the project and will be chaired by a representative from UNEP. Other members of the PSC will include: i) representatives of relevant sectoral ministries; ii) one representative from each of the target hubs; and iii) national experts on local ecosystems, climate change and agriculture. The mandate of the PSC will be to steer the project execution to meet the intended objectives and to facilitate the development and adoption of the adaptive and integrated landscape management approaches at the national and local planning level.

The PSC will meet at least twice a year, with ad hoc meetings convened as and when necessary, to discuss the project's main performance indicators and provide strategic guidance. This will largely be project implementation (or execution) related progress review, but the ESMP performance will also need to be subject to evaluation.

The PSC will also need to assume overall responsibility for the resourcing and implementation of the ESMP and the related M&E and performance evaluation processes.

#### 9.1.4. Project Management Unit

The PMU will coordinate between the project's AE, EEs and relevant stakeholders to ensure the effective implementation of the project's day-to-day activities. Monthly meetings will be convened to facilitate this coordination.

The PMU will consist of staff recruited through a competitive and inclusive process to fill the following positions: i) the Project Manager (PM); ii) the financial and procurement officer; iii) administrative officer; and iv) other technical staff.

The PMU will be responsible for further ESMP development, implementation and the ongoing performance evaluation thereof.

#### 9.1.5. Technical staff

While the specific details on the technical staff requirements for the project are undefined at this time, the need for specific inputs as it relates to the planning and construction of water infrastructure activities, dune fixation and climate resilient agricultural practice interventions are noted. Where necessary and required they will also provide support in the training, safe work instruction / method statement development, implementation and M&E activities related thereto.

#### 9.1.6. Environmental and Social Safeguards Officer

The project will appoint an Environmental and Social Safeguards Officer (ESS Officer) to assist with the implementation of the ESMP, ongoing monitoring and screening of project activities and the further development of planning and mitigation actions as described in this document. This employee will also be responsible for implementing and monitoring the GRM with oversight provided by the PMU and PSC.

#### 9.1.7. Gender Officer

It is advisable that the Project appoint a Gender Specialist to: i) ensure GAP targets are met; and ii) assist with the further development of any planning and mitigation actions related to gender considerations and requirements.

#### 9.1.8. Coordination and Management Committees (CTCs)

The CTCs will assume responsibility for project implementation and progress monitoring at the hub level with oversight and support provided by the ESS Officer. They will have to provide oversight and guidance to all commune level participants in project activities.

#### 9.1.9. Hub and commune level

The CTCs and technical staff will be the main interface between the PMU/ESS Officer and the participating communities. They will assist these communities to actively participate in the identification and planning for project activity interventions, including the risk screening exercises and any inputs into the safe work instructions / method statements development processes.

The participant communities need to be involved in the project E&S risk screening exercises at a site-level. They are best placed to contextualise the E&S risk aspects under consideration within their communities and provide input into their overall potential significance at the local scale. This exercise can also serve as a platform to sensitise communities to the potential E&S risks associated with project activities, as well as utilise their inputs to develop and refine the management and mitigation measures that will be subject to formal planning interventions - specifically the safe work instructions / method statements.

The participating communities will also be the main source of the project's labour needs for activities such as landscape rehabilitation, infrastructure construction and water source maintenance interventions etc. It is essential therefore that in the project identification and E&S risk screening phases that the skills requirements for these activities, and the existing capacity within these communities, is appropriately assessed with the aim of identifying the necessary training interventions that will be required going forward.

They will also assume, to some degree, the M&E duties and responsibilities related thereto, as is discussed further Chapter 10, that will require some level of upskilling training in this regard.

Water-user groups (WUGs) will also play a significant role in these activities once established at the individual hub level.

---

### *Other project stakeholders*

There are numerous NGOs, community-based organisations (CBOS) and civil society organisations (CSOs) that will be involved, affected by, or collaborating in some of the proposed project activities. The roles and responsibilities will be further defined during the project initiation and implementation periods.

### *Capacity building*

All project stakeholders will need to be subject to varying degrees of capacity building in order to address the potential project implementation risks and to ensure they are sufficiently capacitated to understand and deal with the technical aspects of these interventions. Competency assessments and training needs analyses for all key project personnel may be necessary if there are concerns about individual or collective competencies to effectively implement the ESMP.

Regardless of the training needs, all upskilling and training initiatives must form part of the supporting documentation record to demonstrate related continual improvement efforts. This is necessary to demonstrate adherence to the GCF safeguards that emphasise the training and capacity building of personnel and workers as being essential to demonstrating continual improvement in this regard.

#### 9.1.10. Project Steering Committee

The PSC will need to assume overall responsibility for ensuring these upskilling and training initiatives are resourced, developed and implemented. It is assumed the PSC members will be sufficiently capacitated on the project intervention strategy modalities and implementation requirements, and their training needs will be minimal in comparison to those required for the PMU and hub-level CTCs

#### 9.1.11. Project Management Unit

A training and capacity building needs analysis should be performed on all PMU and CTC members, including any technical staff that may be represented in the PMU, to ensure that they do have the requisite skills to implement the project activities, as well as being sufficiently competent and confident to undertake the ESMP implementation and project M&E processes.

It is anticipated that technical staff, external expertise and service providers will assist in the project activity development, training needs analysis and interventions, site supervision and performance evaluation activities in this regard as guided by the PMU.

#### 9.1.12. Coordination and Technical Committees (CTCs)

As for the PMU above, a needs analysis will need to be undertaken during the project inception phase to determine what these training requirements and interventions are necessary.

#### 9.1.13. Hub and commune Level

Varying, extensive and resource intensive capacity building efforts will be required at the community level and will need to be determined on a project activity basis. This is applicable to both the planning and intervention stages of the project, as well as any related M&E process responsibilities they may be mandated with.

#### 9.1.14. Institutional & other stakeholders

In terms of project M&E processes and outputs, institutional stakeholders such as universities, research institutions or groups that may be involved in the project are likely to be more sufficiently capacitated for these activities than other stakeholders. It is recommended that these institutions are utilised in project capacity building and upskilling initiatives at the PSC, PMU and community levels.

---

The capacity building requirements for NGOs, CBOS and CSOs that will be involved, in project activities will need to be determined during the project initiation and implementation periods.

---

## 10. STAKEHOLDER ENGAGEMENT

---

Effective stakeholder engagement is fundamental to ensuring the project objectives and outcomes are met. The guiding principles for these processes and the GCF requirements in this regard are discussed in this chapter.

### *Guiding Principles*

The public consultation and stakeholder engagement process is a crucial mechanism that informs the public, key stakeholders, interested parties and those to be affected by the project. It serves to inform the public about the purpose and aims of the project, and the key activities that will be carried out during the development and implementation phases thereof.

The objectives of these stakeholder and public participation processes are:

- To provide an opportunity for communities to get clear, accurate and comprehensive information about the proposed project and its anticipated risks or impacts;
- To provide an opportunity for communities to give their views, raise their concerns regarding the project, and also give possible alternative arrangements that may assist in the development of the project in order to avert some of the E&S impacts;
- To provide people with the opportunity of suggesting ways of avoiding, reducing, or mitigating negative impacts or enhancing positive impacts of the proposed project activities;
- To enable the project to incorporate the needs, preferences and values of the stakeholders into the project design and development; and
- To provide opportunities to avoid and resolve disputes and reconcile conflicting interests by the stakeholders of the project; and
- To enhance transparency and accountability in project decision making.

Extensive key stakeholder consultations and wider public participation was carried out during the project preparation processes to date and will continue during the implementation phase to ensure regular communication between them and the various parties. Stakeholder consultations will also be carried out during the preparation of project activity E&S risk screening exercises in the participating communities with the aim of ensuring they inform the content thereof.

The GCF<sup>42</sup> requirements in this regard will also be incorporated into these engagement processes. The GCF expects projects to engage with external stakeholders in a variety of ways and specifically requires processes for:

- Receiving and registering communications from external stakeholders;
- Screening and assessing issues raised;
- Addressing issues, as needed; and
- Keeping a log of communications received and responses.

To meet the above requirements, the Project has developed a Stakeholder Engagement Annex (Annex 7). This Stakeholder Engagement Annex includes a list of identified stakeholders, records of all stakeholder engagements that have taken place in the development process and an established plan for engaging with stakeholders throughout the project implementation.

### *Commune-level stakeholder engagement*

As described above the project consultation and engagement processes to date have been thorough and well established. These processes are detailed in Annex 7: Summary of Stakeholder Consultations and Stakeholder Engagement Plan. Coordination platforms utilised throughout the project development and implementation period, as well as those established under Output 1.1. of the proposed project, will differ in scale and approach as informed by project activity requirements. Ongoing performance

---

<sup>42</sup> Sustainability Guidance Note: Designing and ensuring meaningful stakeholder engagement on GCF-financed activities (2022)

reporting and information disclosure to participating communities and commune leadership will be the norm.

The project will also involve communities throughout implementation. They will be engaged in the planning exercises, including the local adaptation action plans and land use plans. In addition, they will have a leading role in the selection and implementation of new approaches, practices and technologies for resilience.

The baseline and strategy development studies will comprise a number of consultation workshops, focus group discussions and interviews, with a particular focus on more vulnerable populations in the four target hubs. Specific efforts will be made to engage nomadic pastoralists, women and vulnerable persons.

#### *Institutional level stakeholder engagement*

As noted in the implementation arrangements section, during implementation, the project will closely involve the ministry of agriculture; the ministry of livestock farming; the ministry of water and sanitation; and the ministry of housing, urbanism and regional planning. Furthermore, the project will work tightly with government political and technical staff at the sub-national level, including the wilayahs, municipalities and communes. This will be particularly the case with officers in charge of planning, environment, agriculture and livestock, water and infrastructure, including extension services.

#### *Information disclosure*

Disclosure of relevant project information can help affected communities and other stakeholders understand the risks, impacts and opportunities of the project. Information on the project was initially disseminated during the project development period (see Annex 7: Summary of Stakeholder Engagements and Stakeholder Engagement Plan) and will be continued throughout implementation during ongoing stakeholder engagement processes. The project will provide affected communities with access to relevant information, and consultation gives affected communities the opportunity to express their views on project risks, impacts and mitigation measures in a non-intimidating setting.

In addition to community level disclosure, the ESMP and GAP will be disclosed on the GCF website as per their requirements and will be available on request from UNEP.

All project intervention activities will be subject to ongoing performance evaluation and subsequent disclosure processes during their development and implementation periods. The GCF<sup>43</sup> requirements in this regard will be adhered to by the project.

## 11. GRIEVANCE REDRESS MECHANISM

This chapter details the grievance redress mechanism (GRM) to be utilised by the project. The project will adhere to the GCF requirements<sup>44</sup> in this regard.

### *Overview*

The objectives of the GRM are to:

- Establish a transparent, consistent and credible process for addressing grievances;
- Address grievances;
- Promote open communication in relation to project grievances;
- Provide solutions that are considered fair, reasonable, and realistic; and

<sup>43</sup> [Information disclosure | Green Climate Fund](#)

<sup>44</sup> GCF Environmental and social policy (Section 7.3)



- Track, review, assess, and report on the management of grievances.

In order to achieve this, the GRM must:

- Be proportionate to the risks and adverse impacts of the project;
- Have affected communities as primary users;
- Resolve concerns promptly in a transparent and consultative manner;
- Be accessible, understandable and culturally appropriate;
- Address concerns at no cost and without retribution to the complainant; and
- Not impede access to judicial or administrative remedies.

The GRM ensures that complaints and grievances (see 'definitions' below) are addressed in good faith and through a transparent and impartial process, but one which is culturally acceptable. Key definitions are as follows:

- **Complaint:** an expression of dissatisfaction that is related to an impact caused by the project activities, which has affected (i) an individual or group adversely, (ii) the interests of an individual or group and who wants the project to address and resolve it (for example problems related to dust deposition, noise or vibration - i.e. "nuisance impacts"). A complaint is normally of a less serious nature than a grievance; and
- **Grievance:** a claim raised by an individual or group whose livelihood, health and safety, cultural norms and heritage are considered to have been adversely affected (harmed) by a project activity which, if not addressed effectively, may pose a risk to each operations (through stakeholder actions such as access road blockages) and the livelihood, well-being or quality of life of the claimant(s).

Grievances raised by stakeholders need to be managed through a transparent process, readily acceptable to all segments of affected communities and other stakeholders, at no cost and without retribution.

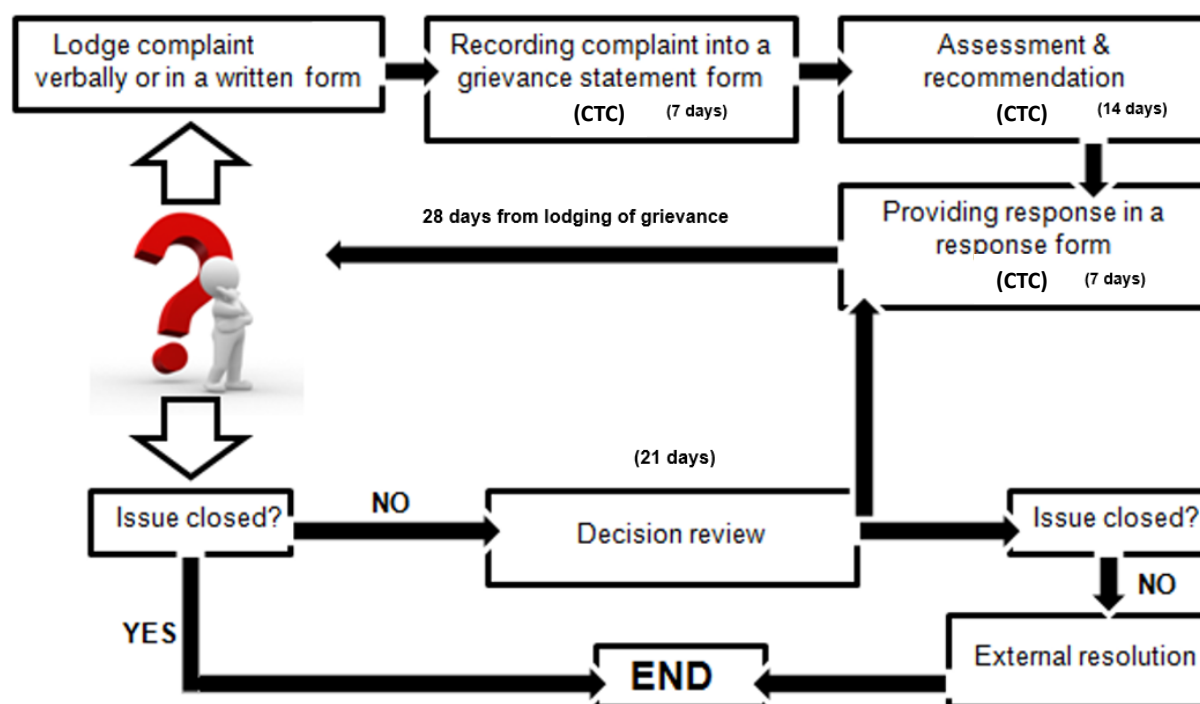
The purpose of the GRM is to record and address (in the form of a register or log) any complaints that may arise during the planning and implementation phase of the project activities have the potential to be designed out during implementation phase. The GRM works within existing legal and cultural frameworks, providing an additional opportunity to resolve grievances at the local project level. Example templates for grievance submissions, recording of grievances and a grievance log are included in Appendix 3.

As part of the ongoing stakeholder engagement processes during project implementation, the GRM will be subject to presentation and discussion in all participating communities and at the hub level.

#### *Project Internal & External Grievance Mechanisms*

The GRM can help the project deal with any complaints that arise in regard to its activities. These mechanisms allow the institution to receive, evaluate and address complaints from internal and external stakeholders regarding implementation of safeguards and other risk management controls that are defined in this project ESMP.

All project grievances (both internal and external) will be resolved in the manner described below (and illustrated in figure 9.1), with the commune-level CTCs assuming most of the duties and responsibilities in this regard:



**Figure 9.1:** Grievance resolution process.

**Step 1: Receipt of complaint/grievance:** grievances will be received by the CTC, either verbally or by written notification and will be entered in a register. Languages used will be English and French for documentation purposes, but the grievance will also be translated into any applicable local languages for redress and monitoring purposes. The person submitting the grievance will be given a receipt of their submission. People will also have the option of making their initial complaint through the traditional authorities or leadership or by contacting the Safeguards Officer directly. A receipt will be provided to the person lodging the grievance.

**Step 2: Acknowledgement of complaint/grievance:** written information (accompanied with verbal explanation) as to steps that will be undertaken to resolve the grievance. The recording of the complaint onto a grievance statement form will take place within 7 days (5 working days) of the issuance of the receipt to the complainant. This exchange will be recorded in the grievance register.

**Step 3: Assessment, investigation and resolution of complaint/grievance:** the CTC will assess the grievance in terms of their capacity to resolve it locally. If this is not possible, the grievance will be escalated to the Safeguards Officer/PMU for further action. The CTC will conduct an internal investigation to determine the underlying cause of the grievance and make any changes required to prevent reoccurrence of a similar grievance. As appropriate, the CTC will also hold meetings with the person/group expressing the grievances to discuss, clarify and solve the issue, and prevent it from reoccurring. The expected time for its resolution is within 14 days (10 working days). The CTC will provide a formal response to the PMU within 7 days (5 working days) of completing its investigations and putting forward its proposed resolutions.

**Step 4: Closure:** once the investigation has been completed and necessary measures been taken, the results will be communicated to the complainant and entered in the grievance register. Ideally this will not exceed 28 days (20 working days) from the time of the grievance being lodged.

**Step 5: Outcome of the corrective action is verified with the complainant:** following completion of the corrective action, the CTC will verify the outcome with the complainant. The complainant will be asked to sign off on his/her acceptance of the 'solution' (or nominate someone to do so on his/her behalf). In the event that the complainant remains dissatisfied with the outcome, additional corrective

action may be agreed and carried out by PMU or CTC. This may include escalating the grievance further (to UNEP or GCF oversight bodies) or providing the complainant with support to initiate a formal judicial process. The grievance log, including timelines corrective actions and ultimate outcomes will be entered into a dedicated database.

**Step 6: Annual Review of the GRM Register and grievance Outcomes:** the GRM Register will be submitted to the Safeguards Officer on a biannual basis and will undergo biannual reviews by the PMU, with the outcome of this review reported to the PSC. The purpose of this review is to assess whether the GRM is functioning adequately (i.e., satisfactorily addressing any raised grievances) and whether there is reoccurrence of raised grievances.

#### *SEAH and GBV related Grievances*

Mauritania does not have an existing legal framework addressing GBV (see Annex 8: Gender Assessment and Action Plan). This limitation has direct implications for addressing SEAH and GBV in the context of the project's grievance redress mechanism. The absence of a legal framework creates the following challenges:

- **Weak protection and accountability structures:** without comprehensive laws addressing GBV, there may be limited protection for survivors of SEAH and weak mechanisms to hold perpetrators accountable. This may result in underreporting of SEAH cases, insufficient protection for victims, and insufficient legal recourse for addressing complaints effectively.
- **Limited standardised reporting mechanisms:** the absence of a comprehensive law means there is likely no standardized or mandated reporting and referral mechanism for cases of violence against women, including SEAH. This can lead to fragmented or inconsistent handling of SEAH complaints, making it difficult to ensure survivors receive appropriate support and justice.
- **Limited coordination with law enforcement:** with no legal mandate, law enforcement agencies may lack the necessary training, resources, or coordination to effectively respond to SEAH cases. This can reduce the effectiveness of SEAH-related interventions, as victims may face difficulties navigating the legal and law enforcement systems.

As a result of the sensitivity regarding grievances related to GBV or SEAH, all reported grievances of this nature will be managed through a specific process. While grievances related to SEAH/GBV will still follow the 9-step procedure described above, an additional parallel process will be instituted to ensure the safety of the survivor and prioritize access to support services. The core considerations of this process are:

- i) automatic eligibility of grievances;
- ii) anonymisation and/or prioritization of protection and privacy of victim in all official documentation and processes;
- iii) prioritization of support services for victim through referral to local active specialist NGO/CBO. Support will be provided for as long as required, and at the expense of the project if so required;
- iv) investigation of root cause of grievance and appropriate disciplinary action undertaken;
- v) Monitoring and reporting of all SEAH/GBV grievances in a separate and anonymised register for inclusion in biannual project reports; and
- vi) Adequate restitution and/or reporting of event and perpetrator to appropriate legal bodies/institutions (as required by law and/or policies of the AE/IP).

As per the considerations outlined above, the parallel process in the GRM will operate in a victim-centred structure. This will ensure that the safety of the victim/survivor and the need to provide support to them is prioritised above all other considerations. All processes beyond the initial report will be anonymised and access to support services will be provided alongside the receipt of grievance as described in step 2 of the process as described in Section 10.2. Support services will be provided by a local specialist NGO or other service provider that operates in the vicinity of the project site. These specialist NGO's will be identified by the ESS Officer in collaboration with the PMU during the first year of implementation and during the establishment of the GRM. These NGO's or service providers should

have a history of working in the region and specialised expertise in supporting survivors of GBV and SEAH.

#### *GCF independent redress mechanism*

The GCF<sup>45</sup> independent redress mechanism (IRM) is also available to stakeholders and affected persons who have grievances or issues relevant to the project's activities that can be utilised outside of the project GRM.

While the GCF IRM operates independently from the proposed project GRM, it also serves to address complaints and grievances from persons adversely impacted by projects or programmes of the GCF. After verifying eligibility, the IRM engages with the relevant parties to explore options for resolving the problems that are raised in the complaint, with an aim to reaching a mutually satisfactory outcome. If parties are unwilling or unable to resolve the issues, the IRM conducts a compliance appraisal to determine whether a compliance investigation is merited, and if so, carries out an investigation to identify any non-compliance with GCF policies or procedures in relation to the complaint and recommends appropriate redress. The IRM monitors any problem-solving agreement or compliance recommendations that results from its processes.

Based on discussions with the primary stakeholders in a complaint or request, the IRM will work with them to develop a jointly agreed problem-solving process. This is intended to address the issues raised or, where there is no space for a problem-solving process, refer the case for IRM compliance review.

The IRM conducts independent compliance appraisals and investigations of GCF projects and programmes and their adherence to GCF policies and procedures. It makes recommendations to the GCF board based on its review with the intention of ensuring compliance and providing redress.

## 12. MONITORING AND EVALUATION

A high-level overview of the project implementation and ESMP M&E approaches and considerations is presented in this chapter.

### *Overview*

The M&E objectives are:

- To confirm compliance with commitments to any applicable legislative and non-legislative E&S standards that the project will adhere to;
- To provide early warning of potential impacts, determine the extent of predicted impacts and identify any unforeseen impacts associated with project activities;
- To provide feedback on the adequacy of E&S risk management practices and allow for improved practices to be developed to continuously improve performance;
- To detect and measure E&S trends or changes and enable the analysis of their root cause; and
- To provide project management structures with information and data that can be used as a basis for informed decision making.
- To monitor the implementation of the GRM to ensure it is responsive to the needs of the communities and provide opportunities to improve grievance redress.

---

<sup>45</sup> [About the IRM | Independent Redress Mechanism | Green Climate Fund](#)

Performance relative to the outcome 1 and 2 sub-activities and deliverables (appendix 3) will be the main M&E indicators in terms of project implementation and execution progress, evaluation and success.

### *Project implementation M&E*

#### 12.1.1. Gender considerations

As noted previously, the project will consider the needs of women and other vulnerable groups in: i) site selection; ii) training and skills development programmes; iii) goals, policies and strategies; iv) staff procurement; v) fund management; and vi) community representation. The key performance areas (KPA) and key performance indicators (KPI) for project activity evaluation as it relates to gender will, amongst others, include:

- A minimum female beneficiary threshold of 50%;
- Equitable representation of men and women from communities in the project; and
- The number of women implementing climate-resilient interventions.

It is anticipated that these KPA/KPI will be revised and further expanded on during the project activity design processes and revised on a needs basis during implementation. The gender action plan should also be referred to for additional performance metrics in this regard.

#### 12.1.2. SEAH and GBV

As noted previously, monitoring and reporting of all SEAH/GBV grievances will be compiled in a separate and anonymised register for inclusion in biannual project reports. Additional monitoring measures and structures for the project include establishing SEAH focal points in governmental bodies, non-governmental organisations (NGOs), and development agencies to monitor, report and act on SEAH cases. Focal points would provide information, ensure complaint systems are functional and engage in community outreach. The identification of the focal points will be conducted during the project's inception phase of implementation. The ESS officer will also collaborate with local leaders, women's groups and civil society to establish culturally appropriate reporting mechanisms that build on traditional conflict resolution structures while protecting confidentiality and ensuring survivors' safety. The project's mid-term review will include SEAH monitoring as well as the development of indicators to track the effectiveness of SEAH/GBV prevention and reporting systems.

#### 12.1.3. Project implementation / execution progress

In addition to the project activity ESMP M&E outcomes, the community level O&M and M&E plans will be subject to annual performance review by the PMU, PSC and EE. The latter will largely be reflective of, and consider progress on, the sub-activities and deliverables listed in appendix 3.

### *ESMP M&E responsibilities*

#### 12.1.4. Project Steering Committee

The PSC will need to assume overall responsibility for ensuring the respective ESMP M&E programmes are resourced, developed and implemented.

The po will need to assume an oversight role in the M&E and reporting process related thereto and described below.

#### 12.1.5. Project Management Unit

The PMUs and CTCs will assume the majority of the ESMP M&E programme development and coordination functions, as supported by technical staff, community representatives, service providers and other institutional stakeholders. Where appropriate, the PMU will consider involving representatives from affected communities to participate in the monitoring activities.

Where skills do not exist, or where significant impacts are involved, the PMU will retain external experts to verify its monitoring information. In instances where a third party has responsibility for managing specific risks and impacts and associated mitigation measures, the PMU will collaborate in the establishment and monitoring of such activities.

The PMU will comprise a gender officer to assist the ESS Officer in overseeing any grievances related to gender-based violence (GBV) or sexual exploitation and harassment (SEAH). In addition, gender-related training will be provided to the PMU and include topics such as understanding and preventing SEAH and GBV.

#### 12.1.6. Environmental and Social Safeguards Officer

The ESS Officer will be instrumental in developing the M&E process, activities and performance evaluation reporting - specifically as it relates to the ESMP implementation, stakeholder engagement and equitable distribution of benefits across different stakeholder groups.

#### 12.1.7. Institutional & other stakeholders

This will be a key contribution area for these stakeholders (universities, researchers and related organisations, NGOs etc.), but also requires further definition of roles and responsibilities.

#### 12.1.8. Hub and commune level

These responsibilities will be determined at the project activity level once the intervention strategies have been fully prepared and resourced.

#### *Key performance areas & indicators*

Monitoring of operational characteristics relating to process inputs and outputs is essential for effective E&S/H&S management. Success in achieving project defined objectives in this regard depends on accurate and reliable measurement. Performance objectives and targets (measurable indicators) against which the performance of the project can be measured and monitored will be developed. These objectives and targets will be clearly defined and incorporated in the respective project M&E plans.

#### 12.1.9. Key performance areas

KPAs subject to inclusion in the ESMP will be aligned with the respective project activity risks and the project's E&S/H&S objectives. These will also need to include all E&S/H&S aspects and risk areas that have been identified, and any additional ones thereafter, as potentially significant. These are reflected in table 10.1 below.

#### 12.1.10. Key performance indicators

All KPIs will need to be developed on the following basis and requirements:

- Specific: what exactly do you want to achieve?
- Measurable: how will you identify that you have achieved your goal?
- Achievable: is your goal really attainable?
- Relevant: is it relevant to you or, in other words, does it align with where you want to be?
- Time-bound (or timely): when will you deliver your goal, and what are the key milestones?

Measurements of the key characteristics (performance) of project related activities and potential risks are carried out for the following reasons:

- Monitoring a regular and repetitive series of factors on E&S/H&S performance;
- Tracking the progress towards achievement of E&S/H&S objectives;
- Use of resources;
- To check effectiveness and efficiency; and
- Determining legal compliance.



It is particularly important that measurements are reviewed to confirm legal compliance. An independent (third-party) check of legal compliance can also be carried out in conjunction with internal audits if deemed necessary. At the project activity site level the following will need to be implemented:

- Daily inspections to monitor compliance with ESMP specifications and safe work instructions/ method statements, including the issuance and correct use of PPE;
- Recording and investigation of all accidents and near misses on the site;
- Random sampling of members of the workforce for alcohol and drug use on site;
- Pre-employment medical examinations for all employees to ensure fitness for work; and
- Annual medical screening (where necessary or legally required).

Records will be maintained of all audits, inspections and incident investigations. Incident and accident statistics will be reported on quarterly by the CTCs and the po. These statistics and associated reporting deliverables will be subject to quarterly and biannual review by the PSC, as well as on an annual performance review basis conducted by UNEP.

An indicative/example set of KPA/KPI is presented in table 10.1 below. The ESS Officer should utilise an approach that incorporates relevant criteria from this table when developing site-or-activity-specific KPAs/KPIs:

**Table 10.1.** Indicative Key performance areas & indicators

KPA	KPI
Institutional strengthening and capacity building	<ul style="list-style-type: none"> <li>• Number and type of training interventions undertaken over a given period.</li> <li>• KPI and deliverables of relevance associated with the sub-activities reflected in appendix 1</li> </ul>
Implementation / execution performance	<ul style="list-style-type: none"> <li>• KPI and deliverables of relevance associated with the sub-activities reflected in appendix 3.</li> </ul>
Legal compliance	<ul style="list-style-type: none"> <li>• Presence and evidence of regular revision of the legal or compliance obligations register.</li> <li>• Number of legal or regulatory contraventions or non-compliances over a given period (where applicable or relevant to all the below listed KPAs).</li> <li>• Number of fines issued, or administrative or legal actions faced over a given period.</li> </ul>
Stakeholder engagement	<ul style="list-style-type: none"> <li>• Number and type of stakeholder engagements undertaken over a given period.</li> <li>• Presence of GRM and evidence of regular updating of the register.</li> <li>• Satisfaction of complainants with the accessibility of the GRM and substance of the outcomes.</li> <li>• KPI and deliverables of relevance associated with the sub-activities reflected in appendix 3.</li> </ul>
Biodiversity / ecological	<ul style="list-style-type: none"> <li>• Number and type of incidents of unforeseen and substantial negative impact on local biodiversity and ecologies over a given period.</li> <li>• Performance relative to landscape rehabilitation/restoration targets.</li> <li>• KPI and deliverables of relevance associated with the sub-activities reflected in appendix 3.</li> </ul>
Project labour H&S	<ul style="list-style-type: none"> <li>• Total working hours.</li> </ul>



KPA	KPI
	<ul style="list-style-type: none"> <li>Incidents or near misses (including those with the potential to cause injury, ill health, or loss of life).</li> <li>Injuries and work-related ill health in terms of lost time injuries (Itis), lost time incident frequency rate (number of lost-time injuries x 1,000,000 divided by total hours worked in the period).</li> <li>Complaints about work that is carried out in unsafe or unhealthy conditions.</li> <li>Absenteeism.</li> <li>Number of grievances received relating to employee H&amp;S risks, incidents or impacts over a given period.</li> <li>Number and type of training interventions, including emergency response drills, over a given period.</li> </ul>
Community H&S	<ul style="list-style-type: none"> <li>Number Of Traffic infraction fines Issued To Project Personnel.</li> <li>Number Of People (The Public) Injured In Project Vehicle Related Accidents</li> <li>Number Of Incidents Involving Pedestrians</li> <li>Number Of Community First Aid And Medical Treatment Or Hospitalisation Cases Arising From Project Activities.</li> <li>Number Of Grievances Received Relating To Community H&amp;S Risks Or Impacts Over A Given Period.</li> <li>Number And Type Of Training Interventions For Project Personnel And Community Members On H&amp;S Issues.</li> </ul>
Community conflict	<ul style="list-style-type: none"> <li>Number of reported incidences of community conflict over a given period.</li> <li>Number of grievances received relating to community conflict over a given period.</li> </ul>
Gender / vulnerable persons	<ul style="list-style-type: none"> <li>Number of grievances received relating to bias, exclusion or harassment of women, children and vulnerable persons over a given period.</li> <li>Number (%) of women and vulnerable persons participating in, and benefitting from, project activities (see section 10.2.1).</li> </ul>

The objectives, goals targets and related to the above KPIs will need to be determined and established at the project activity level by the PMU and CTCs and reflected in the associated M&E plans and monitoring processes. E&S/H&S objectives and targets set by the project will be reviewed on a regular basis.

In cases where objectives and targets are not met, new planning controls and safe work instruction / method statement revisions that indicate the proposed corrective action measures will be developed and approved (section 10.6 below) by the PMU.

### *Reporting*

#### 12.1.11. Project implementation progress reporting

The PMUs and PSC will be responsible for the generation of the project M&E reports on a quarterly and biannual basis respectively, so as to inform the performance evaluation and corrective action aspects discussed in section 10.6.

#### 12.1.12. Incident and corrective action reporting

---

This will occur on an event and needs basis, largely driven by the CTCs and PMU, as informed by fieldwork supervisors involved with the more significant H&S risk activities.

12.1.13. Biannual E&S review reporting

The Safeguards Officer will be responsible for the generation of biannual M&E reports. The PMU will be responsible for reviewing and signing off on these reports, as supported by technical staff and external experts where required. The findings of these internal and informal reviews will be recorded and items requiring action will be identified.

12.1.14. Annual reporting

In addition to the ESMP M&E reporting that will be reviewed on a biannual basis, the hub or commune level project O&M and M&E plans performance reporting will be subject to annual performance review by the PMU, PSC, EE and AE (UNEP).

*Performance evaluation & corrective action*

The effectiveness of mitigation measures, procedures and specifications aimed at minimising E&S risks and impacts as well as enhancing benefits of the project, will be assessed regularly through the M&E programme and associated corrective action reporting processes.

12.1.15. Biannual review

The PMU (with input from the ESS Officer, CTCs, participating communities and other institutional stakeholders where necessary) will conduct an internal performance review before disseminating the results thereof.

The purpose of the biannual review is to critically examine the effectiveness of the ESMP and the implementation of the safe work instructions / method statements and M&E processes. Based on the outcomes of any corrective action requests arising during a given evaluation period, the PMU will need to decide on what potential modifications to the ESMP / safe work instructions / method statements are required, as and when necessary. The outcomes of this review will be communicated to the PSC for review. The overall aim of PSC review is to ensure the project adheres to the guiding principle of continual improvement and ensure this is reflected in project performance.

12.1.16. Annual review

UNEP will lead the annual performance review in conjunction with the EE and other institutional stakeholders such as the universities and research organisations described in Section 4.2.

### 13. ESMP IMPLEMENTATION BUDGET

An indicative budget for the six (6) year project implementation period is provided below:

**Table 11.1.** Budget (6-year period)

Item	Element/Aspect	Budget Item	Estimated Budget (Us\$)
A	Development of safeguard measures, Management Plans and related procedures		
1	Management Plan Development	Site-level project labour and community H&S management plans (\$2,000 per yr.)	\$12,000
		Site-level ecosystem restoration & rehabilitation management plans (Yr.2, Yr.3, Yr.4, Yr.5: \$4,000 per yr.)	\$16,000
		Operations, Maintenance and Management Plans (Yr.1, Yr.3 \$4000 per yr.)	\$8,000
2	ESMP Development & Awareness Raising	ESMP Development of additional actions (Yr. 1: \$10,000) GRM awareness-raising material development, printing and distribution (Yr.1: \$4,000; Yr.2-5: \$2,000 per yr.) ESMP awareness-raising material development and production of materials (Yr.1 \$2,000; Yr.2-5: \$500 per yr.)	\$26,000
Sub-total			\$62,000
B	ESMP & ESMP/GRM training, supervision and monitoring process requirements		
1	Initial Training: Yr.1 (Includes capacity assessments, development of materials and engagements)	Community level/CTCs;	\$16,000
		PMUs	\$8,000
		Specialist inputs	\$12,000
		PSC/EE	\$8,000
2	Ongoing / Refresher Training	Community level/CTCs (Yr. 2 – 6: \$4,000 per year)	\$20,000
		PMU/PSC (Yr. 2 – 6: \$1,000 per year)	\$5,000
		Specialist inputs (Yr. 2 – 6: \$800 per year)	\$4,000
3	Safe Work Procedures / Training	Community level (Yr.2: \$4000; Yr.3 – 6: \$2000 per year)	\$12,000
		Specialist inputs (Yr.2 – 5: \$3000 per year)	\$12,000
Sub-total			\$97,000
C	Monitoring & evaluation activities		
1	Activity level M&E activities	CTC/Community level requirements, including capacity building, reporting materials. (Yr.1: 8,000; Yr.2 – 6: \$4,000 per yr.)	\$28,000
		PMUs/Safeguards Officer (Yr.2 – 6: \$2,000 per yr.)	\$10,000
2	Biannual review	PSC/EE/AE and the CTCs (Yr.2 – 6: \$2,000 per yr.)	\$10,000
3	Performance evaluation and corrective action	PMU/PSC (Yr.2 – 6: \$2,000 per yr.)	\$10,000
		CTCs (Yr.2 – 6: \$4,000 per yr.)	\$20,000
4	GRM Implementation & Monitoring	Safeguards Officer/PMU (Yr.2 – 6: \$2,000 per yr.) CTC/Community Level (Yr.2 – 6: \$6,000 per yr.)	42,500
Sub-Total			\$120,500
Grand Total			\$279,500

---

## REFERENCES

---

Aria Technologies, Acterra And Agrer. 2021. Trend Analysis Report.

Aria Technologies, Acterra And Agrer. 2022. Final report on recommended adaptation interventions in the four regional hubs.

Aria Technologies, Acterra And Agrer. 2022. Climate trends and projections in the four regional hubs.

Aria Technologies, Acterra, Agrer. 2022. Critical climate risks in the four regional hubs.

GOM. 2004. National Adaptation Programme for Action to Climate Change (NAPA).

UNEP. 2019. Strengthening the resilience of ecosystems and populations in four regional hubs in northern Mauritania: Concept Note.

# APPENDIX 1: PROJECT SUB-ACTIVITY E&S RISK SCREENING CHECKLIST

#	Project Activity E&S Risk Screening Checklist						
1	General information						
	Date:		Location:				
	Project activity logframe no.:		Activity description:				
	Prepared by:	1:		2:			
2	Legal compliance obligations						
	Are any national laws and regulations potentially applicable to the activity?	Uncertain		No		Yes	
	Have these been identified?	Uncertain		No		Yes	
	If yes to either of the above questions, provide a description of the legislation and its requirements:						
	<i>Act/regulation/policy/strategy</i>		<i>Project compliance requirements</i>				
3	E&S risk screening assessment						
	Aspect / hazard	Potential risk significance			Existing control measures / observations		
		Low	Moderate	High			
	Legal compliance						

#	Project Activity E&S Risk Screening Checklist									
	Biodiversity / ecological									
	Project labour H&S									
	Community H&S									
	Community conflict									
	Gender / vulnerable persons									
	Does the activity require its own safe work instruction/s?			Uncertain		No		Yes		
	Do any aspects/risks require potential emergency response planning?			Uncertain		No		Yes		
4	Skills and capacity analysis									
	Does the project labour / community have the necessary skills currently?			Uncertain		No		Yes		
	Has a skills and training needs analysis been undertaken?			Uncertain		No		Yes		
	Is one required?			Uncertain		No		Yes		
	What skills are lacking?									
	What training interventions are required?									
5	External expertise / service providers									

#	Project Activity E&S Risk Screening Checklist						
	Is external expertise or service providers required for this activity?	Uncertain		No		Yes	
	Project planning and safe work instruction/s development input required?	Uncertain		No		Yes	
	Training and capacity building input?	Uncertain		No		Yes	
	Is a cost benefit analysis required for this activity?	Uncertain		No		Yes	
	Briefly describe the anticipated services to be provided by the external expertise or service providers:						
6	Additional Observations and Recommendations						

## APPENDIX 2: SAFE WORK INSTRUCTION / METHOD STATEMENT CONTENT

The development of a safe work instruction or method statement requires the acknowledgement all the required tasks that need to be completed within the project activity workplace and surrounds, and identify any risks that could cause harm to employees, contractors, or community members.

This can form part of the risk mitigation/management steps described previously in this report, or manage any outstanding or unmitigated risks that are identified during the E&S screening and safe work instruction or method statement development process.

Secondly, complete a task analysis for the identified task(s), highlight the steps of each task, the risk (what could go wrong), and any controls (what to do about it).

Finally, document the control measures in place for any risks you cannot eliminate. The steps of the task and the corresponding control measures make up your safe work procedure.

Project personnel, employees, community participants and contractors need to be made aware of or trained on the correct procedures in place. The documented safe work instruction / method statement need to be easily accessible and reviewed regularly for efficacy.

The indicative structure and content of a safe work instruction / method statement is provided below:

### 1. Purpose and Scope of the Safe Work Instruction or Method Statement

- Aims And Objectives
- Scope



## **2. Legal Compliance Obligations**

- Legislation applicable to the project activity
- Compliance obligation and reporting (supporting documentation) requirements

## **3. Roles & Responsibilities**

- Roles and responsibilities
- Designated persons and authorities
- Legal commitments applicable to project personnel

## **4. Description of the Project Activity/ies**

- Provide a detailed description of the activities and related work processes

## **5. Description of the Anticipated E&S/Labour & Community H&S Risks**

- Based on the project risk register, provide a description of the anticipated risks and impacts
- Assess the local environment/workplace identifying potential aspects, issues and risk, or using a hazard identification checklist
- Determine the severity and the likeliness of the event/incident happening

## **6. Risk Management Controls**

- Put steps/controls in place to eliminate the major hazards, where possible or minimize the risks by eliminating the hazard if possible, or as far as possible
- Where required determine the need for, and references to, other plans, procedures and work instructions of applicability to the activity

## **7. Personal Protective Equipment (PPE) Requirements**

- Define the PPE requirements and correct usage thereof

## **8. Emergency Preparedness And Response**

- Scenarios and responses
- Lines of communication (internal and external)
- Emergency response equipment and training requirements

## **9. References, Records & Documented Information**

- Legal/compliance obligations register
- Aspect/risk register
- Other safe work instructions / method statements of relevance
- Training records

- M&E records

## APPENDIX 3: GRM TEMPLATES

### Example Grievance submission form and Grievance Register

#### Grievance submission/Statement form

This form, or a similar form that includes the same basic questions should be completed by a complainant, or completed by a project representative recording a verbal complaint.

The grievance submission form should be easily accessible and available as a paper document as well as an online form. The document should be translated into the appropriate language and at minimum should meet the requirements listed below:

1. This form should be available in each of the four hubs
2. This form should be available in the most appropriate languages
3. A complainant should be able to access the form from more than one source.
4. Information on the grievance redressal mechanism should be publicly broadcast (via a poster or other approaches) at any project office and alongside major project activities. This information should include:
  - a. How to obtain a grievance submission form
  - b. The grievance redressal process and all relevant timelines
  - c. Alternative approaches to lodging a grievance (e.g. by calling the Safeguards Officer, emailing UNEP, or contacting the GCF directly)

Alternative methods for lodging a grievance are included in the table below and should be included on the grievance submission form as demonstrated in the example and publicly broadcast.

	Phone (Call or message)	Email	Website
Project level mechanism	(Safeguards Officer/PMU No.)	(An email for grievances must be established)	If the project has a website, an online form can be developed. This is not required if other mechanisms are available.
UNEP Safeguards	N/A	<a href="mailto:iossr@un.org">iossr@un.org</a>	<a href="https://wedocs.unep.org/handle/20.500.11822/14115">https://wedocs.unep.org/handle/20.500.11822/14115</a>
GCF Safeguards	(Call) +82 32 458 6186 or (Message) +82 10 4296 1337	N/A	<a href="https://irm.greenclimate.fund/contact">https://irm.greenclimate.fund/contact</a>

#### Grievance acknowledgement receipt

#### Grievance register

All grievances should be recorded in a grievance register. This register should include all information on a where and how the grievance was lodged, the process undertaken for addressing the grievance and the eventual outcome. This register can be supported by additional information, which can include the original grievance submission and a stand-alone grievance report document. Examples of these forms are provided below.

## Example Grievance Submission/Statement Form

Please use this form to report any concerns that you have about the: **Strengthening the resilience of ecosystems and populations in four regional hubs in northern Mauritania** Project. Please describe about your concerns, how the project is affecting you, or ways that you would like us to improve.

### 1. Your Information *(if you would like to submit this anonymously, please leave this section blank)*

We would like to know your name and contact information so that we can speak to you about the grievance, and to provide you with information about how we will respond to make improvements.

Name (Last, First) \_\_\_\_\_

Gender:      Male ☐      Female ☐      Prefer not to say ☐

Village: \_\_\_\_\_

Address: \_\_\_\_\_

Occupation: \_\_\_\_\_

Contact/Phone number: \_\_\_\_\_

### 2. Your Complaint:

Please describe your concern or complaint, providing as much detail about the specific activities or actions and how they have/are affecting you.

### 3. Potential Solution:

Please provide suggestions on how we could help address or resolve your concern or complaint?

### 4. Recorder

If someone completed this form on behalf of the affected person or party, please provide your information:

Name (Last, First): \_\_\_\_\_ Phone Number: \_\_\_\_\_

If you do not want to submit this form to your local representatives, you can send the completed form to the United Nations Environment Programme at this email address: [iossr@un.org](mailto:iossr@un.org), or you can call (Please provide PMU phone number or phone number for Safeguards Officer).

You can also lodge a complaint directly with **United Nations Environment Programme** by visiting this web-page and following the instructions: <https://wedocs.unep.org/handle/20.500.11822/14115> or with the **Green Climate Fund** by visiting this link <https://irm.greenclimate.fund/contact>. You can also send a message to – or call – the **Green Climate Fund** using this phone number: +82 32 458 6186 / +82 10 4296 1337

**Example grievance acknowledgement receipt:**

Acting on behalf of the ***Strengthening the resilience of ecosystems and populations in four regional hubs in northern Mauritania*** Project, I hereby confirm receipt of your grievance, which was lodged on:

\_\_\_\_\_ (Date).

We will attend to your grievance within the timelines described in our grievance redressal mechanism. This process will take a maximum time of 4 weeks (28 days).

This means we should contact you to acknowledge your grievance and describe our proposed solution to address your concern on: \_\_\_\_\_ (date within 1 week of the grievance submission).

Should you not hear back within one week, or should you be unhappy with the proposed solution, please contact the Safeguards Officer or another Senior Project Representative on: \_\_\_\_\_  
\_\_\_\_\_ (Safeguards Officer/PMU Phone number).

Name of person logging the grievance: \_\_\_\_\_

Signature of person logging the grievance \_\_\_\_\_

### Example Grievance Register

Basic Information			Information on the Grievance, Corrective Actions and Outcome		Date on which each step is completed					
ID:	Complainant	Recorder	Grievance	Corrective Actions/Outcome	Step 1: Receipt	Step 2: Respond	Step 3: Assess/ Resolve	Step 4: Closure	Step 5: Verify / Escalate	Closure of additional actions <sup>46</sup>

---

<sup>46</sup> This column refers to the potential for additional corrective actions to be undertaken should the five-step grievance redressal process fail to fully address the grievance. This extraordinary measure does not have a pre-determined timeline and will require agreement between the complainant and the Safeguards Officer or other authorized individual.

## Grievance Record Supplement

Grievance ID: \_\_\_\_\_

### Complainant Information

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Contact Details: \_\_\_\_\_

### Information on grievance (Describe the grievance and confirm the description with the complainant)

### Corrective actions undertaken (please describe the steps taken to address the grievance)

### Complainant feedback and satisfaction

How easy was it for the complainant to lodge the grievance (on a scale of 1 – 10): \_\_\_\_\_

How satisfied was the complainant with the overall outcome (on a scale of 1 – 10): \_\_\_\_\_

(If the score here is below a 7, please describe the reasons for this score in the notes section)

**Additional Notes** (please include any additional notes on the grievance. Supplementary information can also be included on additional pages)

### Timelines:

Step Taken	Step 1: Receipt	Step 2: Acknowledgement	Step 3: Assessment / Resolution	Step 4: Closure	Step 5: Verification	Step 6: Escalation
Date completed						

Recorder: \_\_\_\_\_

Complainant: \_\_\_\_\_

Signature: \_\_\_\_\_

Signature: \_\_\_\_\_

### APPENDIX 3: PROJECT LOGICAL FRAMEWORK

Outcomes	Outputs	Activities	Sub-Activities	Barriers Addressed
Outcome 1. Increased implementation and upscaling of Ecosystem-based Adaptation (EbA) measures across the Sahara-Sahel boundary in Mauritania.	Output 1.1. Governance structures are strengthened to support the implementation of EbA measures and the integration of climate change considerations and EbA into government plans, policies and budgets.	Activity 1.1.1. Establish coordination platforms to facilitate knowledge-sharing, natural resource management, sustainable land-use planning and the implementation of EbA activities at the regional and local levels.	Sub-activity 1.1.1.1. Establish commune-level technical committees (CTCs) within each priority commune in the four target hubs.	Barrier 1. Limited coordination and technical capacity to implement adaptation interventions at the community level.
			Sub-activity 1.1.1.2. Deliver training workshops to CTCs, to enhance members' capacities to implement and manage project activities, support the integration of climate change in regional- and commune-level policies, plans and budgets, and facilitate knowledge-sharing between regional- and local-level stakeholders.	Barrier 3. Limited knowledge of climate change impacts, risks, vulnerabilities and adaptation options across the four target hubs.
			Sub-activity 1.1.1.3. Train CTC members to use the NAP Knowledge Management Platform and facilitate the collection and dissemination of climate information and adaptation best practices by CTC members.	Barrier 4. Limited integration of climate change adaptation into land-use planning and natural-resource management strategies at the regional- and local levels.
			Sub-activity 1.1.1.4. Conduct a review of existing <i>wilayah</i> -, <i>moughataa</i> - and commune-level development plans, policies and budgets and prepare policy briefs for the integration of climate considerations and gender-	



Outcomes	Outputs	Activities	Sub-Activities	Barriers Addressed
			responsiveness into these documents.	
			Sub-activity 1.1.1.5. Convene training workshops for Regional and Communal Councils and relevant sectors to support the integration of climate change in regional- and commune-level policies, plans and budgets, including through the presentation of the policy briefs prepared under Sub-activity 1.1.1.4.	
	Output 1.2. Knowledge products developed and disseminated to support decision making and upscaling.	Activity 1.2.1. Develop knowledge products on project lessons learned and best practices through a participatory process engaging the communities.	Sub-activity 1.2.1.1. Hold bi-annual gender-inclusive discussions between representatives from the PMU, CTCs and communities in the target hubs on project intervention successes and challenges, and develop these discussions into community engagement reports.	Barrier 1. Limited coordination and technical capacity to implement adaptation interventions at the community level.  Barrier 3. Limited knowledge of climate change impacts, risks, vulnerabilities and adaptation options across the four target hubs.
			Sub-activity 1.2.1.2. Identify lessons learned and best practices used in project interventions, and develop these into implementation guides and best practice reports.	
		Activity 1.2.2. Enhance the dissemination of	Sub-activity 1.2.2.1. Upload knowledge products (e.g.	Barrier 1. Limited coordination and technical capacity to implement

Outcomes	Outputs	Activities	Sub-Activities	Barriers Addressed
		adaptation knowledge to sub-national decision-makers and communities to support upscaling.	implementation guides, monitoring and evaluation reports, community engagement reports, policy briefs, lessons learned and best practice reports) onto the MEDD adaptation knowledge management platform.	adaptation interventions at the community level.  Barrier 3. Limited knowledge of climate change impacts, risks, vulnerabilities and adaptation options across the four target hubs.
			Sub-activity 1.2.2.2. Package knowledge in the MEDD adaptation knowledge management platform into formats that are accessible at local level (e.g. brochures, TV and radio programmes, awareness-raising materials).	
			Sub-activity 1.2.2.3. Disseminate locally-accessible knowledge products in target and non-target communes across the four project wilayahs to catalyze upscaling, with support from the DREDDs and CTCs.	
Outcome 2. Communities in four rural-urban hubs along the Sahara-sahel boundary in Mauritania have increased livelihood and water security as a result of investment in EbA measures, water access, and sustainable	Output 2.1. Green-grey dune fixation infrastructure is established to control sand encroachment, enhance the provision of ecosystem services and slow the rate of desertification within the four target hubs.	Activity 2.1.1. Establish 2,123 hectares of EbA dune-fixation infrastructure and 120 kilometres of protective fencing across the four target hubs, to facilitate the rehabilitation and maintenance of degraded landscapes and enhance ecosystem	Sub-activity 2.1.1.1. Support CTCs to co-develop commune-level land rehabilitation plans in collaboration with village-level stakeholders, members of project management teams and DREDD representatives.	Barrier 2. Limited financial capacity to invest in climate-resilient land- and natural resources management at the community level.  Barrier 3. Limited knowledge of climate change impacts, risks, vulnerabilities and adaptation options across the four target hubs.
			Sub-activity 2.1.1.2. Install ~2,123 ha of dune-stabilisation infrastructure (1,138 ha of green belts; 985 ha of biological and	

Outcomes	Outputs	Activities	Sub-Activities	Barriers Addressed
land- and natural resources management practices.		services related to dune stabilisation and the supply of natural resources.	mechanical dune-fixation infrastructure) at strategic sites across the four target hubs — to protect critical areas against the impacts of sand inundation.	
			Sub-activity 2.1.1.3. Install ~120 km of fence lines around dune-fixation sites established under sub-activity 2.1.1.2, to protect biological dune-fixation infrastructure against damage from livestock and unsustainable use of natural resources.	
			Sub-activity 2.1.1.4. Train livestock herders within the target communes to implement climate-resilient livestock management practices, such as rotational grazing, transhumance, supplementary feeding, agro-silvopasture, collective herding and 'livestock collar re-seeding'.	
	Output 2.2. Improved access to water for land rehabilitation and agricultural activities.	Activity 2.2.1. Establish community-managed Water User Groups (WUGs) and commune-level water monitoring and regulation plans.	Sub-activity 2.2.1.1. Establish community-managed Water User Groups (WUGs) within each target commune and train members to implement and maintain water-related activities introduced under Activity 2.2.2 of the project.	Barrier 2. Limited financial capacity to invest in climate-resilient land- and natural resources management at the community level.  Barrier 3. Limited knowledge of climate change impacts, risks,
			Sub-activity 2.2.1.2. Support CTCs to raise awareness about	

Outcomes	Outputs	Activities	Sub-Activities	Barriers Addressed
			sustainable water usage and co-develop commune-level water monitoring and regulation plans in collaboration with WUGs.	vulnerabilities and adaptation options across the four target hubs.
			Sub-activity 2.2.1.3. Conduct hydrogeological studies (or consult existing hydrogeological maps, where applicable) and engage with WUG members to identify priority sites to install water-management infrastructure (Sub-activities 2.2.2.1, 2.2.2.2 and 2.2.3.1) in each target commune. Summarise the finding of site selection into a commune-level water management plan for each priority commune.	Barrier 4. Limited integration of climate change adaptation into land-use planning and natural-resource management strategies at the regional- and local levels.
		Activity 2.2.2. Install physical water management infrastructure — including weirs, gabions, dikes, stone- and earthen bunds, groundwater dams and water access points for pastoralists.	Sub-activity 2.2.2.1. Install physical water management infrastructure — including weirs, gabions, dikes, stone- and earthen bunds, groundwater dams and solar-powered pumps — at strategic sites within each target commune, to improve water access and availability, increase groundwater recharge rates and reduce flood risks in the target hubs.	Barrier 2. Limited financial capacity to invest in climate-resilient land- and natural resources management at the community level.
			Sub-activity 2.2.2.2. Establish water access points along historical transhumance routes and in graras, to improve nomadic pastoralists' access to water and	Barrier 3. Limited knowledge of climate change impacts, risks, vulnerabilities and adaptation options across the four target hubs.  Barrier 4. Limited integration of climate change adaptation into land-use planning and natural-resource management strategies at the regional- and local levels.

Outcomes	Outputs	Activities	Sub-Activities	Barriers Addressed
			reduce sedentarisation among livestock herders.	
		Activity 2.2.3. Install 12 rainwater harvesting systems and communal cisterns (5,000 L per system) within each target commune.	Sub-activity 2.2.3.1. Install 12 rainwater-harvesting systems and communal cisterns (5000L per system) within each target commune across the four hubs, to improve access to water for agricultural livelihood activities.	Barrier 2. Limited financial capacity to invest in climate-resilient land- and natural resources management at the community level.  Barrier 3. Limited knowledge of climate change impacts, risks, vulnerabilities and adaptation options across the four target hubs.  Barrier 4. Limited integration of climate change adaptation into land-use planning and natural-resource management strategies at the regional- and local levels.
	Output 2.3. Climate-resilient agricultural livelihoods based on sustainable land- and natural resource-use are developed and/or strengthened to reduce land degradation and support climate-resilient income-generation by community members within the target regions.	Activity 2.3.1. Facilitate the adoption of climate-smart agricultural practices and sustainable, diversified livelihoods by farmers within the target communes	Sub-activity 2.3.1.1. Establish nurseries and seed banks in each target commune to supply activities related to land rehabilitation and dune fixation (Activity 2.1.1), CSA practices (Sub-activity 2.3.1.3) and horticultural activities such as market-gardening (Sub-activity 2.3.1.4).	Barrier 1. Limited coordination and technical capacity to implement adaptation interventions at the community level.  Barrier 2. Limited financial capacity to invest in climate-resilient land- and natural resources management at the community level.
			Sub-activity 2.3.1.2. Collect cuttings and seeds from agricultural crop species, as well as indigenous grass and tree species, to serve as stock material for nurseries and seed banks	Barrier 3. Limited knowledge of climate change impacts, risks, vulnerabilities and adaptation options across the four target hubs.

Outcomes	Outputs	Activities	Sub-Activities	Barriers Addressed
			established under Sub-activity 2.3.1.1.	Barrier 4. Limited integration of climate change adaptation into land-use planning and natural-resource management strategies at the regional- and local levels.
			Sub-activity 2.3.1.3. Train farmers within the target communes to practice climate-resilient crop agriculture and use improved agricultural technologies, including drip irrigation kits, solar powered pumps, integrated pest management strategies, zai pits and half-moons.	
			Sub-activity 2.3.1.4. Conduct site visits and provide technical support to facilitate the uptake of sustainable livelihood activities — including horticulture (market-gardening), apiculture, poultry farming, livestock feed production and the collection and sale of non-timber forest products — by community members within the target communes.	
			Sub-activity 2.3.1.5. Supply farmers and horticulturalists with water-efficient irrigation equipment and climate-resilient crop varieties to support the uptake of agricultural activities adopted under Sub-activities 2.3.1.3 and 2.3.1.4	
			Sub-activity 2.3.1.6. Improve access to urban markets and	

Outcomes	Outputs	Activities	Sub-Activities	Barriers Addressed
			develop value chains for offloading agricultural produce within each target commune, to enhance income generated from sustainable agricultural livelihoods.	
		Activity 2.3.2. Establish a small grants facility to facilitate continued investment in upscaling successful EbA activities and sustainable livelihoods.	Sub-activity 2.3.2.1. Establish and operationalise a Small Grants Facility (SGF) to facilitate continued investment in upscaling successful EbA activities and sustainable livelihoods introduced under the project.	Barrier 1. Limited coordination and technical capacity to implement adaptation interventions at the community level.
			Sub-activity 2.3.2.2. Prepare budget briefs for directing regional government funds into the SGF established under Sub-activity 2.3.1.1. to promote government investment in CCA.	Barrier 2. Limited financial capacity to invest in climate-resilient land- and natural resources management at the community level.
			Sub-activity 2.3.2.3. Develop monitoring and reporting mechanisms to ensure the traceability and risk management of funds revolving between the SGF and local-level stakeholders.	Barrier 3. Limited knowledge of climate change impacts, risks, vulnerabilities and adaptation options across the four target hubs.
			Sub-activity 2.3.2.4. Produce annual monitoring and evaluation reports for sub-projects funded via the on-granting mechanism established under Sub-activity 2.3.2.1.	Barrier 4. Limited integration of climate change adaptation into land-use planning and natural-resource management strategies at the regional- and local levels



## Safeguard Risk Identification Form (SRIF)

### Section 1: Project Overview

<b>Identification</b>	
Project Title	Strengthening the resilience of ecosystems and populations in four regional hubs in northern Mauritania
Managing Division	
<b>Type/Location</b>	
Region	
List Countries	Islamic Republic of Mauritania
<b>Project Description</b>	
<b>Relevant Subprogrammes</b>	
<b>Estimated Duration of project</b>	6 years
<b>Estimated cost of the project</b>	USD30 million
<b>Name of the UNEP project manager responsible</b>	Abdelkader Bensada
<b>Funding Source(s)</b>	Green Climate Fund
<b>Executing/Implementing partner(s)</b>	
<b>SRIF submission version</b>	<i>If it is not the first time, mark the time of your previous submission</i> Concept Review [ ] During Project development [ X ] PRC [ ] Other _____
<b>Safeguard-related reports prepared so far</b>  <i>(Please attach the documents or provide the hyperlinks)</i>	<ul style="list-style-type: none"> <li>• Feasibility Study [X ]</li> <li>• Gender Action Plan [X]</li> <li>• Stakeholder Engagement Plan [X]</li> <li>• Safeguard Risk Assessment or Impact Assessment [X]</li> <li>• ES Management Plan or Framework [X ]</li> <li>• Indigenous Peoples Plan [ ]</li> <li>• Cultural Heritage Plan [ ]</li> <li>• Others _____</li> </ul>

### Section 2: Safeguards Risk Summary

## A. Summary of the Safeguards Risk Triggered

Safeguard Standards Triggered by the Project	Impact of Risk <sup>47</sup> (1-5)	Probability of Risk (1-5)	Significance of Risk (L, M, H)  <i>Please refer to the matrix below</i>
SS 1: Biodiversity, Ecosystems and Sustainable Natural Resource Management	3	3	M
SS 2: Climate Change and Disaster Risks	2	2	L
SS 3: Pollution Prevention and Resource Efficiency	2	1	L
SS 4: Community Health, Safety and Security	3	2	M
SS 5: Cultural Heritage	1	1	L
SS 6: Displacement and Involuntary Resettlement	2	2	L
SS 7: Indigenous Peoples	2	2	L
SS 8: Labor and working conditions	3	3	M

## B. ESS Risk Level<sup>48</sup> -

Refer to the UNEP ESSF (Chapter IV) and the UNEP's ESSF Guidelines.

Low risk



Moderate risk



High risk



Additional information required



5	H	H	H	H	H
4	M	M	H	H	H
3	L	M	M	M	M
2	L	L	M	M	M
1	L	L	L	L	L
#	1	2	3	4	5

## C. Development of ESS Review Note and Screening Decision

**Prepared by**

Name: Chester Kaplan Date: 25/08/2023

**Screening review by**

\_\_\_\_\_

<sup>47</sup> Refer to UNEP Environmental and Social Sustainability Framework (ESSF): Implementation Guidance Note

to assign values to the Impact of Risk and the Probability of Risk to determine the overall significance of Risk (Low, Moderate or High).

<sup>48</sup> **Low risk:** Negative impacts minimal or negligible: no further study or impact management required.

**Moderate risk:** Potential negative impacts, but limited in scale, not unprecedented or irreversible and generally limited to programme/project area; impacts amenable to management using standard mitigation measures; limited environmental or social analysis may be required to develop a Environmental and Social Management Plan (ESMP). Straightforward application of good practice may be sufficient without additional study.

**High risk:** Potential for significant negative impacts (e.g., irreversible, unprecedented, cumulative, significant stakeholder concerns); Environmental and Social Impact Assessment (ESIA) (or Strategic Environmental and Social Assessment (SESA)) including a full impact assessment may be required, followed by an effective comprehensive safeguard management plan.

Name:  Alexandra Mutungi  Date:  01/12/2023

Cleared<sup>49</sup>

Signature



#### D. Safeguard Review Summary (by the safeguard team)

This is a moderate risk project. The project has developed an ESMP for risk management and should undertake a site specific ESIA once specific project sites are known. Closely monitor and follow the recommended mitigation measures for project potential risks identified. When introducing Invasive Alien Species (IAS), consider undertaking additional assessments and due diligence.

While the project intends to improve the livelihood of the local communities, its pertinent to undertake more meaningful multistakeholder engagement with a particular focus on marginalized and vulnerable groups such as nomadic pastoralists, women and children, e.g. development of a vulnerable and marginalized group plan (VMGP), once these groups are known. Consider a gender dimension during stakeholder engagement throughout the project cycle. (Consider the UNEP ESSF Guiding Principles)

#### E. Safeguard Recommendations (by the safeguard team)

- No specific safeguard action required ☐
- Take Good Practice approach<sup>50</sup> ☐
- Carry out further assessments (e.g., site visits, experts' inputs, consult affected communities, etc.) ☒
- Carry out impact assessments (by relevant experts) in the risk areas and develop management framework/plan ☒
- Consult Safeguards Advisor early during the full project development phase ☐
- Other: **Budget provisions for the proposed mitigation measures** ☒

### Section 3: Safeguard Risk Checklist

Screening checklist	Y/N/ Maybe	Justification for the response (please provide answers to each question)
<b>Guiding Principles</b> (these questions should be considered during the project development phase)		
GP1 Has the project analyzed and stated those who are interested and may be affected positively or negatively around the project activities, approaches or results?	Y	The project has been developed through a consultative process that has included multiple rounds of engagement with various community level stakeholders.

<sup>49</sup> This is signed only for the full projects latest by the PRC time.

<sup>50</sup> Good practice approach: For most low-moderate risk projects, good practice approach may be sufficient. In that case, no separate management plan is necessary. Instead, the project document demonstrates safeguard management approach in the project activities, budget, risks management, stakeholder engagement or/and monitoring segments of the project document to avoid or minimize the identified potential risks without preparing a separate safeguard management plan.

		<p>This process was undertaken between March 2021 and March 2023 and included 4 discrete field missions where community leaders, agricultural co-operatives and community representatives were consulted on the project design. The final mission in 2023 also included visits to 13 communes within the 4 target hubs, where specific communities were engaged on the project design.</p> <p>Additionally, a national validation workshop was held in Nouakchott in June 2023 to present the final project design and answer questions from a range of interested and/or affected stakeholders. (See Annex 7: Summary of consultations and Stakeholder Engagement Plan for further details)</p>
GP2 Has the project identified and engaged vulnerable, marginalized people, including disabled people, through the informed, inclusive, transparent and equal manner on potential positive or negative implication of the proposed approach and their roles in the project implementation?	Y	<p>The project development process has included on-the-ground consultations with affected/beneficiary communities as described above. This included engagement workshops with 13 communes, representing some of the poorest communities in the project areas, which have been prioritized for interventions under the project.</p> <p>Additionally, the project includes a comprehensive stakeholder engagement plan that will see ongoing engagement across affected communities, thereby contributing to the transparent and responsive implementation of the project.</p>
GP3 Have local communities or individuals raised human rights or gender equality concerns regarding the project (e.g., during the stakeholder engagement process, grievance processes, public statements)?	Yes	<p>During the stakeholder consultations few concerns regarding women's participation were raised by community members. However, Mauritania has a high gender inequality score and in general women are described as having less decision-making power. This has been considered during the project design phase and the project includes a Gender Action Plan (GAP) with specific activities to better enable the participation of women.</p> <p>Community members in all four hubs did raise the importance of ensuring that women and women's cooperatives benefits from project interventions as these cooperatives are seen as an important contributor to income diversification.</p> <p>Some community members raised concerns regarding conflict stemming from limited access to the few existent</p>

		dams. The project will need to take this into consideration to ensure the establishment of new water sources (such as dams and boreholes) does not exacerbate or intensify this conflict.
GP4 Does the proposed project consider gender-balanced representation in the design and implementation?	Y	<p>Mauritania scores particularly high on the global gender inequality index. While few discrete concerns were raised by community members during consultations, the project design takes into consideration the importance of ensuring that benefits are more equally accrued by women and men. To this end the project includes a discrete Gender Assessment and Gender Action Plan (GAP), which will be implemented in order to contribute to equitable benefits under the project.</p> <p>Similarly, during the development of the project, gender specific consultations were held (where possible), and concerns of women and other marginalized persons were considered when designing specific interventions.</p>
GP5 Did the proposed project analyze relevant gender issues and develop a gender responsive project approach?	Y	See above.
GP6 Does the project include a project-specific grievance redress mechanism? If yes, state the specific location of such information.	Y	The project includes a discrete Grievance Redress Mechanism, which includes multiple options for lodging a grievance. Information on the GRM will be made available through appropriate mechanisms and/or awareness raising material (to be determined during implementation by the Gender and Safeguards Officer) in each of the hubs in which the project is being implemented.
GP7 Will or did the project disclose project information, including the safeguard documents? If yes, please list all the webpages where the information is (or will be) disclosed.	Y	Project information will be disclosed on UNEP platforms following the submission of the full proposal and on the GCF website following approval.
GP8 Were the stakeholders (including affected communities) informed of the projects and grievance redress mechanism? If yes, describe how they were informed.	May be	The project has been developed through a consultative process with various level of local community leaders and community members. This includes four discrete periods in which site visits and local level consultations were conducted by a range of different project proponents as well as a final validation workshop. The intended outcomes and activities of the project were communicated during these engagements and input from communities was incorporated into the project design, shifting some activities to be more responsive to local level needs.

		<p>While the GRM was still under development during these engagements it was not presented. However, there are specific actions included in the project that will ensure communities are aware of the GRM during implementation and understand the various avenues to lodge a grievance, provide input or receive additional information on the project.</p> <p>This will be attended to by the designated Gender and Safeguards Officer, who will ensure that adequate awareness raising is conducted in a culturally appropriate and easily accessible manner.</p>
GP9 Does the project consider potential negative impacts from short-term net gain to the local communities or countries at the risk of generating long-term social or economic burden? <sup>51</sup>	Y	<p>The opportunity costs of shifting to alternative livelihoods have been considered during project design. The design of interventions will include a specific focus on ensuring long-term sustainability, including the development of an on-granting mechanisms to support the replication of project interventions beyond the lifespan of the project. (Further detailed information on the economic and financial assessments can be found in Annex 3)</p>
GP10 Does the project consider potential partial economic benefits while excluding marginalized or vulnerable groups, including women in poverty?	N	<p>The project has been designed with consideration for marginalized and vulnerable groups to ensure that they are not excluded from the benefits derived.</p>
<b>Safeguard Standard 1: Biodiversity, Ecosystems and Sustainable Natural Resource Management</b>		
<i>Would the project potentially involve or lead to:</i>		
1.1 conversion or degradation of habitats (including modified habitat, natural habitat and critical natural habitat), or losses and threats to biodiversity and/or ecosystems and ecosystem services?	Y	<p>The project includes activities that involve biological and mechanical dune fixation over ~985 ha, as well as the establishment of ~2,275 ha of buffer zones. While the dune fixation through both mechanical and biological methods does constitute a 'conversion' process, the area's in which this is being implemented are highly mobile dune environments and are relatively small within the context of the overall project area.</p>
1.2 adverse impacts specifically to habitats that are legally protected, officially proposed for protection, or recognized as protected by traditional local communities and/or authoritative sources (e.g., National Park, Nature	N	<p>The project will not implement on-the-ground interventions in any areas that are designated as protected or otherwise defined as conservation areas, areas of</p>

<sup>51</sup>For example, a project may consider investing in commercial shrimp farm by clearing the nearby mangrove forest to improve the livelihood of the coastal community. However, long term economic benefit from the shrimp farm may be significantly lower than the mangroves if we consider full costs factoring safety from storms, soil protection, water quality, biodiversity and so on.

Conservancy, Indigenous Community Conserved Area, (ICCA); etc.)?		high biodiversity value or areas of high ecological significance.
1.3 conversion or degradation of habitats that are identified by authoritative sources for their high conservation and biodiversity value?	N	The project development process has included extensive stakeholder engagement. Similarly, site selection has been undertaken through participatory processes with both community and government stakeholders. This process has helped ensure that on-the-ground activities will not impact areas identified as having high conservation or biodiversity values by national, sub-national or community-level authoritative sources.
1.4 activities that are not legally permitted or are inconsistent with any officially recognized management plans for the area?	N	The project has been developed in collaboration with the Government of Mauritania, including the Ministry of Environment and Sustainable Development (MEDD). Additionally, MEDD will act as the EE for the project (with support from other government ministries and local NGOs). This will ensure that on-the-ground interventions are implemented in accordance with existing management plans, and that any policy briefs are developed taking cognisance of existing policies and plans.
1.5 risks to endangered species (e.g., reduction, encroachment on habitat)?	Maybe	There are multiple endangered species, within the footprint of the project as a result of land degradation, which is being exacerbated by climate change. The project interventions being implemented in these areas are likely to reduce the rate of degradation and help arrest the impacts on these species. However, the ESMP does acknowledge that potential risks to these species need to be considered at the site level and includes a risk assessment process that will be completed by a technical specialist in collaboration with local communities before the implementation of any relevant activity.
1.6 activities that may result in soil erosion, deterioration and/or land degradation?	N	The project has several activities that will involve soils and sediments, such as dune stabilization and the excavation of zai pits and half-moons. These activities are, however, designed to restrict the rate of ongoing deterioration, thereby contributing to reduced land degradation.
1.7 reduced quality or quantity of ground water or water in rivers, ponds, lakes, other wetlands?	Maybe	The project includes certain activities that will improve water availability for communities in water stressed communities in Mauritania. These activities include the construction of



		<p>numerous categories of water infrastructure, including: i) groundwater dams, for improving aquifer recharge; ii) gabions, dykes and stone bunds for reducing flood risks; and iii) reservoirs, boreholes, well points and rainwater-harvesting systems to increase rainwater capture and storage. It is possible that the installation and operation of some of this infrastructure could temporarily impact river flow rates on a periodic basis or result in other minor short-term impacts.</p> <p>The exact locations for these groundwater dams have not been established, which limits the ability to pinpoint the potential extent of impacts. However, the establishment of all infrastructure – and groundwater dams in particular – will be informed by hydrological assessments to ensure that impacts are minor and/or temporary and that the overall water balance of the area, as well as underground river flow rates are not significantly affected. This approach will contribute to mitigating potential risks, including impact on groundwater quantity and quality for downstream users.</p>
1.8 reforestation, plantation development and/or forest harvesting?	Y	<p>The project includes biological dune stabilization as an activity, which will include the establishment of 2213 ha of biological dune stabilization measures. This activity could, therefore be construed as an afforestation intervention and includes many of the same risks, including the potential to proliferate alien invasives..</p>
1.9 support for agricultural production, animal/fish production and harvesting	Y	<p>The project will support communities in the 4 hubs in Mauritania to implement climate-smart agricultural practices and other livelihood activities, such as apiculture, poultry farming, livestock production and the sale of NTFPs.</p>
1.10 introduction or utilization of any invasive alien species of flora and fauna, whether accidental or intentional?	Maybe	<p>The project will implement a mixture of mechanical and biological dune stabilization across ~985 ha. One of the potential species identified for this methodology is <i>Prosopis juliflora</i>.</p> <p>This species is an invasive in Mauritania, and consulted communities had mixed responses with regard to the use of <i>Prosopis</i> versus indigenous species.</p> <p>Many of these communities indicated that their preference was for indigenous species to be used in most contexts.</p>

		<p>However, some communities did identify that in specific contexts the use of <i>Prosopis</i> to stabilize dunes was highly beneficial. This was generally limited to environments that have highly mobile dunes, where other indigenous species were not able to establish before becoming overcome by sand inundation.</p> <p>This risk is identified in the EMSF (Annex 6: ESMP) for the project and recognizes that while the use of <i>Prosopis</i> may be beneficial, it should only be selected in very specific contexts. To help address proliferation risks at a site level, risk assessments will be undertaken in each hub prior to the implementation of biological dune fixation. This risk assessment will be conducted by a technical specialist in consultation with local communities.</p>
1.11 handling or utilization of genetically modified organisms?	Y	<p>The project will support small-scale and subsistence farmers to access, utilize and replicate climate-resilient plants. This activity does include sourcing of local seed plant varieties in a sustainable manner, as well as the introduction of climate-resilient seed stock from external sources.</p> <p>This introduction of climate-resilient plant varieties is deemed to pose a low risk, that is outweighed by the potential benefits accrued by targeted communities. Additionally, this activity will be overseen by an external agronomist with support from MEDD and MDR extension officers, which will help to ensure appropriate varieties are sourced and proper controls are implemented to ensure adequate control.</p>
1.12 collection and utilization of genetic resources?	Y	See above.
<b>Safeguard Standard 2: Climate Change and Disaster Risks</b>		
<i>Would the project potentially involve or lead to:</i>		
2.1 improving resilience against potential climate change impact beyond the project intervention period?	Y	<p>The project will help reduce the rate of sand inundation, improve local knowledge of climate-resilient livelihood practices and enhance access to water through both supply-and-demand strategies for targeted communities in Mauritania. Through this integrated approach the resilience of targeted communities within Mauritania will be enhanced beyond the lifespan of the project.</p>
2.2 areas that are now or are projected to be subject to natural hazards such as extreme temperatures,	Y	The 4 hubs being targeted in Mauritania are currently subject to a range of natural

earthquakes, extreme precipitation and flooding, landslides, droughts, severe winds, sea level rise, storm surges, tsunami or volcanic eruptions in the next 30 years?		climate related hazards, including drought and severe winds, which is causing sand inundation and the degradation of critical oasis habitats. These impacts are projected to increase in severity with the onset of climate change. The project has been designed to focus on addressing these vulnerabilities by reducing dune encroachment and improving water provisioning within affected communities.
2.3 outputs and outcomes sensitive or vulnerable to potential impacts of climate change (e.g., changes in precipitation, temperature, salinity, extreme events)?	Y	<p>The outcomes of certain activities under the project will be vulnerable to the impacts of climate change.</p> <p>For example, increasingly severe drought periods may affect the degree to which water provisioning infrastructure established under the project is able to address community needs.</p> <p>Additionally, the implementation of certain interventions may be impeded by extreme events (such as dust storms). To mitigate this risk the project will implement an adaptive management approach, taking into account current and projected local conditions when planning/timing the implementation of activities. (For example: excavations for the installation of groundwater dams will be done during low water periods to reduce local level impacts and reduce risks associated with excavations).</p>
2.4 local communities vulnerable to the impacts of climate change and disaster risks (e.g., considering level of exposure and adaptive capacity)?	Y	The communities that reside in the four targeted hubs have been identified as being extremely vulnerable to the impacts of climate change, given their reliance on subsistence agriculture and pastoralism in the context of increasing aridity and sand inundation/dune encroachment. Notably communities that demonstrated the highest levels of poverty were prioritized under the project, given their lower (relative) adaptive capacity within the local context.
2.5 increases of greenhouse gas emissions, black carbon emissions or other drivers of climate change?	N	The project will not result in an increase in GHG emissions, black carbon or other drivers of climate change.
2.6 Carbon sequestration and reduction of greenhouse emissions, resource-efficient and low carbon development, other measures for mitigating climate change	Y	The project will result in some minor afforestation activities, as well as improved rangeland management practices. While this will not contribute significantly to climate change mitigation, it will reduce degradation and consequent emissions.

<b>Safeguard Standard 3: Pollution Prevention and Resource Efficiency</b>		
<i>Would the project potentially involve or lead to:</i>		
3.1 the release of pollutants to the environment due to routine or non-routine circumstances with the potential for adverse local, regional, and/or transboundary impacts?	N	No pollutants are anticipated to be utilized or released from any project interventions.
3.2 the generation of waste (both hazardous and non-hazardous)?	N	Some organic waste may be generated under the project. However, this waste will be small in scale and naturally degradable in the local environment.
3.3 the manufacture, trade, release, and/or use of hazardous materials and/or chemicals?	N	No hazardous materials or chemicals are anticipated to be utilized for any project interventions.
3.4 the use of chemicals or materials subject to international bans or phase-outs? (e.g. DDT, PCBs and other chemicals listed in international conventions such as the <a href="#">Montreal Protocol</a> , <a href="#">Minamata Convention</a> , <a href="#">Basel Convention</a> , <a href="#">Rotterdam Convention</a> , <a href="#">Stockholm Convention</a> )	N	See above.
3.5 the application of pesticides or fertilizers that may have a negative effect on the environment (including non-target species) or human health?	N	It is not anticipated that any pesticides or fertilizers will be utilized under the project.
3.6 significant consumption of energy, water, or other material inputs?	N	Proposed project activities include the development of small-scale water infrastructure, which will use a relatively small amount of water.  The small scale of the infrastructure and use of local material inputs required for this activity and the infrastructure will be designed to increase water use efficiency.
<b>Safeguard Standard 4: Community Health, Safety and Security</b>		
<i>Would the project potentially involve or lead to:</i>		
4.1 the design, construction, operation and/or decommissioning of structural elements such as new buildings or structures (including those accessed by the public)?	Y	The project will include the establishment of small-scale community infrastructure (such as rainwater harvesting systems) and underground infrastructure (such as groundwater dams). These structural elements are small in scale and are deemed to carry very low risk to communities.
4.2 air pollution, noise, vibration, traffic, physical hazards, water runoff?	Y	The project includes interventions that will require some construction activities to be undertaken. While the scale of these activities is minor, it is possible that they will require the influx of some vehicles and the operation of some machinery that may result in noise, vibration, traffic and physical hazards. Mitigation measures to address these risks (including the development of site-level health and safety plans) are included in the ESMP.
4.3 exposure to water-borne or other vector-borne diseases (e.g., temporary breeding habitats), communicable or noncommunicable diseases?	Maybe	Overall, the project is expected to improve the health and safety of the affected communities by enhancing water access and overall resilience. In the case of water infrastructure (such as rainwater

		harvesting systems) there is a small chance that these systems could contribute to the spread vector-and-water-borne diseases. The project will implement best practice in the establishment and maintenance of these systems (and capacitate communities to do the same) to mitigate this risk.
4.4 adverse impacts on natural resources and/or ecosystem services relevant to the communities' health and safety (e.g., food, surface water purification, natural buffers from flooding)?	N	The project does not include any activities that will result in adverse impacts on natural resources and/or ecosystem services. Instead, the project activities should improve ecosystem services, by reducing sand encroachment, water runoff and improving water availability.
4.5 transport, storage use and/or disposal of hazardous or dangerous materials (e.g., fuel, explosives, other chemicals that may cause an emergency event)?	N	The project does not plan to utilize any hazardous or dangerous materials in any of its interventions.
4.6 engagement of security personnel to support project activities (e.g., protection of property or personnel, patrolling of protected areas)?	Y	The project will engage local guards will be engaged to protect restored areas from herbivorous pests, particularly during the early stages of restoration.
4.7 an influx of workers to the project area or security personnel (e.g., police, military, other)?	Y	There are certain interventions under the project that will result in an influx of workers. This includes the establishment of minor infrastructure (such as rainwater harvesting systems, groundwater dams and other supply-side water interventions). These contractors are not likely to remain in communities for extended periods of time, and while in the communities and will need to abide by a code of conduct while working under the project.
<b>Safeguard Standard 5: Cultural Heritage</b>		
<i>Would the project potentially involve or lead to:</i>		
5.1 activities adjacent to or within a Cultural Heritage site?	N	No project activities are planned in close proximity to cultural sites that are identified as significant or protected.
5.2 adverse impacts to sites, structures or objects with historical, cultural, artistic, traditional or religious values or to intangible forms of cultural heritage (e.g., knowledge, innovations, practices)?	N	See above.
5.3 utilization of Cultural Heritage for commercial or other purposes (e.g., use of objects, practices, traditional knowledge, tourism)?	Maybe	The project will not implement any activities that impact or otherwise affect tangible cultural heritage. It is possible, however, that local practices directed towards increasing resilience may be utilized and or shared amongst communities under the project (i.e., non-commercial purposes).
5.4 alterations to landscapes and natural features with cultural significance?	N	None of the project interventions will result in alterations to landscape and/or natural features. Additionally, stakeholder engagement throughout the project implementation period will help ensure

		that areas of cultural significance are not impacted by project interventions.
5.5 significant land clearing, demolitions, excavations, flooding?	N	Only minor excavations are expected to occur under the project.
5.6 identification and protection of cultural heritage sites or intangible forms of cultural heritage	Maybe	The project includes activities that will require some minor excavation to take place (the establishment of groundwater dams, zai pits etc.). These excavations will not be significant in scale and are unlikely to result in any chance finds. This risk of uncovering chance finds of high significance is extremely small, given the baseline archaeological context and small extent of excavations.
<b>Safeguard Standard 6: Displacement and Involuntary Resettlement</b>		
<i>Would the project potentially involve or lead to:</i>		
6.1 full or partial physical displacement or relocation of people (whether temporary or permanent)?	N	The project is not anticipated to lead to the displacement or relocation of people.
6.2 economic displacement (e.g., loss of assets or access to assets affecting for example crops, businesses, income generation sources)?	N	The development of the project, including the selection of sites for project interventions, has been undertaken through consultative and participatory processes to ensure that the project interventions do not lead to the economic displacement of any communities or community members. On the contrary, the project interventions will help safeguard communities and their livelihoods from dune encroachment and other climate related impacts.
6.2 involuntary restrictions on land/water use that deny a community the use of resources to which they have traditional or recognizable use rights?	N	While the project does include activities that will temporarily impede access to areas of land (in the case of the establishment of dune fixation and buffer zones), these areas have been identified through extensive community consultations. Additionally, the establishment of these areas will secure communities from ongoing sand encroachment, thereby safeguarding their land and livelihoods.
6.3 risk of forced evictions?	N	No activities that could conceivably result in voluntary or forced evictions are being implemented under the project.
6.4 changes in land tenure arrangements, including communal and/or customary/traditional land tenure patterns (including temporary/permanent loss of land)?	N	The project is not implementing any activities that could result in changes to land tenure arrangements. Mauritanian law recognizes traditional property rights except when it interferes with the collective interest.
<b>Safeguard Standard 7: Indigenous Peoples</b>		
<i>Would the project potentially involve or lead to:</i>		

7.1 areas where indigenous peoples are present, or uncontacted or isolated indigenous peoples inhabit or where it is believed these peoples may inhabit?	Y	<p>In the local context of the project, the term 'indigenous groups' is mostly used in reference to pastoral nomads, rather than specific cultural groups. However, pastoral nomads are well integrated into rural Mauritanian society and do not self-identify as indigenous people, and therefore do not meet the criteria for indigenous people as defined in the GCF IPP (2019).</p> <p>During stakeholder consultations, representatives from these groups indicated that they generally deem the term 'indigenous' to be offensive and that their preference is for less differentiation to be made between nomadic and more sedentary populations, particularly with regard to further consultations (see Annex 7: Summary of consultations and Stakeholder Engagement Plan for further details).</p> <p>Representatives from these communities were instead included in the general community level consultations, and certain activities under the project (such as the development of water points along traditional transhumance routes) have been included to address some of the increased challenges that they are facing — and are likely to face in the future — as a result of climate change impacts.</p>
7.2 activities located on lands and territories claimed by indigenous peoples?	N	<p>The project is not anticipated to conduct activities located on lands and territories claimed by indigenous peoples. While there are activities that involve areas where nomadic pastoralists are present, these activities will not impact their ability to access or utilize the land as per their existing traditions.</p>
7.3 impacts to the human rights of indigenous peoples or to the lands, territories and resources claimed by them?	Maybe	<p>The project will need to ensure that nomadic pastoralists and other minorities are adequately represented in project engagements, to ensure they are not subject to exclusion or activities that may impact their human rights (and access to land on which they are economically dependent.)</p>
7.4 the utilization and/or commercial development of natural resources on lands and territories claimed by indigenous peoples?	N	<p>Extensive engagement with local communities and traditional governance structures have been held to ensure that the utilization and/or commercial development of natural resources on lands and territories claimed by nomadic pastoralists does not happen.</p>



7.5 adverse effects on the development priorities, decision making mechanisms, and forms of self-government of indigenous peoples as defined by them?	N	Extensive engagement with local communities and traditional governance structures is incorporated into the design and implementation of the proposed project. It is not anticipated that the project will adversely affect the self-government of local communities.
7.6 risks to the traditional livelihoods, physical and cultural survival of indigenous peoples?	N	Extensive engagements have been held with communities throughout project design period. This engagement will continue during the implementation of the project to ensure that proposed practices are response to people's needs and remain congruent with traditional practices.
7.7 impacts on the Cultural Heritage of indigenous peoples, including through the commercialization or use of their traditional knowledge and practices?	N	The project interventions are not anticipated to involve or impact the Cultural Heritage of indigenous peoples, including through the commercialization or use of their traditional knowledge and practices.
<b>Safeguard Standard 8: Labor and working conditions</b>		
8.1 Will the proposed project involve hiring or contracting project staff?	Y	<p>The project will require the contracting of staff. This includes staff that will be managing the implementation (the PMU) as well as contractors with specialized skills where necessary.</p> <p>Where possible community members will be employed to support local level implementation, but in the case of specialized skills are required it is expected that external suppliers or contractors will be hired.</p>
<i>If the answer to 8.1 is yes, would the project potentially involve or lead to:</i>		
8.2 working conditions that do not meet national labour laws or international commitments (e.g., ILO conventions)?	Maybe	All contracts and work agreements will be developed in accordance with relevant national legislation and/or international commitments as well as UNEP's procurement policies.
8.3 the use of forced labor and child labor?	Maybe	There is limited risk of forced or child labour under the project, and all contracting will follow good practice to further reduce this risk (age verification, spot visits from Safeguards Officer etc.)
8.4 occupational health and safety risks (including violence and harassment)?	Maybe	The project includes some interventions that may result in minor H&S risks, (such as excavations for groundwater dams). However, the scale of these intervention risks are deemed to be minor and mitigated by effective oversight and good practice.

8.5 the increase of local or regional unemployment?	N	The project will not involve significant employment opportunities. However, local community members will be preferentially considered for positions where possible.
8.6 suppliers of goods and services who may have high risk of significant safety issues related to their own workers?	N	As stated above, specialist contractors may be required to establish or implement certain interventions. Contractors employed by the project will need to abide by a code of conduct, including adhering to local legislation and regulations on minimum H&S practices for their employees.
8.7 unequal working opportunities and conditions for women and men	Maybe	As previously mentioned, gender inequality is prevalent in Mauritania. While the project does include a Gender Assessment and Gender Action Plan (GAP), there may be certain instances where women will be inhibited from participating in specific employment opportunities due to cultural or social prohibitions. For example, the establishment of fencing or excavation for groundwater dams is described as physically demanding and the Mauritanian Labour code has prohibitions on women undertaking this work. The project, through the GAP, will endeavor to ensure that equal opportunities are afforded to all wherever possible.

**Hub 1: Nema**

Sector	Description
General	<p><b>Néma</b> is the most important urban commune I in south-eastern Mauritania, capital of the Hodh El Chargui region and of the Néma department. See map Annex 1</p> <p>The “<b>Nema hub</b>” includes 10 communes: Néma, Achemim, Jreif, Banguou, Hassi Etila, Oum Avnadech, El Mabrouk, Beribavat, Noual and Agoueinit.</p>
<b>Biophysical Characteristics</b>	
Geography	<p>The Nema hub is found in the Sahel zone, specifically in the Dhar Néma mountain range, at ~270 masl (N16.61363°; W7.26064°). The land cover in Nema predominantly includes flat Sahelian grasslands, rocky outcrops and flat areas with sparse vegetation cover, such as <i>hamada</i> (flat stony areas), floodplains and consolidated sand<sup>52</sup>.</p> <p>Three types of vegetation formation in the area according to the nature of the soils:</p> <ul style="list-style-type: none"><li>• Sandy peneplains,</li><li>• Hydromorphic soils</li><li>• Hills. (Basins and its ecosystem, published by the MEDD September 2016).</li></ul>

---

<sup>52</sup> Naia M & Brito JC. 2021. Geographical atlas of Mauritania. BIODESERTS Report EN-02.

Sector	Description																																				
Water resources	<p>The whole wilayah's hydrographic network is composed of numerous wadis (Bourjemane, Kraa Ould Zeyane, Bat'ha N'Gady, Ajar Néma, Bat'ha Néma, Kraa Bouzeyane, Agoueïnit, etc.). These wadis feed many essential Tamourts (215 in the wilayah) for the watering of livestock. The water is concentrated in numerous depressions favourable to crops. The region has dams, notably those of Cheikh Tourad and Bérivat. Underground water resources are unevenly distributed in this region. Some areas are home to continuous aquifers with significant water resources such as the Dhar de Néma aquifer (reserves estimated at 10 billion m3) and the Aouker aquifer (<b><u>excellent freshwater reservoirs</u></b> due to the thickness of the sands covering this aquifer). Finally, there are also barren areas that can only be exploited thanks to a few pastoral wells with difficult access.</p> <p>Water infrastructure in the Wilayah of Hodh El Chargui - Drinking water supply by Moughataa</p>																																				
	<table><tr><th>Moughataas (Departements)</th><th>Water fountain bollard</th><th>Wells</th><th>Drilling</th></tr><tr><td>1. Amourj</td><td>15</td><td>745</td><td>2</td></tr><tr><td>2. Basseknou</td><td>22</td><td>82</td><td>2</td></tr><tr><td>3. Djiguenni</td><td>16</td><td>366</td><td>3</td></tr><tr><td><b>4. Néma</b></td><td>34</td><td><b>392</b></td><td>14</td></tr><tr><td>5. Oualata</td><td>3</td><td>51</td><td>0</td></tr><tr><td>6. Timbedra</td><td>9</td><td>1 489</td><td>16</td></tr><tr><td>7. N'Beikett Lehouach</td><td>6</td><td>32</td><td>4</td></tr><tr><td>Total</td><td>105</td><td><b>3 157</b></td><td>41</td></tr></table>	Moughataas (Departements)	Water fountain bollard	Wells	Drilling	1. Amourj	15	745	2	2. Basseknou	22	82	2	3. Djiguenni	16	366	3	<b>4. Néma</b>	34	<b>392</b>	14	5. Oualata	3	51	0	6. Timbedra	9	1 489	16	7. N'Beikett Lehouach	6	32	4	Total	105	<b>3 157</b>	41
	Moughataas (Departements)	Water fountain bollard	Wells	Drilling																																	
	1. Amourj	15	745	2																																	
	2. Basseknou	22	82	2																																	
3. Djiguenni	16	366	3																																		
<b>4. Néma</b>	34	<b>392</b>	14																																		
5. Oualata	3	51	0																																		
6. Timbedra	9	1 489	16																																		
7. N'Beikett Lehouach	6	32	4																																		
Total	105	<b>3 157</b>	41																																		
	<p>Source ONS : RGPH 2013</p>																																				
	<p>The table above shows that 96% of drinking water was supplied by wells in 2013 in the 6 departments of the region. The distribution of households according to the source of drinking water supply shows that 6.1% of households obtain their drinking water most often from the tap in the yard/parcel, 4.8% from the tap in the dwelling. As for households without access to drinking water, the majority get water from uncovered wells (47.6%).</p>																																				
Socioeconomic Characteristics																																					

Sector	Description																																				
Population	<p>The estimated total population of the Nema Hub is 99,620 habitants. with a population of 21,979 in the commune of Néma itself.</p> <p>Population growth rate of the Hodh El Chargui region is larger than the national average with 281,600 inhabitants in 2000 to reach 421,808 in 2013 (see table below) with a higher proportion of female gender (52,4%). The density of 2.4 inhabitants/km² in the region.</p> <table><tr><th>Moughataa (départements)</th><th>Male</th><th>Female</th><th>Total</th></tr><tr><td>1. Amourj</td><td>43.803</td><td>50.751</td><td>94.554</td></tr><tr><td>2. Bassiknou</td><td>43.052</td><td>45.380</td><td>88.432</td></tr><tr><td>3. Djigueni</td><td>27.891</td><td>31.723</td><td>59.614</td></tr><tr><td>4. Néma</td><td>41.656</td><td>45.392</td><td>87.048</td></tr><tr><td>5. Oualata</td><td>6.592</td><td>6.494</td><td>13.086</td></tr><tr><td>6. Tembedra</td><td>37.846</td><td>41.223</td><td>79.069</td></tr><tr><td>7. N'Beikett Lehouach</td><td>na</td><td>na</td><td>na</td></tr><tr><td>Total</td><td>200.840</td><td>220.963</td><td>421.803</td></tr></table> <p>Source : RGPH, 2013</p>	Moughataa (départements)	Male	Female	Total	1. Amourj	43.803	50.751	94.554	2. Bassiknou	43.052	45.380	88.432	3. Djigueni	27.891	31.723	59.614	4. Néma	41.656	45.392	87.048	5. Oualata	6.592	6.494	13.086	6. Tembedra	37.846	41.223	79.069	7. N'Beikett Lehouach	na	na	na	Total	200.840	220.963	421.803
Moughataa (départements)	Male	Female	Total																																		
1. Amourj	43.803	50.751	94.554																																		
2. Bassiknou	43.052	45.380	88.432																																		
3. Djigueni	27.891	31.723	59.614																																		
4. Néma	41.656	45.392	87.048																																		
5. Oualata	6.592	6.494	13.086																																		
6. Tembedra	37.846	41.223	79.069																																		
7. N'Beikett Lehouach	na	na	na																																		
Total	200.840	220.963	421.803																																		
Living conditions	<p>Active population: 44.3% of the population of working age in the Region.</p> <p>Only 5% of households have tap water. 66% of households access water through a public fountain, a tap in the yard or a well, in particular via uncovered wells (48%). The rest of the population (29%) has no direct access to water.</p> <p>The wilayah has only one hospital and eleven health centres.</p>																																				

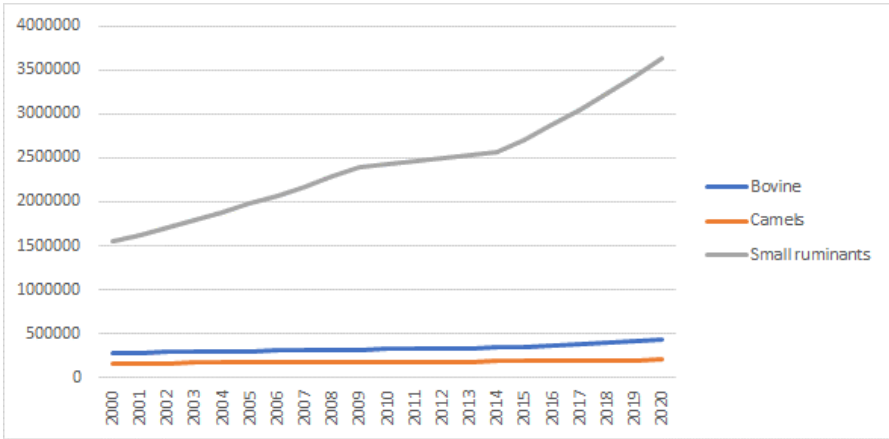
Sector	Description																																																																																								
Agriculture	<p>Dominated by two types of crops: rainfed crops (sorghum, millet and maize) and lowland (dam and recession) crops (sorghum, maize, wheat and barley). Traditional cereals are grown on the sandy soils of the diéri (non-flooded cultivated land in a valley) which are directly dependent on rainfall, as well as on recession land (natural and controlled), including lowland areas and those behind dams which provide a better income. The area under diéri represents about 72% of the total land cultivated with traditional cereals. Land behind dams represents 4.7% of the total area cultivated but provides higher yields.</p> <p>Figure <b>A6.1</b>: Agriculture production ratio in the wilayah of Hodh El Chargui</p> <table><thead><tr><th>Year</th><th>Superficie (ha)</th><th>Production (T)</th></tr></thead><tbody><tr><td>2015-2016</td><td>100000</td><td>41061</td></tr><tr><td>2016-2017</td><td>88000</td><td>38464</td></tr><tr><td>2017-2018</td><td>62000</td><td>20980</td></tr><tr><td>2018-2019</td><td>108000</td><td>43082</td></tr><tr><td>2019-2020</td><td>62000</td><td>26818</td></tr></tbody></table>	Year	Superficie (ha)	Production (T)	2015-2016	100000	41061	2016-2017	88000	38464	2017-2018	62000	20980	2018-2019	108000	43082	2019-2020	62000	26818																																																																						
Year	Superficie (ha)	Production (T)																																																																																							
2015-2016	100000	41061																																																																																							
2016-2017	88000	38464																																																																																							
2017-2018	62000	20980																																																																																							
2018-2019	108000	43082																																																																																							
2019-2020	62000	26818																																																																																							
Livestock	<p>The livestock farming system in the wilayah is mainly extensive and transhumant, with the emergence of peri-urban livestock farming. The contribution of livestock production to the economy of the wilayah is significant, and it contributes substantially to the added value of the rural sector. Livestock production plays a major role in household food security, generally through the self-consumption of milk and meat. Statistics on livestock numbers are presented in Figure 7.</p> <table><thead><tr><th>Year</th><th>Bovine</th><th>Camels</th><th>Small ruminants</th></tr></thead><tbody><tr><td>2000</td><td>400000</td><td>200000</td><td>1500000</td></tr><tr><td>2001</td><td>400000</td><td>200000</td><td>1600000</td></tr><tr><td>2002</td><td>400000</td><td>200000</td><td>1700000</td></tr><tr><td>2003</td><td>400000</td><td>200000</td><td>1800000</td></tr><tr><td>2004</td><td>400000</td><td>200000</td><td>1900000</td></tr><tr><td>2005</td><td>400000</td><td>200000</td><td>2000000</td></tr><tr><td>2006</td><td>400000</td><td>200000</td><td>2100000</td></tr><tr><td>2007</td><td>400000</td><td>200000</td><td>2200000</td></tr><tr><td>2008</td><td>400000</td><td>200000</td><td>2300000</td></tr><tr><td>2009</td><td>400000</td><td>200000</td><td>2400000</td></tr><tr><td>2010</td><td>400000</td><td>200000</td><td>2400000</td></tr><tr><td>2011</td><td>400000</td><td>200000</td><td>2400000</td></tr><tr><td>2012</td><td>400000</td><td>200000</td><td>2400000</td></tr><tr><td>2013</td><td>400000</td><td>200000</td><td>2400000</td></tr><tr><td>2014</td><td>400000</td><td>200000</td><td>2400000</td></tr><tr><td>2015</td><td>400000</td><td>200000</td><td>2500000</td></tr><tr><td>2016</td><td>400000</td><td>200000</td><td>2600000</td></tr><tr><td>2017</td><td>400000</td><td>200000</td><td>2800000</td></tr><tr><td>2018</td><td>400000</td><td>200000</td><td>3000000</td></tr><tr><td>2019</td><td>400000</td><td>200000</td><td>3100000</td></tr><tr><td>2020</td><td>400000</td><td>200000</td><td>3200000</td></tr></tbody></table> <p>Figure <b>A6.2</b>: Livestock evolution in the wilayah of Hodh El Chargui</p> <p>There has been a growth in the size of the population of the different livestock, particularly of small ruminants, possibly explained by the rainfall of the last few years.</p>	Year	Bovine	Camels	Small ruminants	2000	400000	200000	1500000	2001	400000	200000	1600000	2002	400000	200000	1700000	2003	400000	200000	1800000	2004	400000	200000	1900000	2005	400000	200000	2000000	2006	400000	200000	2100000	2007	400000	200000	2200000	2008	400000	200000	2300000	2009	400000	200000	2400000	2010	400000	200000	2400000	2011	400000	200000	2400000	2012	400000	200000	2400000	2013	400000	200000	2400000	2014	400000	200000	2400000	2015	400000	200000	2500000	2016	400000	200000	2600000	2017	400000	200000	2800000	2018	400000	200000	3000000	2019	400000	200000	3100000	2020	400000	200000	3200000
Year	Bovine	Camels	Small ruminants																																																																																						
2000	400000	200000	1500000																																																																																						
2001	400000	200000	1600000																																																																																						
2002	400000	200000	1700000																																																																																						
2003	400000	200000	1800000																																																																																						
2004	400000	200000	1900000																																																																																						
2005	400000	200000	2000000																																																																																						
2006	400000	200000	2100000																																																																																						
2007	400000	200000	2200000																																																																																						
2008	400000	200000	2300000																																																																																						
2009	400000	200000	2400000																																																																																						
2010	400000	200000	2400000																																																																																						
2011	400000	200000	2400000																																																																																						
2012	400000	200000	2400000																																																																																						
2013	400000	200000	2400000																																																																																						
2014	400000	200000	2400000																																																																																						
2015	400000	200000	2500000																																																																																						
2016	400000	200000	2600000																																																																																						
2017	400000	200000	2800000																																																																																						
2018	400000	200000	3000000																																																																																						
2019	400000	200000	3100000																																																																																						
2020	400000	200000	3200000																																																																																						

## Hub 2: Tamcheket

Sector	Description																																
General	<p><b>Tamcheket</b> is an agricultural urban commune located in the department of Tamcheket, and one of the chief towns in the region of Hodh El Gharbi (see Annex 1).</p> <p>The <b>Tamcheket hub</b> includes five communes : Tamcheket, El Mabrouk, Radhi, Gueate, Teidoume and Sava.</p>																																
<b>Biophysical Characteristics</b>																																	
Geography and vegetation	<p>The Tamcheket hub is located on the northern edge of the Sahel zone and north of the Afolle mountain range at an elevation of ~175 masl (N17.24526°; W10.66968°). The area surrounding Tamcheket includes fixed and mobile sand dunes, as well as consolidated soils</p> <p>Three types of vegetation formation in the area depending on the nature of the soils:</p> <ul style="list-style-type: none"><li>• Sandy peneplains,</li><li>• Hydromorphic soils</li><li>• Hills.</li></ul> <p>(Source: Basins and its ecosystem, published by the MEDD September 2016)</p>																																
Water resources	<p>It receives water from the El Aguer and R'Kiz mountains. The hydrographic network is relatively developed with numerous wadis and tamourts (pits where water accumulates). The region also has 88 dams or reservoirs. The aquifers in the area are (UNICEF, sad):</p> <ul style="list-style-type: none"><li>• Assaba sandstones and the Aouker sands (low productivity).</li><li>• Aïoun sandstones (heterogeneous productivity, low salinity water).</li><li>• Hodh pelites (heterogeneous productivity).</li><li>• The El Aguer plateau in the Commune of Radhi causes significant water run-off each year, which has led to a lot of retention works in the area, but also a good part of it is lost to the Senegal River via the Karakoro. Precipitations are important every year. These quantities of water could help solve the Hub's water shortage problems.</li></ul> <p>Status of dams, dykes, embankments and other water reservoirs built until 2014 in the <b>Wilayah of Hodh El Gharbi</b></p> <table><tr><th colspan="4">Inventory of water reservoirs (year 2008)</th><th colspan="2">Dams built from 2009 to 2014 (DAR+ PDDO)</th><th colspan="2">TOTAL UNTIL 2014</th></tr><tr><th colspan="3">Total number</th><th>Area (ha)</th><th colspan="2"></th><th colspan="2"></th></tr><tr><th></th><th>Reservoirs without identified area</th><th>Reservoirs with identified area</th><th></th><th>Number</th><th>Area (ha)</th><th>Number</th><th>Area (ha)</th></tr><tr><td>138</td><td>54</td><td>84</td><td>6 991</td><td>4</td><td>475</td><td>88</td><td>7 466</td></tr></table>	Inventory of water reservoirs (year 2008)				Dams built from 2009 to 2014 (DAR+ PDDO)		TOTAL UNTIL 2014		Total number			Area (ha)						Reservoirs without identified area	Reservoirs with identified area		Number	Area (ha)	Number	Area (ha)	138	54	84	6 991	4	475	88	7 466
Inventory of water reservoirs (year 2008)				Dams built from 2009 to 2014 (DAR+ PDDO)		TOTAL UNTIL 2014																											
Total number			Area (ha)																														
	Reservoirs without identified area	Reservoirs with identified area		Number	Area (ha)	Number	Area (ha)																										
138	54	84	6 991	4	475	88	7 466																										
<b>Socioeconomic Characteristics</b>																																	

Sector	Description																																	
Population	<p>In 2007, the estimated total population of the <b>Tamcheket Hub</b> was 43,282 with 2,792 inhabitants in the commune of Tamcheket itself and the rest spread in 4 other rural communes.</p> <p>Back in 2000, the total population of the <b>moughataa of Tamcheket</b> was 30,760 inhabitants : 14,669 men and 16,091 women (52,3%).</p> <p>Since 2013, the entire population of the <b>wilayah of Hodh El Gharbi</b> is 294,109 inhabitants with an average population density of 5.5 inhabitants/km². The population is young, with almost half (48%) under 15 years old.</p>																																	
Living conditions	<p><b>75% of the households in the wilayah are poor</b> (compared to 42% nationally).</p> <p>Unemployment is high, with 38% of the working-age population employed.</p> <p>7% of households have tap water and 83% of households access water through a public fountain, a tap in the yard or a well (in particular via uncovered wells (43%)). The rest of the population (10%) has no direct access to water.</p> <p>Access to health services is limited with only one hospital in the wilayah and ten health centres.</p>																																	
Agriculture	<p>This sector provides 13% of employment in the wilayah; dominated by two types of crops: rainfed crops (sorghum, millet and maize) and lowland crops (dams and recession) (sorghum, maize, wheat and barley). These crops are highly dependent on rainfall.</p> <p>The average gross production (2009/2011 -2019/2020) is of the order of 16,613 T. It is distributed, by typology, as follows (see summary table below):</p> <ul style="list-style-type: none"><li>• Crops grown under the rains or Diéri (Sorgo, millet and maize)</li><li>• Crops grown behind dams (Sorghum, maize, wheat and barley):</li><li>• Recessional crops (Sorghum, maize).</li></ul> <p><b>Figure A1.3: Agriculture production ratio in the wilayah of Hodh El Gharbi</b></p> <table border="1"><thead><tr><th>Year</th><th>Superficie (ha)</th><th>Production brute (T)</th></tr></thead><tbody><tr><td>2010-2011</td><td>4211</td><td>1844</td></tr><tr><td>2011-2012</td><td>782</td><td>366</td></tr><tr><td>2012-2013</td><td>5245</td><td>2600</td></tr><tr><td>2013-2014</td><td>3533</td><td>957</td></tr><tr><td>2014-2015</td><td>10007</td><td>2881</td></tr><tr><td>2015-2016</td><td>7413</td><td>1814</td></tr><tr><td>2016-2017</td><td>5380</td><td>4840</td></tr><tr><td>2017-2018</td><td>4840</td><td>6031</td></tr><tr><td>2018-2019</td><td>7170</td><td>1922</td></tr><tr><td>2019-2020</td><td>7658</td><td>2240</td></tr></tbody></table> <p>Oasis crops in Hodh El Gharbi are mainly market gardening and date palms. Market gardening has developed significantly since the drought cycles of the 1970s, encouraged by sedentarization. Phoeniculture was first introduced in Hodh El Gharbi and has developed considerably. The wilayah is the fourth in production at the national level after Adrar (1st) and Tagant (2nd).</p>	Year	Superficie (ha)	Production brute (T)	2010-2011	4211	1844	2011-2012	782	366	2012-2013	5245	2600	2013-2014	3533	957	2014-2015	10007	2881	2015-2016	7413	1814	2016-2017	5380	4840	2017-2018	4840	6031	2018-2019	7170	1922	2019-2020	7658	2240
Year	Superficie (ha)	Production brute (T)																																
2010-2011	4211	1844																																
2011-2012	782	366																																
2012-2013	5245	2600																																
2013-2014	3533	957																																
2014-2015	10007	2881																																
2015-2016	7413	1814																																
2016-2017	5380	4840																																
2017-2018	4840	6031																																
2018-2019	7170	1922																																
2019-2020	7658	2240																																



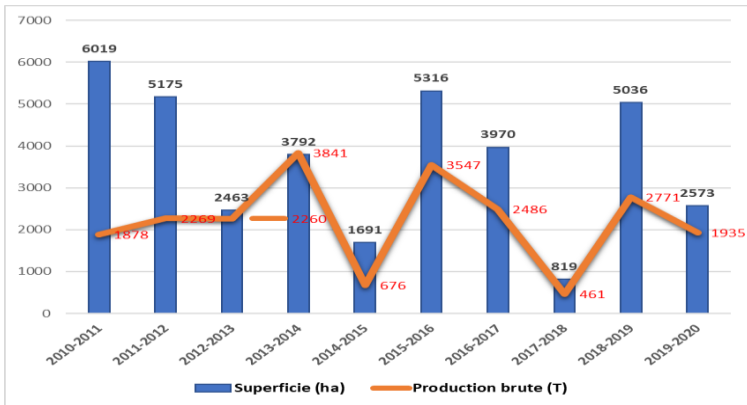
Sector	Description
Livestock	<p>Livestock farming accounts for 37% of jobs in the wilayah. It is extensive and depends on natural conditions (rainfall, plant cover, water). Despite the unpredictable climatic conditions, the fodder potential of the region makes it an important refuge for herds from neighbouring regions. Estimates of the number of animals are given in Figure 28.</p>  <p>Figure A6.4: Livestock evolution in Hodh El Gharbi</p> <p>There has been a growth in the size of the population of the different livestock, particularly significant for small ruminants possibly explained by the rainfalls of the last few years.</p>

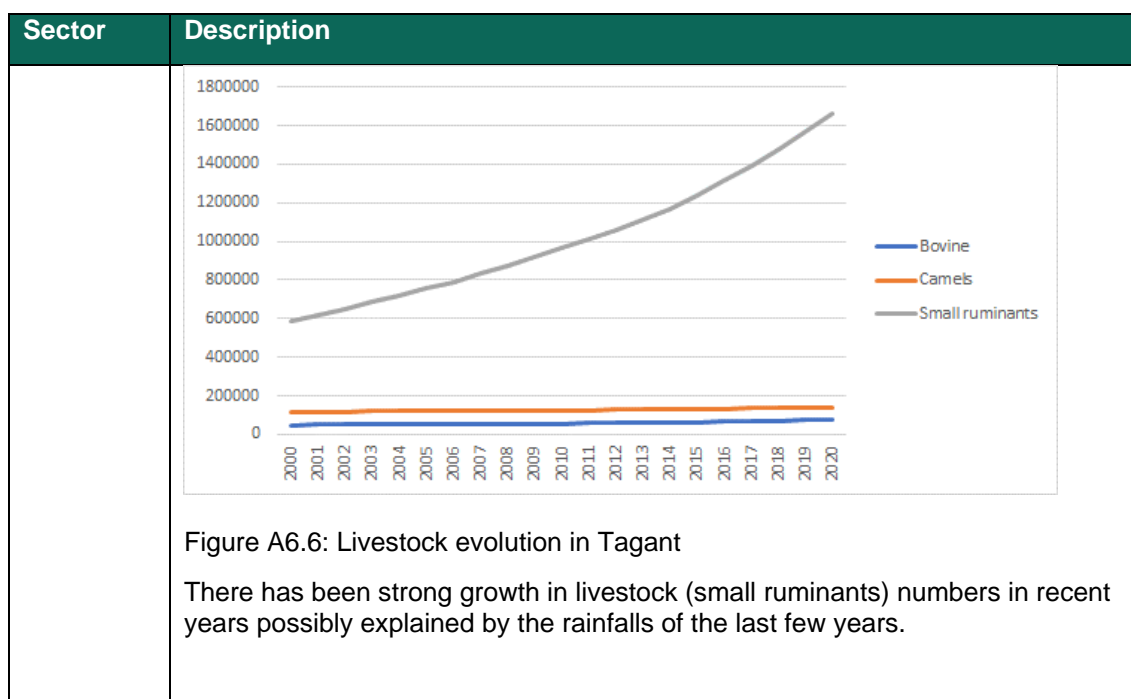
### Hub 3: Rachid

Sector	Description
General	<p><b><i>Rachid is a rural commune and a district (arrondissement) in south-central Mauritania in the Tidjikja department, located in the Tagant region at the foot of the Tagant Plateau (See Annex 1).</i></b></p> <p><b><i>The “Rachid hub” includes the commune of Rachid itself, the agricultural urban commune of Tidjikja (also chief town of the Département, 39 kilometres away) and another rural commune.</i></b></p>
<b>Biophysical Characteristics</b>	
Geography and water resources	<p>Rachid and its hub are found in the Saharan zone on the northern edge of the Tagant mountain range at an elevation of 270 masl (N18.79002°; W11.68750°). The land cover in Rachid is predominantly sand dunes, flat areas of consolidated sands and rocky outcrops<sup>53</sup>.</p> <p><b>Main rivers running through the Wilayah of Tagant:</b></p> <ul style="list-style-type: none"> <li>• Oued of Tamourt en Naaj (main watercourse) and the Oued El Abiod (secondary watercourse) which confluence downstream from N'Beïka and flow into Lake Gabou.</li> <li>• Depression of El Khatt receiving the flows of the Oued Iziv, the Oued Anzak, the Oued Tidjikja and the Oued Rachid.</li> <li>• The waters of the Achram wadi and part of the waters of the Tagant Plateau flow into the Gorgol.</li> </ul> <p>The Tagant has the following types of aquifers:</p> <ul style="list-style-type: none"> <li>• Discontinuous sandstone and limestone aquifers (not very productive).</li> </ul>

<sup>53</sup> Naia M & Brito JC. 2021. Geographical atlas of Mauritania. BIODESERTS Report EN-02.

Sector	Description																																	
	<ul style="list-style-type: none"><li>The continuous aquifer of the N'Beika plain (very productive).</li></ul> <p>The surface hydraulic infrastructures (dams, dykes) are summarised in the table below.</p> <p>Status of dams, dykes, embankments and other water reservoirs built until 2014 in the Wilayah of Tagant.</p> <table><tr><th colspan="4">Inventory of water reservoirs (year 2008)</th><th colspan="2">Dams built from 2009 to 2014 (DAR+ PDDO)</th><th colspan="2">TOTAL UNTIL 2014</th></tr><tr><th colspan="3">Total number</th><th>Area (ha)</th><th colspan="2"></th><th colspan="2"></th></tr><tr><th></th><th>Reservoirs without identified area</th><th>Reservoirs with identified area</th><th></th><th>Number</th><th>Area (ha)</th><th>Number</th><th>Area (ha)</th></tr><tr><td></td><td>141</td><td>25</td><td>116</td><td>11 384</td><td>14</td><td>2 540</td><td>130</td><td>13 924</td></tr></table> <p>Source : MA/PNDA.</p>	Inventory of water reservoirs (year 2008)				Dams built from 2009 to 2014 (DAR+ PDDO)		TOTAL UNTIL 2014		Total number			Area (ha)						Reservoirs without identified area	Reservoirs with identified area		Number	Area (ha)	Number	Area (ha)		141	25	116	11 384	14	2 540	130	13 924
Inventory of water reservoirs (year 2008)				Dams built from 2009 to 2014 (DAR+ PDDO)		TOTAL UNTIL 2014																												
Total number			Area (ha)																															
	Reservoirs without identified area	Reservoirs with identified area		Number	Area (ha)	Number	Area (ha)																											
	141	25	116	11 384	14	2 540	130	13 924																										
Socioeconomic Characteristics																																		
Population	<p>The estimated total population of the <b>Rachid Hub</b> is 25,626 for the 3 communes which include 13 532 hab. for Tidjikja (population details for the 2 other communes unknown).</p> <p>The population of the <b>Wilayah of Tagant</b> is estimated 85,819 inhabitants in 2010, i.e. a density of 0.9 inhabitants/km2 (0.78 inhabitants/km2 in 2000).</p> <p>The female number is slightly higher with 47,575 compared to 38,244 for the male number. The population is young, with almost 45% of the inhabitants under 15 years old.</p>																																	
Living conditions	<p>In 2013, almost 34% of the population aged 6 years or older had received no education at all in the Wilayah and <b>39% of the population was illiterate</b>.</p> <p><b>Only 4.4% of dwellings are equipped with a water tap.</b> 77% of households access water through a public fountain, a tap in the yard or a well. The rest of the population (19%) has no direct access to water.</p> <p><b>61% of households in the wilayah are considered poor</b> compared to 42% nationally. Approximately 47% of the working age population is active, which reflects a high unemployment rate.</p> <p>According to the Regional Director for Health Action in Tagant, there is a <b>direct link between climate change and health</b>. Indeed, there is an increase in the number of sick people and cases of malnutrition, often leading to a rural exodus.</p>																																	
Agriculture	<p>Agriculture represents more than 23% of the jobs in Tagant but it characterized by the ancient oasis tradition where the knowledge of phoeniculture is well established.</p> <table><tr><th>Oasis</th><th>Number of producers</th><th>Total number of palm trees</th><th>Productive palm trees</th><th>Production (Tonnes)</th><th>Area (Ha)</th></tr><tr><td>Tagant</td><td>10045</td><td>684045</td><td>455179</td><td>3 831,75</td><td>3 042,56</td></tr></table>	Oasis	Number of producers	Total number of palm trees	Productive palm trees	Production (Tonnes)	Area (Ha)	Tagant	10045	684045	455179	3 831,75	3 042,56																					
Oasis	Number of producers	Total number of palm trees	Productive palm trees	Production (Tonnes)	Area (Ha)																													
Tagant	10045	684045	455179	3 831,75	3 042,56																													

Sector	Description																																	
	<p>The agriculture practised in the Wilayah of Tagant is characterised by the cultivation of date palms with sub-stages of cereal crops (sorghum, wheat, barley, cowpeas), vegetable crops (carrots, tomatoes, cabbage, etc.) and fodder crops (alfalfa) and henna shrubs (<i>Lawsonia alba</i>). Traditional cereals are the main products of rainfed cultivation, sometimes coupled with small-scale market gardening, generally carried out by women's cooperatives. The resulting production depends essentially on rainfall and its spatio-temporal distribution. (See Figure 8).</p>  <table><tr><th>Year</th><th>Superficie (ha)</th><th>Production brute (T)</th></tr><tr><td>2010-2011</td><td>6019</td><td>1878</td></tr><tr><td>2011-2012</td><td>5175</td><td>2269</td></tr><tr><td>2012-2013</td><td>2463</td><td>2260</td></tr><tr><td>2013-2014</td><td>3792</td><td>3841</td></tr><tr><td>2014-2015</td><td>1691</td><td>676</td></tr><tr><td>2015-2016</td><td>5316</td><td>3547</td></tr><tr><td>2016-2017</td><td>3970</td><td>2486</td></tr><tr><td>2017-2018</td><td>819</td><td>461</td></tr><tr><td>2018-2019</td><td>5036</td><td>2771</td></tr><tr><td>2019-2020</td><td>2573</td><td>1935</td></tr></table> <p>Figure A6.5: Agriculture production ratio in the wilayah of Tagant</p>	Year	Superficie (ha)	Production brute (T)	2010-2011	6019	1878	2011-2012	5175	2269	2012-2013	2463	2260	2013-2014	3792	3841	2014-2015	1691	676	2015-2016	5316	3547	2016-2017	3970	2486	2017-2018	819	461	2018-2019	5036	2771	2019-2020	2573	1935
Year	Superficie (ha)	Production brute (T)																																
2010-2011	6019	1878																																
2011-2012	5175	2269																																
2012-2013	2463	2260																																
2013-2014	3792	3841																																
2014-2015	1691	676																																
2015-2016	5316	3547																																
2016-2017	3970	2486																																
2017-2018	819	461																																
2018-2019	5036	2771																																
2019-2020	2573	1935																																
Livestock	<p>Livestock farming accounts for almost <b>29% of jobs</b> in Tagant although a distinction is made between</p> <ul style="list-style-type: none"><li>villages or <b>sedentary livestock farming</b> system that exploits the space around the village that can be associated with oasis agriculture in which animals graze crop by-products</li><li>a <b>transhumant livestock farming</b> system on the grazing lands.</li></ul> <p>In the absence of reliable statistics, livestock technicians in Tagant, based on various estimates, provided the figures summarised below in Figure 26.</p>																																	



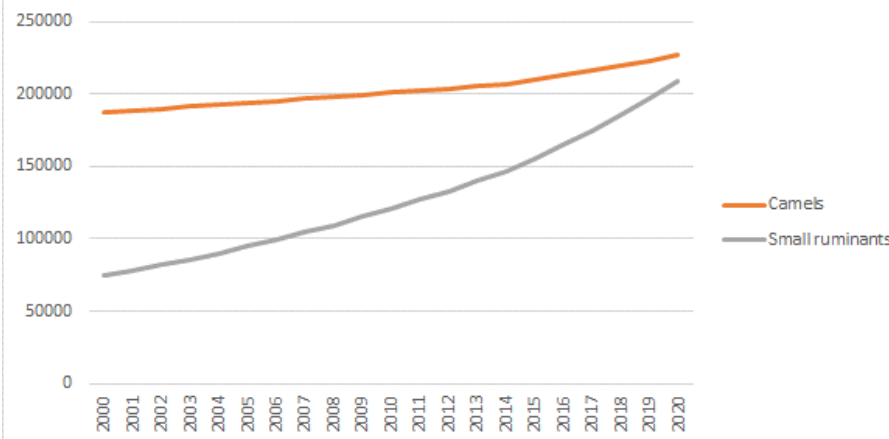
#### Hub 4: Aoujeft

Sector	Description					
General	<p><b>Aoujeft</b> is one of the four moughataas making up the Wilayah of Adrar and the name of the chief commune of the department.</p> <p><b>The “Aoujeft hub”</b> includes five communes: the agricultural urban commune of Aoujeft, and four rural communes : Maeden , N'Teirguent, El Medah and N'Terguent located in the Wilayah of Adrar. (See Annex 1 map)</p>					
Biophysical Characteristics						
Geography and Water Resources	<p>The town of Aoujeft is located in the Saharan zone, specifically in the Adrar Atar mountain range, at an elevation of ~250 masl (N20.02386°; W13.05565°). The area surrounding Aoujeft consists of rocky outcrops, sandy floodplains, fixed and mobile sand dunes, flat areas of consolidated sandy soils and cropland<sup>54</sup>.</p> <p>The Wilayah of Adrar where Aoujeft is located is criss-crossed by plateaus and peaks reaching 815m in altitude. In terms of hydrography, the Wilayah of Adrar has several watercourses but all are endoreic. The most important of these are the Séguelil wadi and the El Abiod wadi, which confluence in the Aïn Ehel Taya area and flow into the large Yagref floodplain, the bottom of which is at an altitude of 110m on the Atar topographic map. Most of them are threatened by the formation of sand dunes. Floods are becoming rare but devastating.</p> <p>The surface hydraulic infrastructures (dams, dikes, dykes) are summarised in the table below.</p> <p>Status of dams, dykes, embankments and other water reservoirs built until 2014 in the Wilayah of Adrar</p> <table><tr><td>Inventory of water reservoirs (year 2008)</td><td></td><td>TOTAL</td></tr></table>			Inventory of water reservoirs (year 2008)		TOTAL
Inventory of water reservoirs (year 2008)		TOTAL				

<sup>54</sup> Naia M & Brito JC. 2021. Geographical atlas of Mauritania. Biodeserts Report EN-02.

Sector	Description																															
	Total number			Area (ha)	Dams built from 2009 to 2014 (DAR+ PDDO)		UNTIL 2014																									
		Reservoirs without identified area	Reservoirs with identified area		Number	Area (ha)	Number	Area (ha)																								
	45	5	40	3 749	4	490	44	4 239																								
	Source : MA/PNDA, 2016																															
The sources of water supply in the Wilayah are 11.7% in AEP networks; 3.12% in public fountains; 24.63% in total 39.45% and the rest 60.55% unidentified.																																
		Water source	Adrar	National																												
			Rate (%)	Rate (%)																												
		AEP Network	11.7	15,0																												
		Public fountain	3.12	25,7																												
		Well	24.63	37,3																												
		River-spring	0	13,0																												
		Other	...	9,0																												
		Total	100,0	100,0																												
Source : RGPH 2013-ONS																																
Socioeconomic Characteristics																																
Population	<p>The total population of the <b>Aoujeft hub</b> is 35,643 inhabitants; it includes the agricultural urban commune of Aoujeft, with a population of 6,019 inhabitants, and 5 other rural communes in the wilayah of Adrar (population details unknown) (see Annex 1 : map).</p> <p>Population density of the Wilayah of Adrar is about <b>0.3 inhabitants per km²</b> (compared to 3.34 national level).</p> <table><tr><th>Moughataas (Départements)</th><th>1988</th><th>2000</th><th>2013</th></tr><tr><td><b>Aoujeft</b></td><td>16 217</td><td>20 181</td><td>12 997</td></tr><tr><td><b>Atar</b></td><td>35 317</td><td>38 962</td><td><b>38 877</b></td></tr><tr><td><b>Chinguitti</b></td><td>63 27</td><td>6 704</td><td>6 810</td></tr><tr><td><b>Ouadane</b></td><td>3 186</td><td>39 395</td><td>3 974</td></tr><tr><td><b>Total</b></td><td>61 047</td><td>69 542</td><td>62 658</td></tr></table> <p>Source RGPH/ONS : 1988, 2000 et 2013</p> <p>The monograph on the Wilayah of Adrar drawn up by the <b>National Statistics Office (ONS) in 2017</b> <u>revealed a change in the population numbers</u> for the whole of the Wilayah of Adrar, with a remarkable variation at the level of the moughataas : the population of the Wilayah is young with approximately 45.45% of the population is under 15 years old, compared to 59.46% for the active age group (15-64 years).</p>								Moughataas (Départements)	1988	2000	2013	<b>Aoujeft</b>	16 217	20 181	12 997	<b>Atar</b>	35 317	38 962	<b>38 877</b>	<b>Chinguitti</b>	63 27	6 704	6 810	<b>Ouadane</b>	3 186	39 395	3 974	<b>Total</b>	61 047	69 542	62 658
Moughataas (Départements)	1988	2000	2013																													
<b>Aoujeft</b>	16 217	20 181	12 997																													
<b>Atar</b>	35 317	38 962	<b>38 877</b>																													
<b>Chinguitti</b>	63 27	6 704	6 810																													
<b>Ouadane</b>	3 186	39 395	3 974																													
<b>Total</b>	61 047	69 542	62 658																													

Sector	Description																		
	<p>This population is dominated by the <b>female gender, as about 53%</b> of the total population of the Wilayah are women, compared to 47% of the male population.</p> <p>Data collected in the 2013 Census at the Wilayah level reveals that more than 19.7% of the population aged 6 years and above have no education and that about one in four of the population of the Wilayah aged 10 years and above is literate (25%): men (22%) women (27%).</p>																		
Living conditions	<p><b>Only 12% of the population is directly connected to the water supply network.</b> 27% of the population can access water with public fountains and wells. The remaining 61% have no immediate access to water. The development of roads has made it possible to partially open up this territory. The school <b>enrolment rate is low</b> as the gross enrolment rate in primary school is only 63%. At the secondary level this rate falls to 20%.</p> <p><b>Access to health services is very limited</b>, with only one hospital, five health centres and eighteen health posts in the Wilayah of Adrar.</p>																		
Agriculture	<p>Adrar is an area with an <b>ancient oasis tradition</b> and proven know-how in date production. This wilayah is considered the country's leading date-growing region. It currently accounts for about 45% of national production. The average <b>annual production of dates fluctuates according to climatic conditions</b>, varieties and the quality of cultivation techniques. Date palms in Adrar are generally not very productive with average yields of 15-20 kg per plant without irrigation (30-50 kg per plant with irrigation) (PNDA, 2016, STM, 2019 and PDDO, 2020).</p> <p>Evolution des superficies mises en valeur en phoeniculture</p> <table><tr><th>Wilayah</th><th>Year</th><th>Number of palm trees</th><th>Surface area (ha)</th><th>Number of exploitations</th></tr><tr><td rowspan="3"><b>ADRAR</b></td><td><b>1984</b></td><td>386 017</td><td>2 187</td><td>2 876</td></tr><tr><td><b>1993</b></td><td>883 060</td><td>1 876</td><td>6 590</td></tr><tr><td><b>2020</b></td><td>1 212 876</td><td>5 759</td><td>10 211</td></tr></table> <p>Source (projet Oasis et PDDO)</p> <p>In Adrar, <b>market gardening is an occupation and an income-generating activity</b>, especially for women and young people. Annual production varies from year to year depending on climatic conditions.</p> <p>A date and vegetable packaging factory since 2019 is located in Atar (80 km from Aoujeft) to improve the economic activity of the populations in the oases and to exploit the local product to make the most of it. However, transport is carried out in poor conditions, without considering the perishability of market garden produce.</p>	Wilayah	Year	Number of palm trees	Surface area (ha)	Number of exploitations	<b>ADRAR</b>	<b>1984</b>	386 017	2 187	2 876	<b>1993</b>	883 060	1 876	6 590	<b>2020</b>	1 212 876	5 759	10 211
Wilayah	Year	Number of palm trees	Surface area (ha)	Number of exploitations															
<b>ADRAR</b>	<b>1984</b>	386 017	2 187	2 876															
	<b>1993</b>	883 060	1 876	6 590															
	<b>2020</b>	1 212 876	5 759	10 211															
Livestock	<p><b>Livestock breeding is a very important economic activity</b> in the Wilayah. It is essentially composed of small ruminants and camels (Figure 4). The livestock population has grown strongly over the last 20 years. The abundant rainfall of the last few years seems to have allowed an overall reconstitution of the herd.</p>																		

Sector	Description
	 <p>Figure A6.7 : Livestock evolution in the wilayah of adrar</p> <p>In Adrar, as in the rest of the country, individual consumption of milk and milk products is high. Part of this need is covered by local production, in particular goat and camel milk with traditional processing and conservation methods.</p> <p><b>The existing livestock system in the wilayah is mainly extensive and transhumant</b> with the emergence of the peri-urban livestock system with rich pastures. It is a transit and transhumance area for herds of small ruminants and camels from several wilayahs in the country, depending on the state of wintering and the abundance of pastures. With the introduction of crops under palm trees and fodder crops, some breeders have started to supplement their feed.</p>
Tourism	<p>The geographical situation of the Wilayah, its relief and its landscape (sand dunes, plateaux, and the historical cities of Chinguitti and Ouadane) constitute a real tourist, cultural and historical asset which places it at the first tourist choice of the country.</p>