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EX POST EVALUATION #5

AF PROJECT MTN/MIE/Food/2011/1/PD
ENHANCING RESILIENCE OF COMMUNITIES TO THE ADVERSE EFFECTS OF CLIMATE CHANGE ON FOOD SECURITY IN MAURITANIA (PARSACC)

Baastel

30 Years Promoting Sustainable Development

EX-POST EVALUATION OF AF/WFP PROJECT: ENHANCING RESILIENCE OF COMMUNITIES TO THE ADVERSE EFFECTS OF CLIMATE CHANGE ON FOOD SECURITY IN MAURITANIA

Final Report

Prepared for

Technical Evaluation Reference Group for Adaptation Fund (AF-TERG)

Technical Evaluation Reference Group
ADAPTATION FUND

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The Adaptation Fund (the Fund) was established through decisions by the Parties to the United Nations Framework Convention for Climate Change and its Kyoto Protocol to finance concrete adaptation projects and programmes in developing countries that are particularly vulnerable to the adverse effects of climate change. At the Katowice Climate Conference in December 2018, the Parties to the Paris Agreement decided that the Fund shall also serve the Paris Agreement. The Fund supports country-driven projects and programmes, innovation, and global learning for effective adaptation. All of the Fund's activities are designed to build national and local adaptive capacities while reaching and engaging the most vulnerable groups, and to integrate gender consideration to provide equal opportunity to access and benefit from the Fund's resources. They are also aimed at enhancing synergies with other sources of climate finance, while creating models that can be replicated or scaled up. www.adaptation-fund.org

The Technical Evaluation Reference Group of the Adaptation Fund (AF-TERG) is an independent evaluation advisory group accountable to the Adaptation Fund Board. It works on improving the quality and effectiveness of the Adaptation Fund through generating evaluations, promoting evaluation utilization, and supporting evaluation capacity building. AF-TERG's work helps the Fund, and its partner organizations, enhance the impact of climate change initiatives on people, livelihoods, and ecosystems. It also guides responsible investment by the Fund, as an essential element for its political and public support. Learn more at www.adaptation-fund.org/about/evaluation/

The Adaptation Fund supported project "Enhancing Resilience of Communities to the Adverse Effects of Climate Change on Food Security in Mauritania" (PARSACC) was implemented by the United Nations World Food Programme (UN WFP) and executed by the Ministry of Environment and Sustainable Development of Mauritania between 2014 and 2019.

This ex post evaluation was commissioned by the Technical Evaluation Reference Group of the Adaptation Fund (AF-TERG). The management team for this evaluation included Susan Legro (AF-TERG focal point), Vladislav Arnaoudov (Team Task Leader) and Mariana Vidal Merino (Evaluation Officer). The evaluation was conducted by BAASTEL (Le Groupe Conseil Baastel Ltee). The evaluation team consisted of Margarita Gonzales (Team Leader), Marie-Karin Godbout (Evaluator), Malal Ba (National Evaluator) – and his company BetaPlus, Camile Gelb (Junior Evaluator), Alain Lafontaine (Quality Assurance Advisor) and Isalyne Coûteaux (Project Manager).

Special thanks are extended to the Government of Mauritania, the World Food Programme, all AF-TERG members, and all other stakeholders who provided support in the delivery and finalization of this evaluation.

AF-TERG. (2025). *Ex post Evaluation of AF/WFP Project: Enhancing Resilience of Communities to The Adverse Effects of Climate Change on Food Security in Mauritania: Final Report*. Adaptation Fund Technical Evaluation Reference Group (AF-TERG).

Cover page image: post evaluation site visit in Kewalla, Mauritania. Source: Baastel, 2025.

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ACRONYMS

AF	Adaptation Fund
AF-TERG	Technical Evaluation Reference Group of the Adaptation Fund
AGLC	Association for the Collective Local Management of Natural Resources
CCPNCC	Coordination Unit of the National Program on Climate Change
DIMS	"Development of an improved and innovative management system for sustainable livelihoods resilient to climate change in Mauritania" project
DREDD	*Direction Régionale de l'Environnement et du Développement Durable* - Regional Directorate for Environment and Sustainable Development
EWS	Early Warning System
FAO	Food and Agriculture Organization
FFA	Food for Asset
FGD	Focus Group Discussion
GDP	Growth Domestic Product
GIZ	*Deutsche Gesellschaft für Internationale Zusammenarbeit* - German cooperation
IGA	Income Generating Activity
KII	Key Informant Interview
MEDD	*Ministère de l'Environnement et du Développement Durable* - Ministry of Environment and Sustainable Development
NGO	Non-Governmental Organization
ONM	*Office National de Météorologie* - National Office of Meteorology
PARSACC	"Enhancing Resilience of Communities to the Adverse Effects of Climate Change on Food Security in Mauritania " project
ProDoc	Project Document
ToC	Theory of Change
ToR	Terms of Reference
VMC	Village Management Committee
WFP	World Food Programme

REPORT SUMMARY

The project titled “Enhancing Resilience of Communities to the Adverse Effects of Climate Change on Food Security in Mauritania” (PARSACC) was funded by a USD 7.8 million grant from the Adaptation Fund. It was implemented by the World Food Programme (WFP) in collaboration with the Government of Mauritania, specifically through the Ministry of Environment and Sustainable Development (MEDD), which served as the project’s executing entity. It aimed to enhance the resilience of vulnerable communities to the effects of climate change on food security.

Mauritania’s climate is arid, and climate change is driving desertification by increasing temperatures, decreasing rainfall and generally increasing the risk of drought, adversely affecting food production. PARSACC was designed in response to Mauritania’s acute climate vulnerability, particularly in agro-pastoral areas of the country’s southern and southeastern wilayas. The project targeted communities living in eight wilayas—Trarza, Brakna, Gorgol, Tagant, Assaba, Guidimakha, Hodh El Gharbi, and Hodh El Chergui—whose livelihoods are predominantly dependent on subsistence farming and livestock, and highly sensitive to climatic variability.

The project aimed to achieve nine outcomes, which were articulated around the following components:

- **Component 1:** Support technical services and the communities they serve to (a) better understand climate risks, their impact on livelihoods and food security; and (b) facilitate participatory decentralized adaptation planning.
- **Component 2:** Design and implementation of concrete adaptation measures identified through community adaptation planning that aim to combat desertification and land degradation.
- **Component 3:** Design and implement concrete adaptation measures identified through community adaptation planning that aim to diversify and strengthen the livelihoods of the most vulnerable population.

The project, which was approved in June 2012, officially ran from August 2014 to September 2019, and benefitted from a one-year no-cost extension. The findings from the Terminal Evaluation, conducted in 2019, warranted an overall Satisfactory rating for the PARSACC project, although evaluators then assessed that sustainability remained fragile. An exit strategy was prepared, which included recommendations to strengthen sustainability. However, this strategy largely relied on a “Phase 2” of PARSACC which did not materialize.

Objectives and Scope of the Ex Post Evaluation

The Ex Post Evaluation of PARSACC was commissioned by the Technical Evaluation Reference Group of the Adaptation Fund (AF-TERG) to assess the project’s sustainability and resilience impact 5 years post-closure. The evaluation was conducted between September 2024 and April 2025 and focused on three overarching questions:

1. Have the project outcomes been sustained since completion?
2. What factors have contributed to or hindered the sustainability of adaptation outcomes?
3. How do the sustained outcomes contribute to the adaptive capacity and resilience of the targeted systems?

To answer these, the Ex Post Evaluation Team analyzed data regarding the period spanning from September 2019, when the project came to an end, to February 2025. The evaluation covered all nine project outcomes and analyzed project sustainability and contribution to resilience in three intervention sites, namely Kewalla (Assaba), Moyasser 2 (Trarza) and Dionaba (Brakna). These sites were selected using a purposive sampling methodology and with the WFP and AF-TERG's validation. Additionally, Leweinatt (Guidimakha) was visited to collect data related specifically to water retention-related activities, as these could not be covered by the three sampled project sites. Given the limited number of sites covered by data collection (3) relative to the total sites supported by the project (85), the results of this analysis cannot be generalized to the entire project.

The evaluation adopted a mixed-methods approach, combining extensive document review, key informant interviews, community focus group discussions, a quantitative survey with project beneficiaries, on-site observation in the three selected sites, and review of available satellite data.

Key Findings

Sustainability of Project Outcomes

The evaluation found mixed results regarding the sustainability of the project's outcomes five years post-closure. While some environmental and livelihood outcomes have been partially sustained, institutional capacities and systemic support mechanisms have largely deteriorated.

Component 1

1.1 Strengthened awareness, ownership and facilitation capacities of government services

The valuable contributions made by the project to the capacities of regional environmental directorates (DREDD, by their acronym in French) were for the most part not sustained. While some awareness and technical capacities remain, the lack of financial resources, personnel rotation and limited ownership have hindered continued support to community adaptation. Local NGOs that partnered with the project have become empowered to support communities with climate change adaptation. Some subsequent projects have enabled continued action, including to support the institutionalization of a village management committee (VMC).

Sustainability rating: Moderately unsatisfactory

1.2 Strengthened awareness, ownership, planning and management capacities at community level

While some level of awareness about climate change has been maintained across visited project communities, they have not continued to plan for adaptation. However, one of the VMCs created with the project's support is building its capacity to sustainably manage its natural resources. Any sustainability of this outcome so far depends on the strength of local organizational capacities, which is highly contextual. This has been strong for women's cooperatives in the three sites, and variable for VMCs.

Sustainability rating: Moderately satisfactory

1.3 National ecologic monitoring system strengthened and tested

The system, implemented by GIZ, is no longer operational, for reasons beyond the project's control. The activities related to the national ecologic monitoring system have not been sustained, neither have related benefits.

Sustainability rating: Unsatisfactory

Component 2

2.1 Advance of sand dune slowed down, halted or reversed (analyzed for 2 sites)

There is evidence of dune stabilization in both project sites that implemented this activity, effectively protecting homes, buildings and/or agricultural land, but poor maintenance threatens future sustainability of related benefits as vegetation on dunes degrades. This sustainability was supported by some level of awareness about the benefits of the activities, but also hindered by a limited perception of immediate benefits. Other challenges included poor organizational capacity, lack of financial resources and climate hazards.

Sustainability rating: Moderately satisfactory to Satisfactory

2.2 Increased vegetation cover in intervention zones (analyzed for 3 sites)

Few vegetation-related activities were successful by the end of the project. However, the establishment of protected grazing areas and dune stabilization, supported by the project, has led to increased vegetation cover in all three communities, leading to benefits such as increased fodder availability and controlled soil erosion. Nonetheless, the sustainability of these benefits is threatened in two out of three sites due to a lack of maintenance, which stems from low organizational capacities and the communities' perception of limited benefits, leading to poor ownership. Conversely, in the third site (Kewalla), a strong perception of significant benefits drives ownership and organizational capacities. While many factors may explain this difference, the ongoing sedentarization process in Kewalla likely contributed to perceived benefits.

Sustainability rating: Moderately satisfactory

2.3 Decreased loss of water and soil through surface run-off (analyzed for 1 site)

The two stone cordons built and still functional at the end of the project in Leweinatt have effectively retained water in two sites, improving soil fertility downstream. However, lack of maintenance has affected their continued effectiveness since the end of the project. Organizational capacities in Leweinatt are insufficient to plan for high labor-intensive maintenance.

Sustainability rating: Moderately satisfactory

Component 3

3.1 Increased number of sources of income for participating households

Out of 12 IGAs operational in 2019, seven are still functioning: two butcher's shops, two community shops, improved cookstoves craftsmanship in two villages, and market gardening in one village.

Sustainability rating: Moderately satisfactory

3.2 Increased income for participating households

96% of participants still engaged in IGAs are reporting an increase in income as a result of the activity. However, the number of active IGAs and of participants has decreased since the end of the project.

Sustainability rating: Satisfactory

3.3 Increased availability of and access to food for participating communities

95% of participants still engaged in IGAs report an increase in access to food for themselves and 75% also report an increase in access to food for their households.

Sustainability rating: Satisfactory

Sustainability factors for Component 3 outcomes: The project's emphasis on community engagement had resulted in IGAs that benefitted from strong ownership from participants, and lack of ownership was *not* the reason for abandoning most IGAs that failed after the project ended. Rather, equipment and asset failure has been the most important constraint to the success of IGAs in the three visited sites. Women's cooperatives are supported by strong community engagement and have helped ensure sustainability of benefits.

Five years after the end of the project, some emerging, unexpected outcomes were observed. These included the fact that NGOs engaged as partners on the project have become empowered to support community adaptation through other initiatives, and women in Dionaba exploring ways to make their gardens more climate resilient.

Contribution to Systemic Resilience

Evidence from the sites selected for the ex-post evaluation shows that, five years after the project's closure, the sustained outcomes continue to support communities' resilience to climate change by meaningfully contributing to the following key resilience attributes:

- **Scale:** While results varied across sites, through sustained localized landscape restoration the project clearly contributed to restoring and maintaining the resilience of local ecosystems and infrastructures by stabilizing sand dunes, enhancing vegetation cover, and improving water retention. In most sites, these resilience benefits are compromised in the short to medium term due to the lack of ongoing maintenance of the protected perimeters.
- **Redundancy:** Sustained adaptation outcomes contributed to increasing the availability of livelihood options for project beneficiaries, contributing to additional sources of revenues and/or food production for the participants, supporting resilience to climate risks.
- **Diversity and inclusion:** Most women in the villages visited remain active in the successful IGAs cooperatives and contribute to decision making at this level. Moreover, women's involvement in traditionally male-dominated activities, marks a significant innovation and a meaningful step toward greater equity in opportunities. IGAs primarily targeted individuals from the most vulnerable groups. Nevertheless, there is limited evidence of a broader diversification of actors and of contributions working toward shared resilience objectives beyond the immediate, practical management of IGAs.
- **Flexibility:** While the project laid crucial groundwork for adaptation, its long-term impact on systemic agility remains uneven. It is however noteworthy that women's groups demonstrated resilience and continuity beyond the end of the project suggesting that they may have been more effective at maintaining organization momentum and adapting to evolving local conditions, making them a potential lever for enhancing system flexibility in future community-based climate adaptation efforts.
- **Connectedness and feedback loops:** The project led to some improvements in communication, access to information, and partnerships to support adaptation to shocks and stressors, though results were uneven. In most cases, DREDD no longer provide adaptation-related information or coordination support to communities. In contrast, NGOs involved in the project retained their capacities and have continued to engage in adaptation-related work suggesting a more durable impact on local partnerships. The planned establishment of a community-level early warning system did not materialize, limiting access to potentially critical information at the community level. The community structures set up during the project, such as VMCs, have had mixed outcomes, some remain active, while others have become inactive, indicating uneven impact on local communication lines and potential coordination mechanisms. However, the continued activity of women's cooperatives beyond the end of the project highlights the project's success in strengthening these groups' capacity for self-organization.

Conclusions

Over five years after the end of PARSACC, the sustainability of project outcomes is Moderately Satisfactory. PARSACC's exit strategy, which depended on a Phase 2 that never occurred, was not implemented. Nonetheless, several project outcomes have been sustained over

five years. These include stabilized dunes, increased vegetation, and improved water retention, that help sustain local ecosystems and provide fodder for cattle. Seven out of twelve IGAs are still operating—providing income and food access. However, institutional outcomes were less sustainable: DREDDs did not maintain their capacities, and information systems like early warning and monitoring mechanisms are non-functional. Unfortunately, this weakens project outcomes sustainability and contribution to resilience, as partnerships to sustain communities' capacities and are no longer in place and contributing to long-term resilience.

Despite increased awareness about climate change risks, activities that generate direct, short-term benefits are the ones that continue to contribute the most to outcome sustainability. Actual perception of these benefits varies from one site to the other based on local context, significantly influencing the sense of ownership for project outcomes. Ownership and capacities reinforce each other, and where they are strong, have ensured the continued success of some activities, despite lack of partnerships and limited resources. This is especially visible among women's organizations, which have remained particularly active due to strong ownership and tangible benefits.

Unfortunately, damages to crucial infrastructure and assets, and in particular water access infrastructure, have sometimes become insuperable. In most cases, continued support from DREDDs would likely have helped sustain related benefits. Many of the project outcomes are still vulnerable to climate change, and in particular to droughts, as challenges around water access pose an important risk to sustainability. For this reason, some of the additional sources of income have only a limited contribution to resilience.

Still, the examples of unexpected outcomes identified throughout this evaluation provide valuable indications as to the types of opportunities that could be leveraged in future adaptation projects, especially related to women's cooperatives, local NGOs and the success of specific activities.

Overall, it is important to recognize that the sustainability of project results often significantly relies on a complex combination of local variables that are difficult to fully anticipate, and even to evaluate.

Lessons Learned and corresponding recommendations

Several lessons emerged from the evaluation that can inform future adaptation projects in similar contexts:

<u>For implementing and executing entities:</u>

Institutional capacity-building efforts are unlikely to deliver sustainable results unless they are accompanied by clear mandates, adequate resourcing, and sustained engagement mechanisms. Strengthening institutions without clarifying their continued relevance and ensuring their accountability, and motivation leads to rapid erosion of initial gains.

- Establish roles, responsibilities, performance incentives, and identify resources for post-project sustainability.
- Strengthen capacity-building for effective information management in decentralized institutions.
- Consider continued support to PARSACC beneficiaries to maintain and possibly scale up sustained results.

For AF and funders:

When project outcomes do not lead to direct and immediate benefits, they are often perceived as less relevant by stakeholders. This can limit ownership and reduce the likelihood of sustaining results over time.

- Focus on the practical demonstration of longer-term resilience benefits to foster ownership and ensure the sustainability of project outcome

For projects designed with infrastructure and labor-intensive activities:

The sustainability of larger-scale infrastructure or infrastructure requiring significant labor-intensive input can not be ensured without at least minimal partnership, whether with local actors, NGOs, or other donors, that can provide continued support, oversight, or resources beyond the project's duration.

- Secure partnerships to support the sustainability of community infrastructure beyond the project's duration.

For projects designed for arid areas:

In arid areas, the sustainability of production activities is deeply tied to reliable water access. When water infrastructure is damaged or insufficient due to climate shocks, it can undermine entire project outcomes, which were precisely intended to strengthen resilience to such shocks. This was observed in market gardening and arboriculture, and it could also eventually impact butcher shops, where livestock production is vulnerable to extreme weather conditions. Inadequate maintenance of water access infrastructure, often due to financial constraints or lack of local capacity, has proven to be a critical barrier to long-term success.

- Prioritize water access and water infrastructure sustainability from the outset in arid region project design

For improvements in M&E to capture data on sustained results after project completion:

Detailed information on implemented activities and site-specific outcomes is essential for conducting robust ex-post evaluations and for accurately assessing sustained results and contributions to resilience as this information becomes the baseline for assessing outcome sustainability ex post.

- Document project activities and results systematically to enable future evaluations.

For AF-TERG on methods:

When a project addresses a wide range of outcomes across a large number of sites, budgetary constraints may necessitate limiting data collection to a small number of locations. This restricted coverage significantly limits the ability to draw robust, representative conclusions about the project's overall results and impact across the full beneficiary population. It also highlights the trade-off between collecting data on a wide range of outcomes versus focusing in depth on a limited number. While the latter can offer more detailed insights and the opportunity to build a rich and nuanced narrative with regards to the evolution of the resilience of the beneficiary, it can also be difficult to isolate and understand the long-term effects of individual outcomes.

- Ensure that evaluation design is aligned with the scale and scope of the project.

Analyzing the potential contribution of the project's outcomes to resilience attributes prior to fieldwork is essential. It is important to recognize that these contributions may fall outside the explicit logical framework of the project. This approach ensures that both qualitative and quantitative data collection tools capture all relevant information, including aspects not directly outlined in the project's framework.

- Encourage early reflection on how each project's outcomes contribute to resilience.
- Prioritize relevant resilience attributes to investigate the project's outcomes' contribution.

1. PROJECT GENERAL INFORMATION

1.1. Project summary table

Project name	Enhancing Resilience of Communities to the Adverse Effects of Climate Change on Food Security in Mauritania (PARSACC)
Project ID	MTN/MIE/Food/2011/1/PD
Location	Mauritania (8 Wilayas in the South-Eastern and Western regions of Mauritania, namely Trarza, Brakna, Gorgol, Tagant, Assaba, Guidimakha, Hodh El Gharbi and Hodh El Chergui)
Implementing agency	UN World Food Programme
Executing agency	Ministry of Environment and Sustainable Development (MEDD)
Focal area	Food security
Budget	USD 7,803,605
Approval date	28/06/2012
Dates	08/2014 – 09/2019 – the project benefitted from a one-year extension.
Date of MTR	February 2017
Date of final evaluation	July 2019
Objective	To enhance the resilience of vulnerable communities to the effects of climate change on food security
Components	**Component 1:** Support technical services and the communities they serve to (a) better understand climate risks, their impact on livelihoods and food security; and (b) facilitate participatory decentralized adaptation planning. **Component 2:** Design and implement concrete adaptation measures identified through community adaptation planning that aim to combat desertification and land degradation **Component 3:** Design and implement concrete adaptation measures identified through community adaptation planning that aim to diversify and strengthen the livelihoods of the most vulnerable population

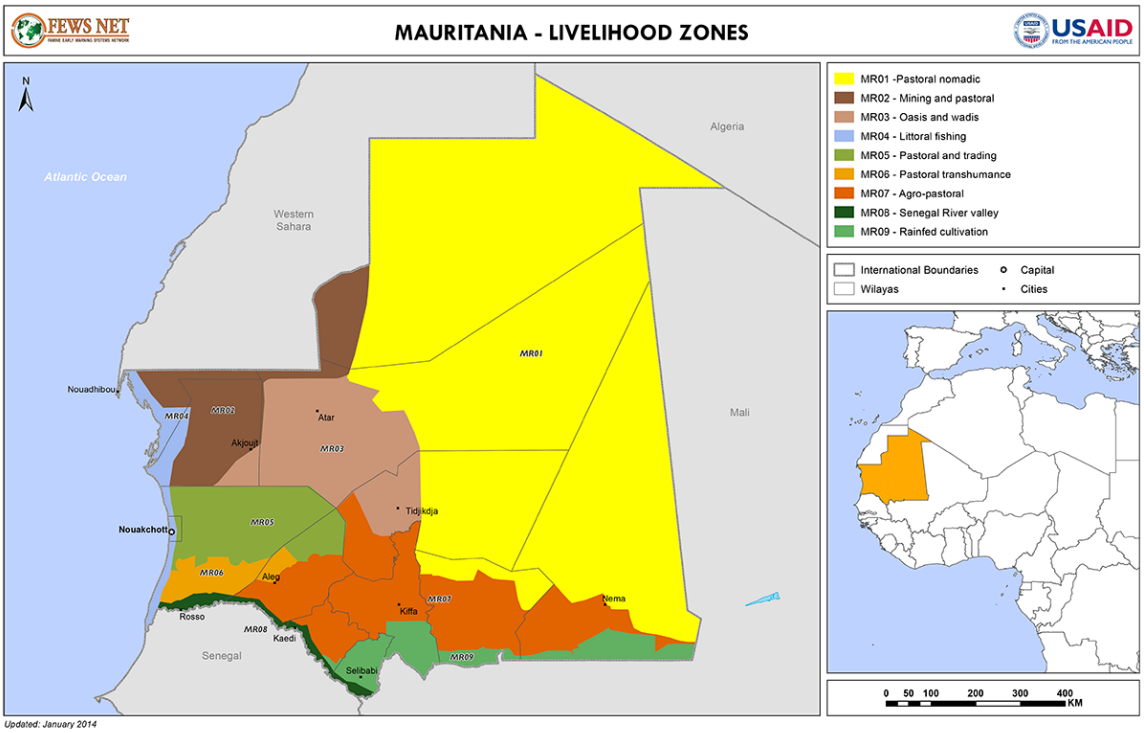
1.2. Summary of project justification

In the following section, the Ex Post Evaluation team reconstructed the project justification. This is based on extensive document review and the collection of information retrieved from the project document (ProDoc) and Mauritania's reports as signatories of the United National Framework Convention on Climate Change and the United Nations Convention on Biological Diversity such as its National Communications. In addition, this section drew from a variety of reports compiled by third parties, which include the World Bank, Food and Agriculture Organization (FAO) and German cooperation (GIZ). Climate data was recovered from the Climate Change Knowledge Portal.

Located on the coast of the West African Sahel, Mauritania's climate is arid. It is defined in the North by the Saharan desert, extreme dryness and strong winds. In the South, the climate is Sahelian with higher amounts of precipitations. The south has a rainy season that runs from May to October.[1] It can deliver up to 200 mm of rain per month, but is highly dependent on the movements of the Intertropical convergence zone, and is thus highly variable.[2] Mauritania can be divided into four major agro-ecological zones: the Saraha (North), Agropastoral Sahel (South-East), the Senegal River Valley (South), and the Coast (West).[3] Mean annual temperatures range from 21°C to 30°C and annual precipitation from 20mm on the northern coast to 400mm in the south. Rains follow a unimodal precipitation pattern from June to October.[4]

About three quarters of Mauritania's territory is desert, and only 0.4% of its land is considered arable.[5] As a result, the country has always been food deficient with production meeting only about 30% of its population's food requirements and 25% of the rural population being food insecure, especially in the south-east which is where this project operated. Despite the environmental limitations, almost half of Mauritania's population and 75% of the country's poor depend on agriculture and livestock as their primary source of livelihood,[6] relying on various types of pastoral and agro-pastoral practices (Figure 1). In addition, agriculture and livestock contribute to almost one third of Mauritania's GDP[7]. The agricultural sector produces mainly rice, milk, sorghum, goat milk, sheep milk, lamb/mutton, beef, camel meat, camel milk, and dates.

Figure 1: Mauritania Livelihood Zones (2014)[8]



[1] World Bank (2024). Climate Change Knowledge Portal, Mauritania.
[2] PARSACC Project Document
[3] MEDD (2019). Fourth National Communication.
[4] GIZ (Undated). Climate Risk Profile: Mauritania
[5] World Bank (2021). Arable land (% of land area) – Mauritania.
[6] ProDoc
[7] MEDD, 2018. 6th Report to the Convention on Biological Diversity
[8] FEWS NET (2014). Mauritania Livelihoods Map

These sectors are intrinsically vulnerable to climate change and as early as 2004, Mauritania's National Adaptation Programme of Action identified pastoralism and agriculture as the economy's most vulnerable sectors to climate change. For thousands of years, pastoralists and farmers in Mauritania have had to develop adaptation strategies to cope with the country's harsh conditions and variations in the weather, relying on a nomadic lifestyle to move to punctually more suitable areas and protecting water resources. However, with the acceleration of climate changes and sedentarization, these traditional coping strategies are no longer sufficient.[9]

Data on observed and projected climate change was instrumental in the justification of the PARSACC project. At the time the project was designed, temperatures had been rising rapidly since the 1950s and were projected to continue to increase by +1.3°C to +3.8°C by the 2060s and by +1.8°C to +6°C by the 2090s, and the rate of increase was projected to be higher in the dry season.[10] As temperature is a key factor in potential evapotranspiration, it is projected to increase in Mauritania thereby increasing the risk of drought[11]. Furthermore, data available when the project was designed predicted a decrease of precipitation by at least 20%, with different models showing a decrease ranging from -65 to +28%.[12] Mauritania has been affected by climate-related land degradation and desertification for some time now. Recurrent droughts in the 1970s and 1980s led to a drastic reduction in water resources. These droughts contributed to pushing the drought line southward, shrinking the already limited arable land and sparking land-use conflicts between pastoralists and farmers, who are now forced to plant on marginal soils that are highly susceptible to erosion.[13][14]

As a result, domestic food production had been declining for the past forty years before the project began. The production index fell from 161 in 1969-1971 to 97 in 2005-2007 (compared to a base value of 100 in 1999-2001)[15]. This situation exacerbated poverty and reduced purchasing power for food. With poor rural households already spending 80% of their income on food, the impact of reduced food production was dire. At the time (2005-2007), acute malnutrition among children aged 6-59 months was 12.5% nationwide, and chronic malnutrition affected one-third of the population in some areas, including the southeast, where the project focused.[16]

Owing to its unfavourable climate, Mauritania has been a key recipient of international donor's assistance in Sub-Saharan Africa, especially in the field of agricultural and rural development with the aim of boosting the rural economy, improving agricultural productivity, promoting sustainable land management and improving food security. Nevertheless, such initiatives have failed to properly address resilience to climate change and the barriers to sustainable adaptation.

Through this project, the government of Mauritania hoped to topple several obstacles including:

1. A lack of information at all levels on understanding and managing climate risks;
2. Weak local and national capacities to devise climate change strategies and adaptation measures;
3. Poverty and the lack of available resources to invest in soil and water preserving assets;
4. A lack of short-term alternative coping strategies;

[9] ProDoc
[10] ProDoc. Original source: UNDP Climate Change Country Profile Scenario unspecified.
[11] GIZ (Undated).
[12] ProDoc. Original source: Mauritania's Second National Communication
[13] GIZ (Undated).
[14] ProDoc
[15] FAO's agricultural production index shows the relative volume of the annual agricultural production compared to a base value of 100 in 1999-2001.
[16] ProDoc

5. Incoherent political strategies and a lack of project complementarity resulting from institutional fragmentation[17].

1.3. Summary of project strategy

1.3.1. Project objectives and components

The overall goal of this project was **to enhance the resilience of vulnerable communities to the effects of climate change on food security.** To achieve this goal, the project worked with government agencies to strengthen their capacity to support communities in designing and implementing appropriate and participatory local adaptation and natural resource management plans (Component 1), and with communities to encourage them to invest in resilience and adaptation to climate change (Components 2 and 3).

Component 1: *Support technical services and the communities they serve to (a) better understand climate risks, their impact on livelihoods and food security; and (b) facilitate participatory decentralized adaptation planning.*

The objective of the first component was to enhance the understanding and capacity of government and the communities to develop participatory and context-specific adaptation plans. Under Outcome 1.1, regional technical services of MEDD (known as DREDD) were to be trained on climate change adaptation. Approximately 200 technical staff at various levels were to be trained. The training curriculum included technical topics such as dune stabilization, irrigation techniques, seed selection and conservation, as well as general aspects of natural resource management and integration of village adaptation plans into regional planning. Beneficiaries were also to be trained in computer literacy and equipment (such as cars) was to be provided. Under Outcome 1.1, some activities. aimed at strengthening the capacities of the National Office of Meteorology (ONM) and the Agro-Meteorological Service by building the foundations of a national early warning system (EWS). Outcome 1.2 was to intervene at village-level to raise community awareness on climate change and adaptation measures and develop local adaptation plans in 100 villages clustered by landscape, ecosystem and livelihoods. Community radio stations were to be supported to enable information sharing on early warning and adaptation management. Finally, Outcome 1.3. planned to establish an environmental monitoring system to track the evolution of local ecosystems restored through the project, operationalizing the Monitoring System for the Second National Environmental Action Plan (PANE II) in project areas.

Components 2 and 3 were about implementing concrete adaptation activities based on participatory planning conducted in Component 1. Implementation was to be done by community members themselves following a food-for-work or cash-for-work or cash-for-training approach. Activities were to be exclusively carried out during the lean season.

Component 2: *Design and implementation of concrete adaptation measures identified through community adaptation planning that aim to combat desertification and land degradation.*

The objective of component 2 was to improve the long-term sustainability of the productive ecosystems needed to support climate-resilient and food secure livelihoods. Under this

[17] ProDoc

component, specific outputs related to dune fixation, protection of vulnerable zones, fuel wood forest plantation and building of water retention structures were planned.

Component 3: *Design and implement concrete adaptation measures identified through community adaptation planning that aim to diversify and strengthen the livelihoods of the most vulnerable population*

The objective of Component 3 was to increase the resilience and food security of communities and households through livelihood diversification and sustainable use of natural resources. Income generating activities (IGA) were to be developed through the provision of training and investments in productive assets. IGAs identified were to include tree planting for revenue and food generation, livestock management, improved agricultural techniques and water use, plant and seed multiplication, poultry, apiculture, as well as improved cooking stoves. Community cereal banks were also to be established.

The project's results framework is presented in Annex 7.2.

1.3.2. Intended project impacts

The ProDoc does not specifically define the impacts sought from the project; however, it identifies nine outcomes that are expected to support the achievement of the project's goal:

- Outcome 1.1: Strengthened awareness, ownership and facilitation capacities of government services (DREDD)
- Outcome 1.2: Strengthened awareness, ownership, planning and management capacities at community level for local natural resource management and climate change adaptation
- Outcome 1.3. National ecologic monitoring system strengthened and tested
- Outcome 2.1. Advance of sand dune slowed down, halted or reversed
- Outcome 2.2. Increased vegetation cover in intervention zones
- Outcome 2.3. Decreased loss of water and soil through surface run-off
- Outcome 3.1. Increased number of sources of income for participating households
- Outcome 3.2. Increased income for participating households
- Outcome 3.3: Increased availability of and access to food for participating communities

As per Annex 5 of the ProDoc, the PARSACC project design was largely aligned with the Adaptation Fund Results Framework, and was expected to contribute to the following Adaptation Fund outcomes:

- Outcome 3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level
- Outcome 5: Increased ecosystem resilience in response to climate change and variability-induced stress
- Outcome 6: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas

According to the Final Evaluation Report, the implementation of project activities did indeed contribute to the AF's mission to strengthen adaptation to climate change and in particular to AF Outcomes 3,5 and 6. Detailed information actual contributions are presented in Annex 7.10.

1.3.3. Reconstructed Theory of Change

For the purpose of this Ex Post Evaluation exercise, understanding the project's Theory of Change (ToC) helped identify the project outputs, outcomes, intermediate states of outcomes towards impacts, and intended long-term adaptation impacts, as well as the causal pathways and assumptions necessary for the causal pathways to be true. This ToC contains the elements to derive the project's Theory of Sustainability, which refers to the logic according to which the project results were to be sustained.

The ProDoc did not outline the PARSACC's ToC. However, drawing from elements from the ProDoc, the Evaluation Team believes that the following reconstructed ToC (also presented in graph form in Figure 2) appropriately captures the project's logic.

The ProDoc identified several key pressures affecting the sustainable use of productive land and food security in the target intervention areas: (i) desert expansion as a result of climate change; (ii) recurrent extreme climate events (especially droughts, but also localized floods); and (iii) land-use conflicts (particularly between pastoralists and farmers) and unsustainable land use as a result of declining arable land suitability. All of this has had a critical impact on agricultural productivity, seriously threatening the food security of those who depend on agriculture as their main source of livelihood. Elements from the ProDoc also allowed the Evaluation Team to identify barriers that hinder progress towards addressing these pressures: (i) there is a lack of information at all levels regarding climate change and climate change adaptation which hampers stakeholders ability to understand and manage climate risks; (ii) stemming from this lack of knowledge, capacities are very limited at both local and national levels to design climate change adaptation strategies and measures; (iii) local communities are not involved in climate adaptation planning; (iv) poverty-stricken local communities are unable to invest in soil and water preserving assets which would help them adapt to climate events; (v) local communities heavily rely on agriculture as their main source of income and do not have suitable short-term alternative livelihoods thereby undermining their resilience to climate events.

The project sought to address these five barriers identified at the design stage through three main components divided into 9 outcomes and 19 outputs (see Annex 7.2).

Component 1 aimed to enhance the understanding and capacity of government services and local communities with respect to climate change and climate adaptation to facilitate the management of climate risks in a participatory manner. Trainings and awareness raising activities provided to both government services and local community members were expected to build their capacity to engage in local adaptation planning processes, monitor climate risks and implement adaptation measures.

Component 2 designed and implemented concrete adaptation measures to reverse land degradation and desertification and promote the sustainable management of natural resources thereby improving the viability of productive ecosystems and supporting food security. These adaptation measures were drawn from the work conducted under component 1 and the development of local adaptation plans as a way of ensuring the relevance of the proposed solutions to local needs and ownership of the project by all affected stakeholders.

Component 3 also was a very operational component of the project and supported the implementation of adaptation measures aimed at increasing the resilience and food security of the most vulnerable populations through livelihood diversification and sustainable use of natural resources. Akin to Component 2, Component 3 specific interventions were based on the results from the activities carried out in Component 1

During the design phase, it was identified that the project faced risks related to limited local capacity for climate change management, potential delays from external factors, and difficulties for communities in adopting the skills and cohesion needed to protect areas. Additional risks included the impact of natural disasters and of unsustainable practices, and the lack of complementary projects or qualified partners. This climate risk was included in the reconstructed Theory of Change (Figure 2). The mitigation measures proposed to address these risks involved primarily the building of ownership and capacities within institutions, partners and beneficiaries. For communities, this included both providing financial incentives and encouraging investments with their own resources. Flexibility in funding allocation and contingency plans would help address operational challenges.

At project design it was envisaged that the sustainability of the project outcomes would be ensured through the following:

- The direct involvement of existing community leadership structures within project processes;
- Strengthened technical services and enhanced regional planning;
- Direct involvement of the strengthened DREDD (which would oversee regional teams) in community mobilization and strengthening, ensuring adequate technical support to cluster and community-level planning, activity implementation and maintenance as well as the continued capacity to provide this support after project termination;
- Highly participatory processes leading to decisions at cluster and village level;
- No assets created that are not prioritized and not sustained by the beneficiaries;
- Sustainability of future monitoring and support would be ensured by the active and central role of DREDD, which received support and learnt throughout the project to apply what will be required of it in the future;
- The sustainability of individual activity outputs would result from their tangible benefits (through protection from damage and stabilized or increased income) to the communities and households responsible for their maintenance;
- All physical assets created under the project would be designed to be sufficiently simple and cheap to repair and replace by communities with their own knowledge, skills and resources;
- The financing for sustaining these assets would be secured in different, complementary ways:
    - the assets created would allow communities to directly raise income (e.g. by selling fodder from protected zones, levying a contribution for picking fuel wood from community forests, etc.)
    - the benefits derived from these assets (e.g. dune fixation, fight against water erosion, etc.) would be so tangible and significant that communities would be able to raise the required resources for the protection and maintenance of these assets from their members either on an ad hoc basis or through a community maintenance scheme /fund;
- The income that could be raised by households through the IGAs under component 3 would ensure a higher level of financial resources and a greater presence of manpower in the villages which could contribute to the maintenance of created assets.
- To some extent, spontaneous scaling-up could be expected where other (non-project) villages are exposed to the benefits derived from the project or where project villages by their own means increase the assets created under the project using their own resources and the know-how acquired through the project. It was not anticipated that scaling-up of project investments would be financed through mechanisms developed under the project.

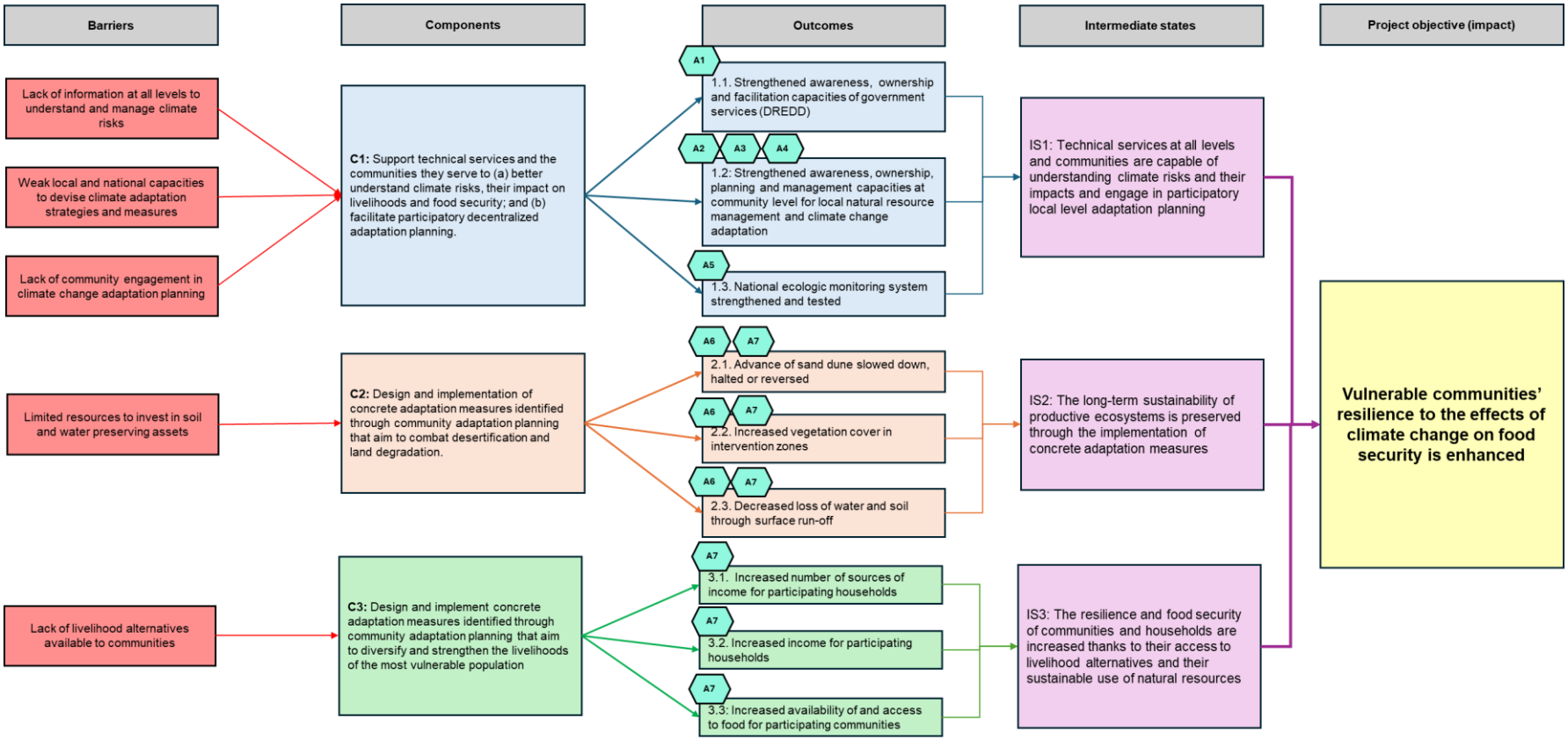
Such scaling-up would need to be encouraged by the government including through the strengthened decentralized technical services;

- It was expected that an important benefit of the proposed interventions would be social cohesion, which is hard to quantify yet indispensable for the sustainability of assets and the resilience of ecosystems and communities. While most of the proposed interventions would promote cohesion, community participation in planning, the empowerment of village associations, and the establishment of community radios would play particularly important roles.

The project's Reconstructed ToC relies on a series of assumptions:

- **A1:** DREDD and central technical services are willing and capable to absorb and apply training and capacity strengthening
- **A2:** Communities are willing to join in village clusters and to follow participatory adaptation planning exercises.
- **A3:** DREDD take active leadership of regional teams
- **A4:** Qualified implementing partners are available to continuously support regional teams
- **A5:** PANE II is approved and its operational plan includes a relevant and realistic results framework and monitoring plan
- **A6:** Communities / village clusters prioritize the fight against desertification, erosion and soil degradation in their adaptation plans.
- **A7:** No major emergencies jeopardize the implementation of planned works

Figure 2: PARSACC reconstructed ToC



Risks identified in the ProDoc:

- There is little local specialized management and technical capacity related to climate change, particularly in the entities that are responsible for the project.
- External factors may delay project implementation
- Communities find it difficult to take up the skills, learning and social cohesion necessary to secure protected areas
- Natural disasters, in particular drought
- Lack of adequately qualified partners
- People purchase greater amounts of livestock (beyond carrying capacity)
- Outsiders bring in additional livestock
- People cut down planted trees for fuel wood (other than community forests)
- Lack of complementary projects and inputs

1.3.4. Project results and sustainability ratings

According to the Final Evaluation report, the effectiveness of the project was rated **satisfactory**. This rating was given based on:

- A high level of achievement of objectives and targets by component;
- The significant contribution of the project to strengthening the government's vision, policies/strategies for poverty alleviation, food security and the implementation of adaptation measures to the effects of climate change;

However, the Final Evaluation noted that the effectiveness and the performance of project activities differ quite significantly between villages. The 11 villages visited, which were spread across 5 wilayas[18], were split into three categories, the first one with performance described as satisfactory, the second one whose results are described as average and the last one for which project performance were unsatisfactory with some activities even being abandoned. Project's effectiveness also varied depending on the activities, in particular, some of the IGAs faced numerous difficulties.

Table 1 summarizes expected achievements per outcome vs. what was actually achieved by the project as per the Final Evaluation.

AF's Guidelines for final evaluations[19] defines sustainability as "the likelihood of the achieved outcomes continuing after funding from the Fund ends".

The final evaluation did not provide sustainability ratings. Although it did acknowledge several factors supporting project outcomes' sustainability, it ultimately concluded that "sustainability remains fragile"[20]. This conclusion stemmed from several factors:

- The poor performance of certain types of IGAs in certain target sites;
- The temporal gap between project activities and results for certain IGAs (e.g. tree planting);
- The lack of maturity in some of the governance structures established by the project that would require further support;
- The limited effectiveness of certain types of technical trainings;
- The low involvement of regional technical services concerned mainly with project interventions whose institutional succession they must ensure;
- The government's lack of financial and material resources to take over the project activities;
- The population's dependence on the PARSACC project.

[18] Hodh El Gharbi, Assaba, Gorgol, Brakna and Trarza.
[19] AF, 2011. Guidelines for Project/Programme Final Evaluation
[20] WFP, 2019. PARSACC Final Project Evaluation Report

Table 1: Expected project achievements per outcome vs. end of project achievements.[21]

Outcome	Baseline	End of project target	Actual project achievements at Final Evaluation (Sept. 2019)
Outcome 1.1: Strengthened awareness, ownership and facilitation capacities of government services (DREDD)	DREDD do not have capacity to provide any support to communities	DREDD have succeeded to provide information, guidance and facilitation support to 87 Villages	8 DREDD led, participated in the development and supervised the implementation of 85 climate change adaptation action plans in 85 villages in the project area.
Outcome 1.2: Strengthened awareness, ownership, planning and management capacities at community level for local natural resource management and climate change adaptation	There is only little joint discussion at community level, and not all groups are involved; no inter-village discussions take place	About 100 villages understand, own and manage their adaption plans and their natural resources	The sensitized communities about climate change impacts in the 87 villages have played an important role and have actively participated to all the steps of the process of elaboration of climate change adaptation action plans, including the identification and prioritization of adaptation options. Most of these adaptation action plans were reviewed and updated by the NGOs during project implementation with the participation of all targeted groups (man, women and youth beneficiaries).
Outcome 1.3: National ecologic monitoring system strengthened and tested	No ecologic monitoring system exists	The new national ecologic monitoring system is known, used and maintained by DREDDs and in project village clusters.	The Final Evaluation reported that the Monitoring System of the PANE is already set up since 2014 by the MEDD with the support of GIZ and is online (http://www.medd-sepane.mr/).DREDDs have already been trained in this system and regularly contribute to providing it with the necessary data, including those from the project's intervention areas. The Ex Post Evaluation team, however, points to the fact that this achievement does not seem to be attributable to the PARSACC project, but to GIZ's efforts.
Outcome 2.1: Advance of sand dunes slowed down, halted or reversed	No baseline available before implementation	Significant deceleration – and ideally reversal – of dune advance	The process of mechanical and biological fixation of sand dunes covered 995 ha. The advance of the dunes has been slowed down at the treated sites. In many sites this advance was totally halted even reversed (Tichoutine site in Brakna and Ghoueisbou Site in Assaba).
Outcome 2.2: Increased vegetation cover in intervention zones	No baseline available before implementation	Increase of the average density per hectare by at least 10% in the participating village clusters until the end of the project with clear prospect of further increases)	Twenty-five protected areas of 25 to 50 ha totalling 1,000 ha have been created. In 2017, 2018 and 2019, tree plantations and pastoral improvements were carried out, planting some 280,000 local plant species. 37 perimeters of firewood plantations have been established on more than 460 ha.995 ha were mechanically and biologically fixed on 36 sites as part of the sand dune fixation activity.

[21] PARSACC Final Evaluation Report

Outcome	Baseline	End of project target	Actual project achievements at Final Evaluation (Sept. 2019)
			All these plantations were carried out with an average density of 400 plants per hectare, increasing the density of vegetation by more than 10% compared to the baseline situation.
Outcome 2.3: Decreased loss of water and soil through surface run-off	There are only few – if any – water retention structures functioning in areas to be selected	Area where days of water availability has increased with at least 20%	440 ha of degraded lands have been restored, increasing sub-soil water availability and agriculture lands.
Outcome 3.1: Increased number of sources of income for participating households	Livelihood bases are hardly diversified	At least 25% of village cluster population have increased their livelihood bases with new sources of income	New IGAs have been introduced in many project sites: • High value crop production, in 52% of total project sites • Poultry, in 55% of total project sites • Beekeeping, in 9% of total project sites • Fruit farming, in 21% of total project sites • Manufacturing improved stoves, in more than 70% of project sites • Butchers, in 26% of total project sites • Bakeries, in 7% of total project sites • Community shops, in 40% of total project sites • Vegetable marketing unit, in 1% of total project sites • Couscous production units, in 11% of total project sites • Sewing units, in 2% of total project sites • Fattening units for small ruminants, in 4% of total project sites • Livestock feed stores, in 2% of total project sites • Grain mills, in 16% of total project sites • Dyeing units, in 5% of total project sites
Outcome 3.2: Increased income for participating households	Participating households are among the poorest in the selected area	Participating households have increased their revenues by at least 40%	The assessment carried out after the 2017 market gardening season showed that each cooperative recorded an average net profit of 305 000 MRO (866 USD).
Outcome 3.3: Increased availability of and access to food for participating communities	Participating households have the greatest food gap in the selected areas.	Participating households have decreased their food gap by at least 50%	The evaluation carried out after the 2017 market gardening season showed that each cooperative produced an average of 1400 kg, of which 350 kg were consumed locally or were preserved, resulting in a longer availability of food.

The project's exit strategy made several recommendations, which are summarized in the table below.

Table 2. Recommendations from the exit strategy.[22]

Theme	Key Points
Project Continuation and Expansion	Launch a second phase to build on previous success, focused on capitalizing on and consolidating achievements. The second phase will broadly take up the areas of intervention of the project and its approach by consolidating them in the beneficiary areas and broadening the scope of intervention to other communities and regions.
Climate Resilience in Agriculture	Focus the second phase of the project on reducing vulnerability through: 1. Improved water management 2. Better cultivation techniques 3. Enhanced storage and stocks 4. Economic diversification and market access
Marketing and Empowerment	Develop a marketing plan to increase sales of garden produce, improve income, and economically empower women.
Support Allocation Based on Needs	Align support (e.g., garden size, equipment) with the number of beneficiaries to enhance motivation and productivity.
Institutional Coordination	Strengthen involvement of DREDD heads and coordinate closely with technical services in agriculture, livestock, and water.
Women's Leadership Development	Train women's cooperatives in leadership, negotiation, and income-generating activities, and promote peer learning.
Decentralization and Local Partnerships	Reinforce local partnerships and decentralized planning to align development and climate resilience strategies.
Knowledge Sharing and Scaling Up	Develop a communications strategy to disseminate technical and methodological achievements and facilitate scale-up through media partnerships.

These recommendations were not meant to be implemented by the end of the project. Instead, they relied essentially on the implementation of a Phase 2 of PARSACC. The expectation was for an additional amount of USD 2 million to be mobilized from the Adaptation Fund. Unfortunately, this additional funding did not materialize.

[22] Selmane M. L. (2019). Évaluation d'impact des actions d'adaptation au changement climatique et préparation de la stratégie de sortie du projet PARSACC.

2. OBJECTIVE AND SCOPE OF THE EVALUATION

The AF defines Ex Post evaluation as an "evaluation to assess longer-term impact, sustainability, and learning taking place three to five years after closure of Fund-financed projects".[23].

Aligned with this definition, the objective of this ex-post evaluation is to evaluate the sustainability and impact of the "Enhancing Resilience of Communities to the Adverse Effects of Climate Change on Food Security in Mauritania" project 5 years post-closure. Specifically, and as per the Terms of Reference, this evaluation seeks three purposes, namely to:

1. Assess changes in the project outcomes from the time of the final evaluation in 2019 to now (5 years since closure).
2. Identify conditions that contributed to sustaining the project's adaptation outcomes over time.
3. Analyze ways through which the sustained outcomes are contributing to the system's adaptive capacity and resilience.

These three objectives guided the data collection which was structured around them. The following table presents the key evaluation questions that guided data collection. The evaluation matrix (Annex 8.5) provides more detailed information about data sources and methods used to address each question.

Table 3. Evaluation questions

Scope	Evaluation questions
Sustainability of outcomes	1. Have the project's outcomes been sustained since completion? 2. How well have sustainability ratings (projected) been actual? 3. Are the project's planned outcomes still desirable? 4. Have any unintended (positive or negative) outcomes emerged?
Factors influencing sustainability	1. Have there been any changes in the conditions of the human or natural systems at the project site since project completion that have affected the sustainability of the project results? 2. Were the project's sustainability plan and/or exit strategy and the final evaluation's recommendations for promoting the sustainability of the project's results effectively implemented? How has the implementation (or lack of implementation) of these strategies affected the sustainability of the project results? 3. How have the following conditions for sustainability evolved since project completion? • Stakeholders' ownership of project outcomes and interventions. • Stakeholders' capacities • Partnerships between stakeholders. • Availability of financial and tangible and intangible resources.

[23] AF, 2022. Evaluation Policy of the Adaptation Fund.

Pathways to system's resilience	1. How do the sustained outcome characteristics contribute to the system's resilience? • Have the sustained adaptation outcomes contributed to increasing the speed of (human) responsiveness to climate disturbances? • Have sustained adaptation outcomes contributed to the restoration of a sufficiently large landscape to restore/maintain ecosystem services? • Have sustained adaptation outcomes contributed to the construction of infrastructure of sufficient scale to protect beneficiaries from climate disturbance? • Have the sustained adaptation outcomes contributed to increasing the availability of resources, means or options, or created new ones to support resilience to climate risks? • Have the sustained adaptation outcomes widened/deepened the variety of actors working/interacting towards common goals? • To what extent have the sustained adaptation outcomes contributed to enhanced equity and inclusiveness? • How have the sustained adaptation outcomes contributed to increasing the system's agility to respond to uncertainty and emerging challenges and opportunities? • How have the sustained adaptation outcomes contributed to supporting communication, information access and partnership to respond or adapt to shocks and stressors?

To answer these questions, the Evaluation Team analyzed data regarding the period spanning from September 2019, which is when the project came to an end, and February 2025, which corresponds to the end of the Ex-Post Evaluation process data collection. The evaluation covered all nine project outcomes and analyzed project sustainability and contribution to resilience in three intervention sites, namely Kewalla (Assaba), Moyasser 2 (Trarza) and Dionaba (Brakna), determined based on sampling criteria (see section 3.2.3) and with the WFP and AF-TERG's validation.

3. EVALUATION METHODS

3.1. Phasing of the mandate

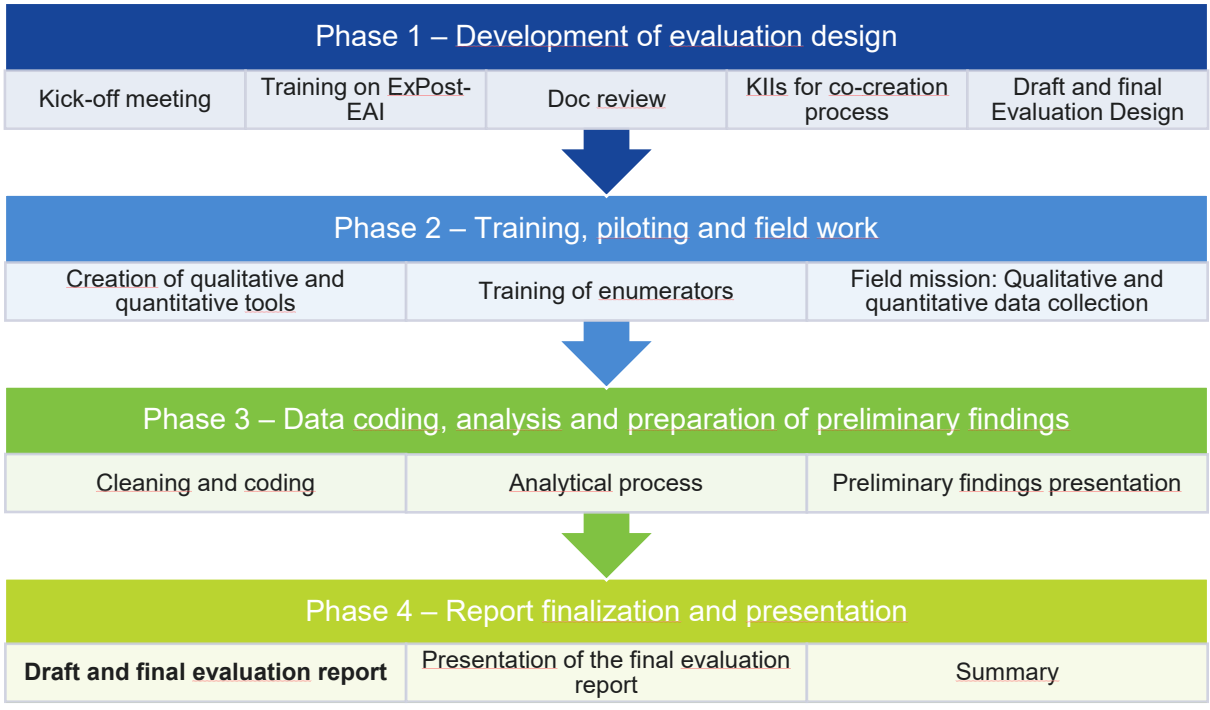
This Ex Post evaluation started in September 2024 with a series of meetings to frame the evaluation and to discuss the Ex Post methodology. The design phase extended until January 2025 and included desk review, key informant interviews (KIIs, see list in Annex 7.1), and the development of an evaluation design that comprised an extensive analysis of sustainability assumptions, factors and potential contributions to resilience as well as sampling of project sites to visit.

The data collection took place in February 2025 and comprised both a qualitative data collection mission (February 7 to 15) and a quantitative data collection mission (February 20 to 27).

Data analysis included cleaning up and organizing collected data, producing an internal quantitative analysis report and extracting preliminary findings by site and then drawing more general trends. Comments received on the presentation were incorporated in the draft report.

The draft report was reviewed by AF-TERG and WFP before being finalized. The overall process is summarized in Figure 3.

Figure 3. Overview of Ex Post evaluation phases



3.2. Field work summary

Extensive fieldwork was conducted to complement the deskwork analysis. This fieldwork focused on a sample of three project sites/villages selected from the list of 85 sites where the project conducted its activities. Each project site was visited twice as part of this evaluation. The first time involved qualitative data collection, while the second focused on quantitative data collection.

3.2.1. Key data sources

During the field work, data sources included both individuals from the communities visited and representatives from key organizations. The full list of stakeholders interviewed is available in Annex 7.1.

As informants (including partners):

- Environmental NGOs involved in delivering support both to DREDD and to communities
- National and regional radios, specifically for Outcome 1.2
- Village chiefs, and key village women representative
- Former project staff not interviewed during Design phase, MEDD representatives and partners (National Meteorological Office)

As direct project beneficiaries:

- DREDD delegates and their technical staff
- Village management committees (VMC) and other associations overseeing/leading environmental work within communities, and key women representatives within these committees / associations
- Cooperatives and associations directly involved in project activities
- Individual project beneficiaries (both men and women).

3.2.2. Methods and tools

The methods to explore continued adaptation benefits during the field work included:

Key informant interviews (KII): Semi-structured interviews were conducted with individual respondents from institutions, such as with DREDD directors. The systematic use of a semi-structured questionnaire ensures consistency in comparison of responses, while providing flexibility to dig into specific topics of relevance for each interviewee.

Focus group discussions (FGD): FGDs were prioritized for meetings with communities. FGDs' approach was also semi-structured, but given the larger number of participants (between 5-7 people), the number of questions was limited.

Direct observation and transect walks: During the qualitative field work, the evaluation team visited the sites of key activities in each village. Project assets were documented visually (pictures) and GPS location was noted. Where relevant satellite images are available, these were used to validate data on the state of project assets. Direct observation followed a checklist to ensure key aspects were

covered in each site. In addition, transect walks enabled the evaluators to visit areas of the village that may not have been covered by the project, to obtain a more complete understanding of the context. These walks were guided by community members to provide complementary information. These were also valuable opportunities to meet with community members that may not have initially been invited to meet the evaluation team. They enabled more informal conversations to take place.

Quantitative surveys: The national evaluator then returned to project villages for quantitative data collection, along with three to four enumerators. Small groups of two or more enumerators spent 2-3 days in each village conducting the surveys. See Section 3.2.3 for more information on the sampling methodology and Section 3.2.4 for an overview of the sample of respondents and of the survey questions. Data was collected using KoboCollect and then transcribed into SPSS, to generate datasets.

Evaluation matrix: Annex 0 includes the evaluation matrix, which provides a breakdown of questions per stakeholder. An additional table summarizes the main sources used for each outcome. The draft interview/FDG protocols (Annex 7.9) introduce main questions asked.

3.2.3. Sampling approach

Sampling of fieldwork sites

To select the three sites to be targeted as part of the evaluation, the Ex Post Evaluation team used a purposive sampling method.[24] The data used for this sample came from the PARSACC Project Monitoring Tool, which provides information about activities and training for each of the 85 sites covered by the project.

A **preliminary sampling process** led to the development of a shortlist of 18 project sites in four Wilayas (presented in Annex 7.7). These were selected by applying the following criteria:

1) **Safety:** Exclusion of sites located in “high risk areas” according to the United Nations Department of Safety and Security (UNDSS). High risk areas are those close to the borders of Mali, in the West and South-West of the country. This led to the exclusion of three Wilayas (due to the high risk involved for teams travelling to the field (Hodh El Chargui, Hodh El Gharbi, and Tagant).
2) **Number and diversity of assets supported.** The main activities were organized in categories and sub-categories (types of activities) and points allocated to each type of activity. The sample selected included a minimum number of activities per category, thus ensuring a rich learning opportunity. All villages selected had access to training and had established forms of management committees at the end of the project, two key factors in ensuring sustainability.
3) **Accessibility:** Given the size of the country, the sites selected are located within 750 km from Nouakchott, to ensure data collection can take place efficiently.

From this shortlist, a final sampling was conducted to select the specific sites to be visited which considered the following criteria:

[24] Given the limited number of sites and the large number of selection criteria to consider, random sampling could not be applied as initially planned.

- Mandatory criteria:
    1) Coverage of all project outcomes across the different sites, except for Outcome 2.3 (see Box 1 below).
    2) Only 1 site per wilaya, to ensure geographic diversity
- Preference criteria:
    1) Sites that cover more outcomes were preferred, to ensure that outcome results can be tested in more than one site (except for Outcome 2.3).
    2) The median population of the sample should resemble the median population of the total of project sites, that is 1500 people.
    3) Sites with ethnic minorities (Black Moors, Peuls) were preferred over sites with less vulnerable ethnic groups (White Moors, Soninkés).
    4) Avoiding sites that have benefitted from other projects at the same time as PARSACC.
    5) One of the sites should be in Assaba or Guidimakha, as these wilayas also benefitted from the DIMS[25] project, to enable testing the sustainability factors for Outcome 1.1 in the presence and absence of continued capacity support.

The final selection of sites is presented in Table 3. In addition to fulfilling mandatory criteria, this sample has a great coverage of project outcomes and targets most vulnerable populations, including a Peul village.

Table 4. Site selection

Wilaya	Moughataa	Commune	Village	Population	Ethnic group	Distance from Nouakchott (km)	Presence of other projects	Previously covered
Brakna	Maghtaa lahjar	Dionaba	Dionaba	2700	Moors	370		No
Trarza	Mederdra	Mederdra	Moyasser 2	816	Moors	180	WFP	Final Evaluation
Assaba	Kankossa	Blajmil	Kewalla	900	Peuls	750		No

In addition, a short visit to Leweinatt (Guidimakha) was organized to validate the sustainability of water retention infrastructure (see Box 1).

Box 1. Sampling for validating Outcome 2.3: Decreased loss of water and soil through surface run-off

Activities under Outcome 2.3 were implemented only in 11 sites out of 85. Including any of them in the sampling criteria proved incompatible with the other preference criteria. Most sites with these activities did not include sufficient other activities to be considered as part of the shortlist. Those that were did not align with the preference criteria, and did not allow for a high-quality sample of three sites to be selected.

For this reason, the selection of project sites did not include Outcome 2.3 activities. However, following the selection of the three sites, a site with water retention activities was identified near one of the selected sites. Leweinatt (Guidimakha) was visited as part of the testing of the qualitative data collection tools. Infrastructure was visited and interviews / focus groups were held to inform the analysis on this outcome.

[25] The project "Development of an improved and innovative management system for sustainable livelihoods resilient to climate change in Mauritania" (DIMS) was implemented by UNEP and executed by the MEDD between 2017 and 2023. More information here.

Sampling for quantitative analysis

Sampling for the quantitative analysis followed the following steps:

1) Calculation of the sample size
2) Proportional sampling by site: required the reconstruction of project beneficiaries lists per site
3) Survey step (*pas de sondage*) method

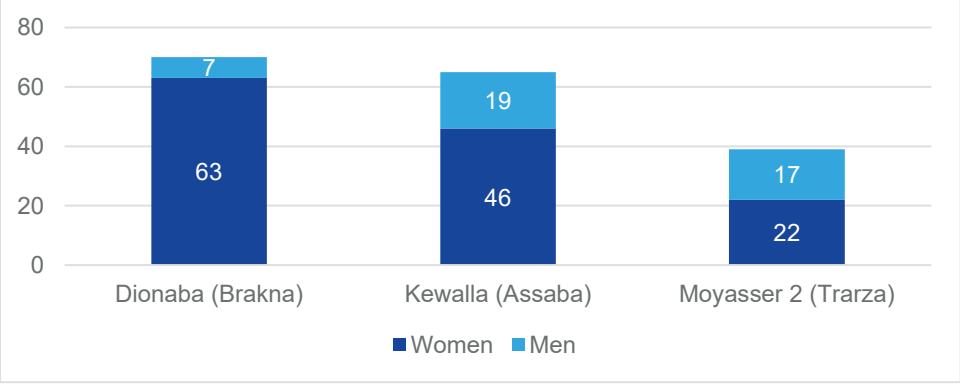
3.2.4. Data collection summary

The qualitative data collection phase was conducted from February 7th to February 18th, 2025. All three selected villages were visited, as well as Leweinatt to assess the sustainability of Outcome 2.3. The interviews included two DREDDs, three supporting NGOs and institutional stakeholders in Nouakchott. See Annex 7.1 for the complete list of interviewees.

The quantitative data collection phase was held right after from February 21st to February 27th. All three selected sites were visited once again. Among 192 former project beneficiaries that were identified based on lists reconstructed by the villages, 174 responded to the quantitative survey.

In total, 70 former project beneficiaries responded to the survey in Dionaba, 65 in Kewalla and 39 in Moyasser 2. Respondents are mainly women (75% on average), with notable variations between wilayas (71% in Assaba, 90% in Brakna). In terms of marital status, a majority of respondents are in monogamous marriages (79%). This is particularly high in Assaba (89%), while polygamous marriages are in the minority, representing only 2% overall. In terms of age, the over-50s are the most represented (33% on average), especially in Trarza where they account for 41% of respondents, followed by Brakna with 37%. Relatively young heads of household (aged 20-35) are also well represented (33% in Brakna and 28% overall). Finally, single and divorced people account for 6% and 4% of all respondents respectively.

Figure 4. Number and gender of survey respondents in visited project sites.[26]



The survey was comprised of seven sections:

- Section 1: General information

[26] Survey conducted for this evaluation

- Section 2: IGAs (including questions on the continued practice of the IGA, its perceived benefits (economic, food security, resilience), and perceived climate-related threats to the activity. The questions were filtered according to respondent's involvement in each IGA.
- Section3: Vegetation cover (including questions on the continuation of the activity, perceived benefits and perceived climate threats.
- Section 4: Dune stabilization (including questions on the continuation of the activity and perceived resilience benefits).
- Section 5: Improved cookstoves (including questions on fuel sources and uses, on access to and use of improved cookstoves and on perceived advantages/constraints to their use).
- Section 6: Climate risks (including questions on access to information about climate shocks and responses to shocks)
- Section 7: Resilience and food security (including questions on changes in sources of income and access to food).

3.3. Limitations and mitigation measures

Table 5 summarizes the main evaluation limitations and the measures implemented to address them.

Table 5. Limitations and mitigation measures.[27]

Limitations	Mitigation measures
Limited number of sites covered by the evaluation, which cannot allow for representativity of evaluation findings considering the total number of sites covered by PARSACC	• Adoption of a case study approach • Rigorous and learning-focused sampling process • Covered all project outcomes
Lack of adequate reference/baseline information from the end of the project	Adjustment of sampling methodology to focus on outputs rather than achievements
Limited presence of other projects at site level to test the effects of subsequent projects supporting the continuation of activities in PARSACC project sites	Consideration of this element in the sampling methodology: preference criteria included one site in either Assaba or Guidimakha, two wilayas that were covered by the project DIMS. This was relevant for analysis regarding Component 1 (especially Outcome 1.1). One site with additional interventions was also selected.
Limited ethnic representativeness of the PARSACC project sites	Inclusion of presence of ethnic minorities as a preference criteria in the sampling methodology
Water retention activities (Outcome 2.3) were only conducted in a total of 10 sites out of 85	Water retention activities were covered through a detour to Leweinatt during the qualitative data collection.

[27] Developed by evaluation team.

4. FINDINGS

4.1. Have the project outcomes been sustained since completion and what factors have contributed to their sustainability?

This section analyzes the sustainability of PARSACC's outcomes as well as the reasons underpinning this sustainability.

The analysis on whether outcomes were sustained will address the following questions for each of the project's outcomes:

1. Have the project's outcomes been sustained since completion?
2. How well have sustainability ratings (projected) been actual?
3. Are the project's planned outcomes still desirable?
4. Have any unintended (positive or negative) outcomes emerged?

The focus is on determining which activities that were successful by the end of the project are still operational today, and what benefits they are generating, whether intended or unintended. The activities that were not successful by the end of the project are briefly mentioned, but their analysis is out of the scope of this Ex Post evaluation. More detailed information on each outcome is available in Annex 7.3.

This sustainability is then analyzed according to four factors:

- **Ownership.** The extent to which individuals and organizations adopted and kept ownership of the project activities and results since the final evaluation, thus contributing to sustaining the adaptation benefits beyond project completion.
- **Capacities.** People, groups and/or organizations that obtained, improved or retained skills and knowledge that support adaptation benefits derived from the project. This may include improving the strength and effectiveness of governance structures, laws, and institutions at the local, regional, national, transnational, and international levels.
- **Partnerships.** Collaboration among and between different stakeholders (government, private sector, new donors, communities), incl. through resources and information exchange, that contributes to sustaining adaptation benefits
- **Resources/assets.** This may include:
    i. Tangible resources or physical capital, such as infrastructure, properties, equipment, and inventory.
    ii. Intangible resources, such as climate information and early warning systems, knowledge products, etc.
    iii. Financial resources: such as implemented policies to help ensure sustained funding, funding sources available to support the continuation of interventions, development of

new intervention or supporting the expansion of financial market products, such as weather derivatives or catastrophe bonds, insurance for climate-related risks.[28]

The analysis of sustainability factors builds on the preliminary analysis undertaken in the evaluation design phase, which relied on desk review and preliminary interviews to draw hypotheses on the factors that may have influenced the sustainability of each project outcome since the end of the project. The data collected during field visits and additional interviews is used to test these hypothesis.

This analysis takes into consideration the recommendations formulated in the project's exit strategy. It also considers the fact that a second phase of PARSACC was planned but did not materialize (See section 1.3.4).

It should be noted that due to the limited number of project sites visited, this analysis may not be generalized to the entire project, and remains highly contextual.

4.1.1. Component 1: Support technical services and the communities they serve to (a) better understand climate risks, their impact on livelihoods and food security; and (b) facilitate participatory decentralized adaptation planning.

4.1.1.1. Outcome 1.1. Strengthened awareness, ownership and facilitation capacities of government services

DREDD capacities to support communities on climate change adaptation have not been sustained, but some awareness remains. NGOs have become empowered to support communities.

Outcome delivered: Eight DREDD led, participated in and supervised the implementation of 85 climate change adaptation action plans in 85 villages in the project area, with the support of NGOs.[29]
Description: DREDD's capacities have been strengthened through training. Work equipment and vehicles were provided. The project also set the groundwork for the establishment of an early warning system (EWS) at the community level by initiating a process to develop a partnership framework between producers of information and broadcasters.[30] At the end of the project, the Coordination Unit of the National Program on Climate Change (CCPNCC), under the MEDD, was formalizing this framework partnership agreement. [31]

Interviews with two DREDD and with other MEDD representatives emphasized that, while support received made a significant difference for DREDDs at the time, especially in terms of equipment and training, its sustainability has been very limited. Awareness and knowledge about climate change remains within DREDDs, but support to PARSACC communities on adaptation planning has, for the most part, not continued after the end of the project. One instance of continued support from DREDDs to communities was identified in Kewalla, where the MEDD has supported the institutionalization of

[28] AF-TERG (2024). Approach to Evaluating Adaptation Projects Ex Post: The Sustainability Framework for the Ex Post Evaluation of Adaptation Interventions (ExPost-EAI)
[29] Saadani, Y., Lemine, M. (2019). Final Project Evaluation Report – PARSACC.
[30] Saadani, Y., Lemine, M. (2019). Final Project Evaluation Report – PARSACC.
[31] PARSACC PPR 5 (Final) June 2020.

the VMC (see Section 4.1.1.2 for more on this). DREDDs have supported climate change interventions through other projects.

On the other hand, interviews with NGOs and government representatives indicate the NGOs involved as partners to implement project activities and who benefitted from project trainings have retained their capacities and even leveraged them in subsequent work. Their experience and capacities have enabled them to work with other organizations to continue providing climate change adaptation support – including through the DIMS project. An NGO interviewed, which supports communities on natural resources management and livelihoods, even mentioned its organization now systematically integrates climate change adaptation considerations in all its interventions. An online search shows this NGO has also been involved in further climate resilience interventions in recent years with FAO and the Global Climate Change Alliance. ***This can be considered as an unexpected project outcome.***

With regards to support for the establishment of an EWS, no evidence could be found that the partnership was formalized, and this did not evolve into the expected community EWS. At the national level, government representatives interviewed confirmed there is no national EWS that disseminates information to communities. Quarterly projections are shared with a pre-established set of stakeholders and partners of the National Meteorology Office. No stakeholder to discuss this topic could be identified within Radio Mauritania. Locally, no evidence of formal EWS could be found in the three project sites, either through interviews with DREDDs or with communities.

Nonetheless, 56% of survey respondents stated having had previous knowledge of a climate shock in the last 5 years, and among those, 43% were informed by radio, 21% through social networks, 19% through word-of-mouth, 8% through their own observation and 5% through television. While it is not possible to link this result to the PARSACC activities, this finding confirms the continued relevance of radio as a means for sharing climate information, but also an opportunity to leverage social networks to that end.

According to the project's impact assessment and exit strategy, sustainability was supported by the project's empowerment of regional institutions throughout the project, from the definition of activities to their implementation. However, it noted key technical staff required to ensure continuity was insufficiently involved.[32] Preliminary interviews indicated **ownership** was low within the Ministry, including the DREDDs. The limited ownership of the DREDDs was confirmed through interviews conducted during field visits. In the absence of specific projects, there is limited drive within DREDDs for undertaking initiatives that support communities with their climate change adaptation efforts.

According to two interviewees, PARSACC was the first project to provide significant support to strengthen DREDDs **capacities**, both in terms of knowledge and equipment. The difficulty in retaining technical capacities was confirmed during interviews and is driven by high turnover rates which are common practice within the ministry. Both DREDDs delegates interviewed had been posted in different wilayas during the project implementation, and while they had retained knowledge about climate change, they had no information about what PARSACC had achieved in their new posting and whether it had been sustained. Institutionally, the role of DREDDs in supporting community adaptation seems unclear, with responsibilities regarding environmental monitoring but likely not on community

[32] Selmane M. L. (2019). Évaluation d'impact des actions d'adaptation au changement climatique et préparation de la stratégie de sortie du projet PARSACC.

adaptation planning. Knowledge retention was supported by the subsequent intervention of other projects, such as DIMS which took over some of the support to DREDDs in four wilayas, including in Assaba. However, personnel rotation and the small sample of DREDDs interviewed makes it difficult to conclude on its influence on DREDD's ownership and capacities.

This **partnership** with DIMS as well as other interventions, including FAO interventions as well as the Great Green Wall Initiative were also mentioned as enabling DREDDs support to communities for climate change adaptation. However, on their own, the DREDDs do not have the financial **resources** to provide support to communities on adaptation planning. The Ex Post Evaluation team could not ascertain whether funding to support the institutionalization of the Kewalla VMC came ultimately from MEDD or from another project/partner. NGOs who were project partners have strong ownership and technical capacities to be valuable partners for DREDDs and development partners in promoting community adaptation and also potentially have a stronger institutional incentive to continue to offer that service and build on those capacities to ensure their long-term sustainability as both institutions and staffed professionals are working on the project area.

Availability of resources to support prolonged government services to the targeted beneficiaries after PARSACC's end, or the continued incentive to market such services to ensure organizational growth and/or survival (in the case of NGOs) appear as key factors in promoting sustained action at this level in the communities.

4.1.1.2. Outcome 1.2. Strengthened awareness, ownership, planning and management capacities at community level

While some level of awareness about climate change has been maintained across visited project communities, they have not continued to plan for adaptation. However, one of the VMCs created by the project is building its capacity to sustainably manage its natural resources.

Outcome delivered: The communities of 85 villages have actively participated in the elaboration of climate change adaptation action plans, including the identification and prioritization of adaptation options. Most of these plans were reviewed and updated by NGOs with the participation of all targeted groups (man, women and young beneficiaries). [33]
Description: The project supported village associations where they existed or created VMC to support the planning and implementation of project activities and longer-term sustainable management of natural resources. It delivered an awareness raising program through the DREDDs, NGOs and radio broadcasts, and supported the preparation of adaptation action plans. [34]

Interviews with NGOs and the former project team confirmed that adaptation action plans were specifically designed for the duration of the project, and were not meant to be implemented or renewed by communities after the end of the project. As a result, they are now obsolete. Nonetheless, focus group discussions indicate communities have retained some awareness about climate change challenges and how they affect them.

[33] Saadani, Y., Lemine, M. (2019). Final Project Evaluation Report – PARSACC.
[34] Saadani, Y., Lemine, M. (2019). Final Project Evaluation Report – PARSACC.

Across the three project sites sampled, women's cooperatives remained active and strong, as evidenced by the continuation of women-led IGAs (further discussed in subsequent sections). However, the functionality of VMCs varied from site to site. In Kewalla, institutional stakeholders indicated that the VMC is in the process of being formalized into an Association for the Collective Local Management of Natural Resources (AGLC). As part of a decentralization process for natural resource management, these associations obtain the responsibility to manage a defined sylvo-pastoral area and receive support from DREDDs and the government to do so.[35] In the case of Kewalla, the NGO AGE has been supporting this process, with funding from the MEDD. On the other hand, in Moyasser 2 its existence has become only theoretical, while it is no longer operational in Dionaba.

Project implementation strengthened community awareness on climate change and engaged communities in planning for adaptation. Today, some of this awareness remains, but there is no clear capacity to identify and plan for new adaptation measures, hindering **ownership**. Efforts focus more on operating current activities that generate immediate/short-term benefits (more on this in following sections). The **capacities** of VCMs and women's cooperatives enable these activities to continue generating benefits, supported by **ownership**. While women's cooperatives remain strong in all three sites, this capacity is variable across sites for VCMs.

Communities do not receive support from DREDDs to continue their activities (**partnerships**) (see discussion on Outcome 1.1 in Section 4.1.1.1). Only in Kewalla is the VCM receiving support to go through its process to become an AGLC. In the absence of subsequent initiatives in project sites, NGOs have not been providing additional support either to these communities. Community financial resources also remain limited to operating their specific activities (**resources**).

Any sustainability on this outcome depends on the strength of local organizational capacities. This is strong for women's cooperatives in the three sites, and variable for VMCs. Awareness about climate change remains, but capacity to plan adaptation activities is not present.

4.1.1.3. Outcome 1.3: National ecologic monitoring system strengthened and tested

The activities related to the national ecologic monitoring system have not been sustained, neither have related benefits.

Outcome delivered: DREDDs have been trained in this system and regularly contribute to providing it with the necessary data, including those from the project's intervention areas.[36]
Description: The Monitoring System for the Second National Environmental Action Plan (PANE II) had been set up in 2014 by the MEDD with GIZ support. It aimed to provide monitoring data to the MEDD about ecological conditions (sand dune fixation areas, wood-fuel plantation areas and the protected grazing areas). The project provided training on its use and developed monitoring guides. It also organized data collection missions with the DREDDs on project sites, to contribute to the national monitoring system.[37]

Interviews with national and local institutions confirmed that activities pertaining to the operation of this monitoring system ended at the end of the project. It is unclear whether there was an expectation of

[35] For more information on AGLCs see : https://rim-rural.org/2019/05/09/gelse-se-concerter-les-associations-de-gestion-locale-collective-aglc/ (in French).
[36] Saadani, Y., Lemine, M. (2019). Final Project Evaluation Report – PARSACC.
[37] Saadani, Y., Lemine, M. (2019). Final Project Evaluation Report – PARSACC.

sustainability for this activity. However, the system itself is no longer operational, and in the absence of continued operation of the monitoring system, it was not possible to continue generating related benefits.

Interviewees that remembered about the PANE II environmental system mentioned it had been supported solely by GIZ and expressed no sense of **ownership** towards it. The required operation of the system (supported by GIZ) is not in place (**partnerships/ resources**). There is no information about why the PANE II stopped functioning, as this was beyond the scope of this evaluation. Even though environmental monitoring is a key DREDD responsibility, in the absence of an operational system, DREDDs lack a framework to conduct such monitoring (**capacities and resources**).

None of the required sustainability factors were in place to sustain any related benefits.

4.1.2. Component 2: Design and implementation of concrete adaptation measures identified through community adaptation planning that aim to combat desertification and land degradation

4.1.2.1. Outcome 2.1: Advance of sand dunes slowed down, halted or reversed

There is evidence of dune stabilization in both project sites that implemented this activity, effectively protecting homes, buildings and/or agricultural land, but poor maintenance threatens future sustainability of related benefits.

Outcome delivered: With the process of mechanical and biological fixation of sand dunes covering 995 ha, the advance of the dunes has been slowed down at the treated sites. In many sites this advance was totally halted even reversed (Tichoutine site in Brakna and Ghoueisbou site in Assaba).[38]
Description: Dune stabilization was achieved through a combination of mechanical fixation that involved 707km of weaving, combined with biological fixation. It was implemented by communities through a food for assets (FFA) mechanism (cash incentives).[39]

Two of the three sites visited, namely Dionaba and Moyasser 2, had implemented dune stabilization activities. In both sites, there is evidence that dunes have been stabilized, and that buildings and land are protected from sand encroachment (Table 6).

Table 6. Status of dune stabilization activities in 2019 and in 2025 in visited sites.[40]

	Moyasser 2		Dionaba	
Activity	Operational in 2019	Sustained in 2025	Operational in 2019	Sustained in 2025
Dune fixation	■	■	■	■

[38] Saadani, Y., Lemine, M. (2019). Final Project Evaluation Report – PARSACC.
[39] Saadani, Y., Lemine, M. (2019). Final Project Evaluation Report – PARSACC.
[40] Based on direct observation, interviews and the PARSACC Monitoring Tool.

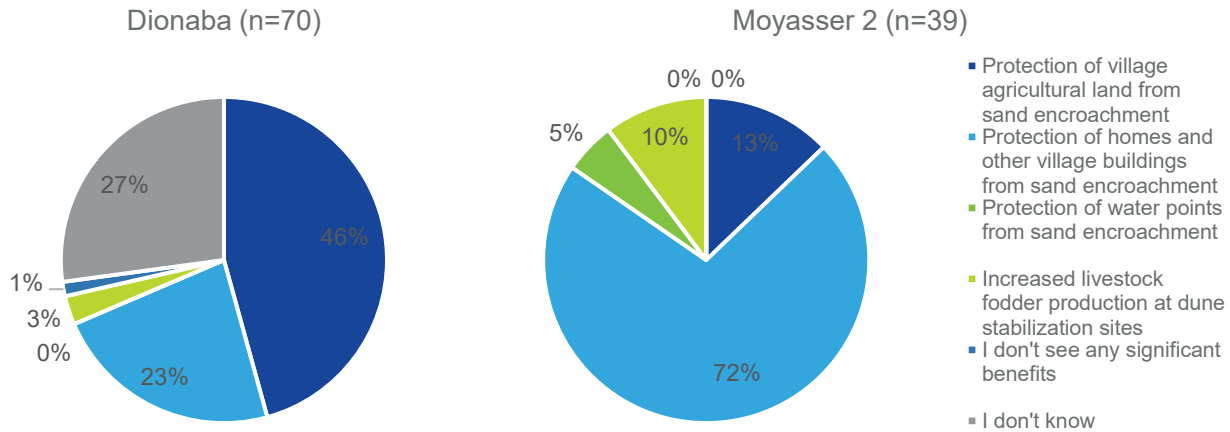
Legend: ■ Not operational / ■ Operational

Observation shows that although no mechanical fixations are visible, biological fixation/vegetation (mostly trees) has grown in these areas (Figure 5).

Figure 5. Dune stabilization in Moyasser 2 (left) and Dionaba (right)[41]

Overall, 40% of project participants report benefits in terms of protection of homes and other buildings and 34% report benefits in terms of protection of agricultural lands. Eighteen percent did not see any significant benefits (1%) or do not know (17%). There are, however, significant differences between the two project sites, partly due to the location of dune stabilization with regards to the village (Figure 6).

Figure 6. Perceived current benefits from dune stabilization activities in Dionaba and Moyasser[42]



[41] Photos taken in February 2025 by the evaluation team
[42] Survey conducted for Ex Post evaluation

Nonetheless, maintenance of infrastructure is lacking, and fences have been damaged (see Figure 5). In Moyasser 2, where 27% of respondents did not know about or see benefits from dune stabilization efforts, the effectiveness of protection is declining due to this lack of maintenance, threatening this outcome's sustainability in the medium term, as vegetation on dunes degrades. Similarly, in Dionaba, several survey respondents pointed out the decreased effectiveness of dune stabilization resulting from poor maintenance.

In both Dionaba and Moyasser 2, community engagement was initially a factor in the success of the activity, and while some awareness about its benefits remains, there is no evidence of community engagement to continue maintaining the infrastructure. In Dionaba, interviewees mentioned a clear decline in interest over time as the benefits took a long time to realize and did not directly generate income (**ownership**). Both communities still possess the relatively basic technical **capacities** required to maintain infrastructure, but organizational capacities are limited. In Dionaba, the committee established to support maintenance is no longer active; survey respondents point to an interruption of maintenance activities during COVID-19. In Moyasser 2, interviewees mentioned the existence of such a committee, but site visits show no evidence of maintenance activities on dunes. The existence of this committee is therefore theoretical.

In Dionaba, interviewees mentioned having adequate basic equipment to ensure maintenance. The lack of financial resources did not seem to be a constraint. The lack of maintenance could therefore be attributed more to a loss of ownership and organizational capacities. In Moyasser 2, the lack of funding to purchase equipment is perceived as a more important barrier, likely limiting maintenance despite a slightly better ownership and organizational capacities. Recent years of drought have also hampered natural regeneration, contributing to degradation of the vegetation in Moyasser 2 (**resources/assets**).

No **partnerships** have supported the continuation of these benefits.

Multiple interrelated factors have influenced the capacity of communities of Dionaba and Moyasser to maintain the dune stabilization sites. Favorable factors include some level of awareness about the benefits of activities and the basic technical skills required for maintenance. However, the limited perception of immediate benefits, challenges with organizational capacities, lack of financial resources for equipment and climate hazards have adversely affected the continuation of project benefits.

4.1.2.2. Outcome 2.2 Increased vegetation cover in intervention zones

Few vegetation cover activities were successful by the end of the project. Nonetheless, protected grazing areas and dune stabilization have resulted in increased vegetation cover in all three communities, leading to benefits such as increased fodder availability and controlled soil erosion. However, the sustainability of these benefits is threatened in two out of three sites.

Outcome delivered:

- 25 protected grazing areas of 25 to 50 ha totaling 1,000 ha have been created. In 2017, 2018 and 2019, tree plantations and pastoral improvements were carried out, planting some 280,000 local plant species.
- 37 perimeters of firewood plantations have been established on more than 460 ha.

- 995 ha were mechanically and biologically fixed on 36 sites as part of the sand dune fixation activity, increasing the vegetation cover in the targeted project communities.

These plantations were carried out with an average density of 400 plants per hectare, increasing the density of vegetation by more than 10% compared to the baseline situation.[43]

Description: In 2017, 2018 and 2019, pastoral improvements were made in the 25 areas protected by planting local species to restore vegetation and improve the forage balance of these reserves. This is important for these communities, especially during drought years when pastures are insufficient to cover livestock needs.

460 ha of collective land ranging from 5 to 10 ha were planted in 37 villages for fuelwood production, with the purpose of providing communities with a space where they can extract their firewood needs, thus preserving existing natural resources already weakened by over-exploitation and overgrazing.

Operating regulations have been elaborated and communities' representatives have been trained to ensure the sustainable management and exploitation of these areas by the VMCs. [44]

Several of the activities implemented during the project did not work in the project sites covered by this evaluation. Despite continued efforts in all three communities, none of the nurseries were functional by the end of the project (Table 8). However, over five years later, some outcomes in terms of vegetation cover are still in place, with significant differences across sites.

In Moyasser 2 and Dionaba, where wood fencing protected grazing, dune stabilization and fodder areas existed at the end of the project, some benefits have been maintained in terms of vegetation. In these areas, vegetation is visibly more abundant than outside the areas. This was less pronounced in Dionaba, where the fences no longer exist. In Kewalla, the establishment of two fenced areas for firewood production was the activity prioritized by the community[45] and implemented,[46] but they failed in producing additional and sustainable firewood for the community.[47] Instead, they currently produce fodder and serve as grazing areas during the lean season. They are managed by the VMC and maintenance is ensured through the levy of a small user fee which is used to pay for security guards and equipment to repair the fence. ***This unexpected outcome (emerging outcome) has been sustained and is likely to continue generating benefits.***

In the three project sites, craftsmen were trained to build improved cookstoves that consume significantly less firewood, both as an IGA and as part of the efforts to protect the vegetation cover. While the direct causality between this activity and any impacts on the forest cover cannot be established, in two out of three sites, these cookstoves are still widely used (Figure 7). On average, 47% of those who use one of these stoves received them from the PARSACC (respectively 22% in Dionaba and 72% in Moyasser 2), while 39% purchased it directly from the local craftsmen (49% in Dionaba and 28% in Moyasser 2)(Figure 8).

[43] PPR 5 (April 2020)
[44] PPR 5 (April 2020)
[45] APEP (2014). Plan d'action d'adaptation au changement climatique pour le village de Kewalla.
[46] PARSACC Project Monitoring Tool.
[47] A review of the action plan shows that the deterioration of grazing areas and the lack of fodder were adequately identified as climate change impacts threatening their livelihoods. Improving the management of grazing areas was also identified as a priority adaptation option. But it was translated into two adaptation actions: (1) protection of woody cover and (2) fighting bushfires. Protection of woody cover was then selected as the priority adaptation measure, leading to the activity « villlage wood » / firewood production.

Figure 7. Number of survey respondents currently using an improved cookstove

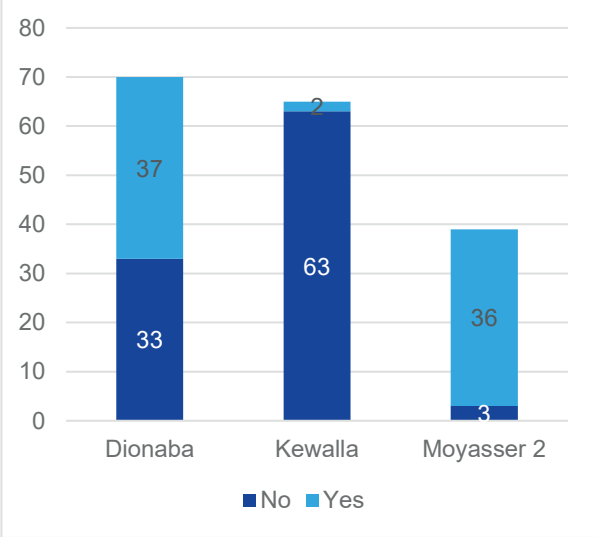
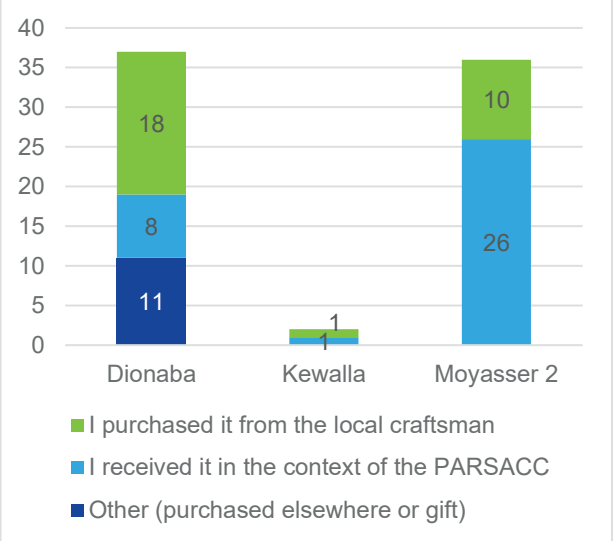


Figure 8. Among respondents who use an improved cookstove, means through which it was obtained



Among those that do not use an improved cookstove, 52% responded that they had one, but that it was damaged, 31% responded they are unable to purchase one and 17% say they simply did not receive one. However, Kewalla is in outlier in this analysis: while 141 improved cookstoves were distributed in Kewalla,[48] all but one have been reported as damaged in the survey and are no longer used, compromising any potential benefits.[49] Discussions with village leaders indicated that this may be related to the poor quality of the metal used to build them. Removing Kewalla from the equation yields the following reasons for not using an improved cookstoves (Table 7). None of the survey respondents considered "lack of benefits" as the reason for not using an improved cookstove.

Table 7. Reasons for not using an improved cookstove (excluding results from Kewalla)

	It is not longer functional	I would like to have one, but I cannot acquire one	I did not receive one	Other
Dionaba	6%	42%	42%	9%
Moyasser 2	67%	33%	0%	0%
Total	11%	42%	39%	8%

This data reflects a relatively good uptake of the improved cookstoves, with a continued use of the equipment and even direct investment in purchasing it. Yet, some segments of the population are either unable to acquire one or unwilling to make the investment.

[48] Consortium APEP/ODZASAM (2019). Progress report for April-May 2019.
[49] Survey conducted for Ex Post evaluation

Table 8. Status of vegetation cover activities in 2019 and in 2025 in visited sites.[50]

Activities	Kewalla		Moyasser 2		Dionaba	
	Operational in 2019	Sustained in 2025	Operational in 2019	Sustained in 2025	Operational in 2019	Sustained in 2025
Nursery	■	■	■	■	■	■
Wood fencing			■	■	■	■
Living hedge	■	■	■?	■	■	■
Pastoral improvement			■	■	■	■
Firewood production	■	■				
Improved stoves	■	■	■	■	■	■
Dune stabilization (outcome 2.1)			■	■	■	■

Legend: ■ Not operational / ■ Operational / ■ Partially operational / **?** Could not be validated / ■ Unexpected outcome

According to survey results, the most significant perceived benefits from the increased vegetation cover are an increased availability of fodder in Moyasser 2 and reduced soil erosion in Kewalla (Table 9). In all three sites, benefits in terms of fodder availability in quantity and quality were confirmed through interviews. In addition, during the site visit in Kewalla, community members explained how the location of the protected area enabled its vegetation to protect the village from wind erosion.

Table 9. Reported current benefits from increased vegetation cover.[51]

	Kewalla (n=65)	**Moyasser 2 (n=39)**
Increased availability of fodder	25%	82%
Controlled collection of fuelwood	31%	10%
Reduced soil erosion	75%	26%
Improved soil fertility	65%	21%
Maintained moisture	5%	0%
Windbreak that reduces the impact of storms	2%	8%
No benefit	2%	13%
Don't know	5%	3%

In Moyasser, 74% of project participants reported “slight” or “significant” decreases in expenditures related to the increased vegetation cover; this proportion increases to 92% in Kewalla. This is attributed to the decreased need to purchase fodder or feed for livestock. In Kewalla, where the population is traditionally nomadic and is currently in the process of sedentarization, transhumance is still a current practice when feed becomes unavailable locally. Interviews indicated that having more

[50] Based on direct observation, interviews and the PARSACC Monitoring Tool.
[51] Survey conducted for Ex Post evaluation

fodder available locally significantly decreases the costs (and constraints) related to transhumance, when it can be avoided.

However, lack of maintenance of fences has reduced fodder availability in Dionaba and is threatening future sustainability in Moyasser. While all three sites reported a drought in 2024, 98% of participants from Kewalla indicated that the benefits from this activity were not threatened by climate shocks in the last five years, against 85% of Moyasser's respondents who felt these benefits were threatened.

Figure 9. Protected grazing areas in Kewalla (left) and Moyasser 2 (right) [52]

The three sites present different scenarios. Ownership is very strong in Kewalla, supported by high levels of awareness about the benefits of increased fodder for feeding livestock. The community collectively invests in maintenance and security to ensure sustainability of these benefits. The abundance of fodder demonstrates a good level of technical capacities to maintain the sites. The VMC is actively ensuring maintenance. By charging a user fee, it collects funds to pay for security guards and fence repairs. The community also owns basic maintenance equipment.

In Moyasser, there are also good levels of awareness about grazing areas benefits, but these are not maintained. Despite focus groups respondents indicating that a VMC manages the site and that community is engaged in maintenance, there is no evidence of such maintenance, as the fences are highly degraded.

In Dionaba, in the absence of immediate benefits from protected grazing areas, ownership is also low. Furthermore, interviews indicated strong opposition to this activity from a village leader, who considers agriculture as a more important priority and seeks to reuse grazing areas fences for agriculture. As a result, there is no plan to maintain the grazing area.

It should be mentioned that the activity initially prioritized in Kewalla, the village wood, would have suffered from poor ownership. During interviews, there was no sign of interest from any interviewee for that activity. Furthermore, no mechanism was developed to manage the wooded area. Given that primary users of firewood are women, it would have required the involvement of women in its management. It is also unclear whether women would have had the capacity to maintain the site.

[52] Photos taken in February 2025 by the evaluation team

Awareness followed by organizational capacity are the main drivers of sustainability for these activities, which otherwise require limited technical skills and can be financially self-sustainable.

4.1.2.3. Outcome 2.3 Decreased loss of water and soil through surface run-off

The two stone cordons built in Leweinatt have effectively retained water in two sites, improving soil fertility downstream, but lack of maintenance has affected their continued effectiveness.

Outcome delivered: 440 ha of degraded lands have been restored, increasing sub-soil water availability and agriculture lands.
Description: 18 water retention structures were built in 6 villages in Guidimakha and 4 villages in Gorgol. The structures which are water retention dikes, filter dams and stony cordons, were entirely built by local population without heavy machinery, with only local tools and supervising technicians offered by the project. These water retention structures have restored and reclaimed approximately 440 ha of lands in which have been cultivated by the beneficiary communities since 2018.[53]

According to the community, the water retention dike built in Leweinatt was destroyed shortly after it was built, when the first rainstorm occurred, before the end of the project. On the other hand, the two stone cordons built were effective in retaining water, resulting in an increased soil fertility in the fields located downstream from the cordons. More abundant vegetation was observed in private and community fields downstream, and increased productivity was confirmed through interviews. However, this effectiveness is decreasing, as the cordons have not been maintained and are visibly damaged. A member of the community rated effectiveness at the end of the project as “10/10” and current effectiveness as “6/10”.

Table 10. Status of water retention activities in 2019 and 2025 in Leweinatt[54]

	Leweinatt	
Activity	Operational in 2019	Sustained in 2025
Stone cordons	■	■
Water retention dike	■	■
Legend: ■ Not operational / ■ Operational / ■ Partially operational		

[53] PPR 5 (April 2020)
[54] Based on direct observation, interviews and the PARSACC Monitoring Tool.

Figure 10. Water retention stone cordon in Leweinatt with protected grazing area in the background

In Leweinatt, the community has a relatively good awareness of the benefits of the stone cordons, which is favorable to **ownership**, but which has proven insufficient to translate into action to maintain this infrastructure. The technical capacities required for its maintenance are relatively low and costs limited,, however this maintenance requires some logistical and organizational **capacities** that the community does not have. Indeed, as a highly labor-intensive activity, maintenance would have required mobilizing many people for hard work (carrying rocks). Interviews on site indicated that despite the existence of a VMC, it had not been possible to organize the community to perform the heavy maintenance tasks required to maintain this infrastructure. No **partnerships** have supported the sustainability of this activity, and ultimately, no **resources** have been mobilized to maintain this infrastructure.

Organizational capacities in Leweinatt are insufficient to plan for high labor-intensive maintenance.

4.1.3. Component 3: Design and implement concrete adaptation measures identified through community adaptation planning that aim to diversify and strengthen the livelihoods of the most vulnerable population.

4.1.3.1. Outcome 3.1: Increased number of sources of income for participating households

Out of 12 IGAs operational in 2019, seven are still functioning: two butcher's shops, two community shops, improved cookstoves craftsmanship in two villages, and market gardening in one village.

Outcome delivered: New income-generating activities (IGAs) have been introduced in many project sites, which resulted in increased livelihood bases for 46% of project beneficiaries.[55]
Description: Multiple IGAs established

Based on the PARSACC Monitoring tool, there is evidence that most of the IGAs supported by the project in the three sites worked (Table 11). Only aviculture failed completely due to the species selected not being adapted to the harsh climatic conditions. Twelve IGAs were operational in these three sites in 2019. Five would be abandoned in subsequent years, three in Kewalla and one each in Dionaba and Moyasser 2. Reasons for abandoning them include:

- Market gardening: Difficulties linked to water access in both sites
- Grain mill: High costs of repairing the mill
- Arboriculture: Did not resist drought in Kewalla, and limited interest in Dionaba

In Dionaba, where market gardening is still functioning, women have developed new practices to enhance the resilience of their gardens. They use cloth to protect their crops from the sun and collect seeds from varieties that they find to be more resistant to local conditions for future use. **This is considered as an unexpected positive outcome.**

Table 11. Status of IGAs in 2019 and 2025[56]

Activities	Kewalla		Moyasser 2		Dionaba	
	Operational in 2019	Sustained in 2025	Operational in 2019	Sustained in 2025	Operational in 2019	Sustained in 2025
Market gardening (with investment in irrigation)	■	■	■	■	■	■
Butcher's shop	■	■	■	■		
Grain mill	■	■				
Arboriculture	■	■			■	■
Craftsmen for improved stoves	■	■	■	■	■?	■?
Traditional aviculture			■	■	■	■
Semi-intensive aviculture					■	■
Community shop			■	■	■	■

Legend: ■ Not operational / ■ Operational / ■ Partially operational / **?** Could not be validated

[55] PPR 5 (April 2020)
[56] Based on direct observation, interviews and the PARSACC Monitoring Tool.

Figure 11. IGAs in Kewalla and Dionaba

Butcher's shop in Kewalla (active)

Market gardening in Dionaba (active)

Grain mill in Kewalla (abandoned)

Aviculture in Dionaba (unsuccessful)

4.1.3.2. Outcome 3.2: Increased income for participating households

96% of participants still engaged in IGAs are reporting an increase in income as a result of the activity. However, the number of active IGAs and of participants has decreased since the end of the project.

Outcome delivered: The survey conducted for the final evaluation shows that vegetable production has increased significantly compared to the past. Production is used for both domestic consumption and the sale of surpluses.[57]
Description: • FFA cash has improved the living conditions of almost 88% of people who were involved. • 70% of households involved in market gardening activities use their produce (market gardening) for both food and income purposes. 79% of them declared increased income and purchasing power from market gardening.

[57] PPR 5 (April 2020).

- 29.1% of survey respondents noted an increase in income thanks to IGAs, while 58% did not. 62.5% observed collective positive effects of IGAs on the economic situation of the whole community.
- 91% stated that the cost of water had fallen as a result of the project's new facilities.[58]

Most IGA participants are women, except for improved stoves craftsmanship which is mostly practiced by men. The high involvement of women in butcher's shops is a novelty, as this activity is typically practiced by men. This was achieved by supporting a model where male butchers are hired to perform tasks not deemed suitable for women (such as purchase of livestock and slaughter) while women manage the meat and sales.

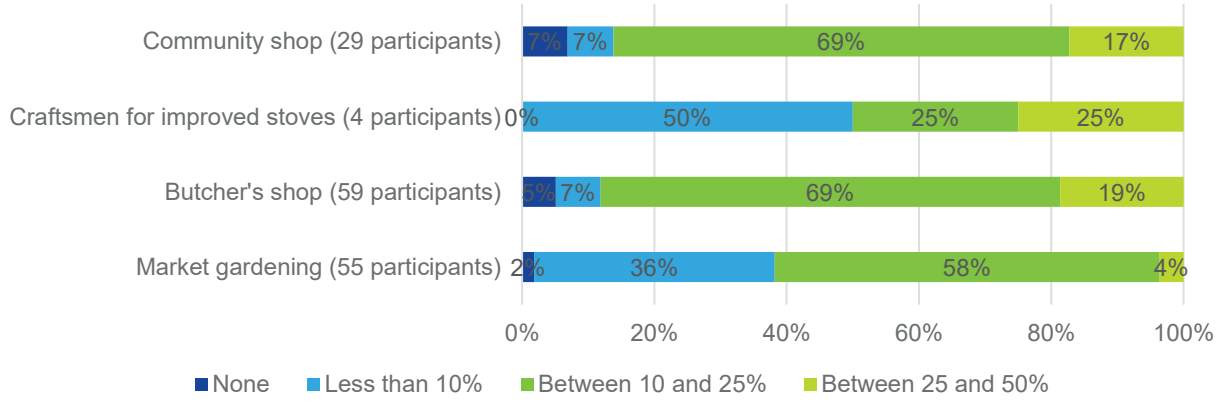
Across all currently active IGAs, participants report income increases resulting from the practice of this activity (Table 12).

Table 12. IGA participants reporting income increases from currently active IGAs across the three project sites visited.[59].

Type of IGA	Number of participants		Proportion of participants reporting income increases
	Women	Men	
Market gardening	54	1	98%
Butcher's shop	48	11	95%
Craftsmen for improved stoves	1	3	100%
Community shop	23	6	93%
Total active IGAs	**126**	**21**	**96%**

The contribution to participant's income varies from one IGA to the other. For 64% of respondents, this contribution represents between 10 and 25% of their income, and for 13% it represents between 25 and 50% of their income.

Figure 12. Reported active IGA's contribution to participant's incomes across the three project sites visited. [60]

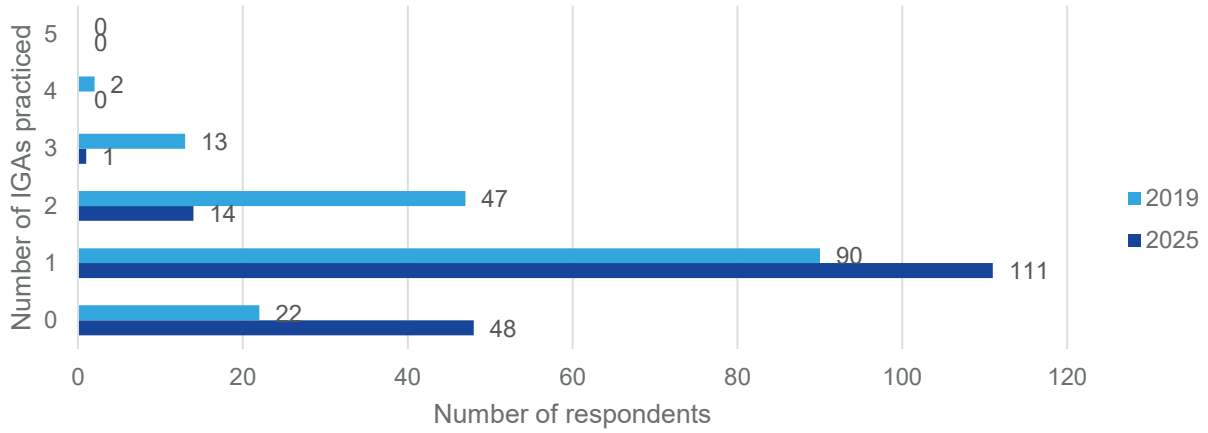


[58] Lemine, M. (2019). Évaluation d'impact des actions d'adaptation au changement climatique et préparation de la stratégie de sortie du projet.
[59] Survey conducted for Ex Post evaluation
[60] Survey conducted for Ex Post evaluation

However, it should also be noted that the overall participation in IGAs has dropped significantly since the end of the project. As illustrated in Table 11, five IGAs out of 12 have been abandoned, in addition to the four that did not work out at the end of the project. Even for activities that were sustained, the number of participants within communities has decreased. As an example, participants to community stores have decreased by an average of 20% in Dionaba and Moyasser 2, and participants to improved cookstoves craftsmanship have also decreased by 20% in Kewalla and Moyasser 2.

Overall, 44% of project participants are involved in less activities in 2025 than they were in 2019. As illustrated in Figure 13 and the number of participants involved in none of the IGAs has more than doubled.

Figure 13. Number of PARSACC-supported IGAs in which respondents participate in 2019 and in 2025[61]



4.1.3.3. Outcome 3.3: Increased availability of and access to food for participating communities

95% of participants still engaged in IGAs report an increase in access to food for themselves and 75% also report an increase in access to food for their households.

Outcome delivered: The survey conducted for the final evaluation shows that 98.5% of respondents benefitting from market gardening recognize that the production of vegetables has improved household nutrition and food security.[62]
Description: • People involved in FFA used their income primarily to purchase food. • 74% of respondents involved in market gardening activities indicate that their production increased significantly. 70% use their produce for food and income purposes, and 98.5% agreed that vegetable production had improved household nutrition and food security. 99% think that market garden produce contributes to better nutrition for children and women.

[61] Survey conducted for Ex Post evaluation
[62] PPR 5 (April 2020).

- For 98% of beneficiaries, poultry production contributes to improving household nutrition and food security. [63]

A total of 88% of participants report having increased food availability for themselves "a little" through their participation in currently active IGAs, either directly (through food production), or indirectly (through additional income). This increase is perceived as "significant" for only 7% of participants (Figure 14).

In addition, 75% of participants also report being able to provide additional food for their families (Figure 7). On average, they indicate having increased food available for 2.8 children and 1.9 adult. Most participants (83%) indicate having diversified the type of food available to their household, a proportion that increases to 96% for participants in market gardening. Finally, 79% of participants indicate having increased access to food during the hot season, which spans from April to June. At this time of the year, access to food becomes more challenging as most production (grain, vegetables, livestock) has been consumed, and new production is not ready to be consumed or sold.

Figure 14. Reported contribution of IGAs to the availability of food for participants [64]

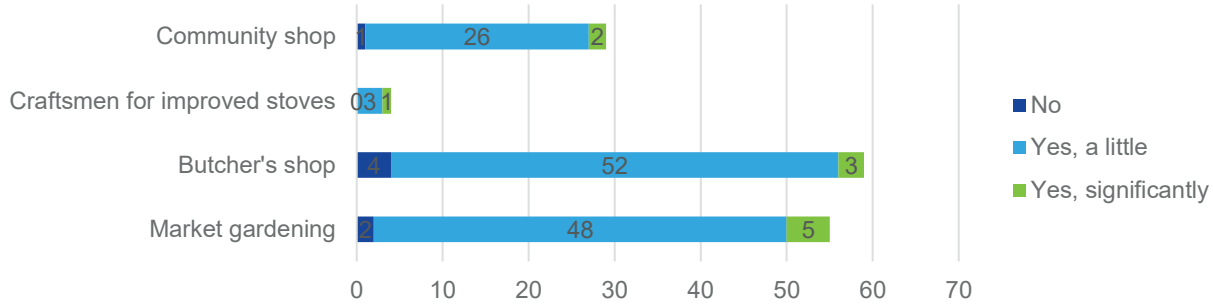
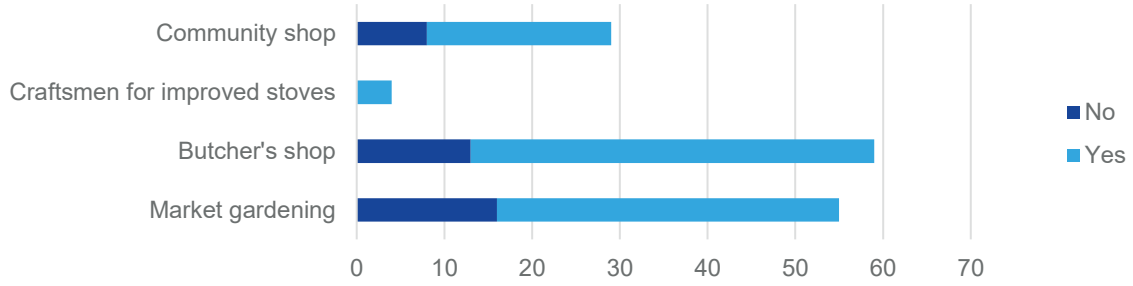


Figure 15. Reported contribution of IGAs to the availability of food to participant's household [65]



Field work confirmed that the project's emphasis on community engagement had resulted in IGAs that benefitted from strong ownership from participants. While some activities were abandoned for various reasons, only arboriculture was partly abandoned for lack of **ownership** (and partly because trees did

[63] Lemine, M. (2019). Évaluation d'impact des actions d'adaptation au changement climatique et préparation de la stratégie de sortie du projet.
[64] Survey conducted for Ex Post evaluation
[65] Survey conducted for Ex Post evaluation

not survive drought). This ownership is especially strong for activities led by women's cooperatives. The survey indicates participants dedicate several hours each week to the practice of IGAs.

Market gardening in particular benefits from very strong ownership in Dionaba, where participants find creative ways to maintain their crops despite difficult conditions. Even in Kewalla, where market gardening was ultimately abandoned in the field supported by PARSACC, women made significant efforts to continue the activity, even if they already had another functioning field. Additionally, a PARSACC supported field in Leweinatt also saw significant women's commitment, despite failure of the well pump.[66]

Community and butcher's shops are also managed by women's cooperatives and benefit from strong ownership. Improved cookstoves craftsmanship is often practiced by individuals (mostly men), who also report dedicating significant time to that activity, depending on the season.

In terms of **capacities**, women's cooperatives provide effective organizational support to manage IGAs. As an example, in Kewalla, the pooling of funds from multiple IGAs allows cross-subsidization. This means that profits from the butcher's shop may be used to purchase seeds for market gardening or inputs for the community shop (neither of which was established through PARSACC).

The survey confirmed that 100% participants currently involved in IGAs perceive that they have all the skills they need to continue with this activity. Some gardeners from Dionaba expressed interest in additional skills to improve the resilience and productivity of their yields. Furthermore, discussions in Kewalla indicate some gaps in longer term financial planning, as the cooperative may be unable to plan for longer-term more expensive equipment replacement, such as that of the freezer used for the butcher's shop.

Physical **assets** have been the most significant constraint to communities in pursuing IGAs. The following IGAs were abandoned due to equipment failure:

- Market gardening in Kewalla: irrigation mechanism to the PARSACC field failed. Women eventually gave up on the field.
- Market gardening in Moyasser: limited access to water.
- Grain mill in Kewalla: The costs of frequent repairs added up and consumed benefits.
- Arboriculture in Kewalla: the few trees that survived died due to the 2024 drought. Only one remains.
- Arboriculture in Dionaba: the few trees that survived died due to the 2024 drought. Only one remains.

This highlights the critical role of water infrastructure in pursuing IGAs, and especially market gardening and arboriculture. Even in Dionaba, where market gardening is very strong, interviewees pointed out that their productivity is constrained by a limited access to water. In the case of arboriculture, which typically does not benefit from irrigation systems, the selection of climate proof species is also a priority. Finally, the failure of aviculture (before the end of the project) was also due to the poor adaptation of the introduced roosters and the extreme climatic conditions.

[66] Leweinatt was not one of the three case study sites, it was used as a test site for interview protocols and also specifically to visit water retention infrastructure (Outcome 2.3). However, some activity sites were also visited, such as the garden established by PARSACC.

Other currently sustained IGAs have managed to use their own funds to purchase equipment and inputs, successfully sustaining operations. A challenge highlighted for butcher's shops is the variable price of livestock.

In the three sites visited, these IGAs have not benefitted from additional external support since the end of PARSACC (**partnerships**).

Equipment and asset failure has been the most important constraint to the success of IGAs in the three visited sites. Women's cooperatives are supported by strong community engagement and help ensure sustainability of benefits.

4.1.4. Sustainability ratings

Table 13 summarizes the findings on the sustainability of each of the project outcomes, this evaluation finds that:

- Only some of the project's adaptation benefits to the environment and communities persist. Some unintended positive benefits of the project for communities were identified, such as protection against erosion and increased fodder production in Kewalla in what was intended as firewood production areas.
- There are some gaps in capacities, ownership and resources and significant gaps in partnerships to sustain all positive benefits. No instances of maladaptation were identified, however, some of the outcomes are vulnerable to climate change. This is discussed in Section 4.2.2.

For these reasons, the sustainability rating for the PARSACC project at the time of the evaluation is considered as **Moderately Satisfactory (MS).**

Table 13. Summary of sustainability per outcome.[67]

Outcome	Summary of sustainability	Sustainability rating
1.1 Strengthened awareness, ownership and facilitation capacities of government services	DREDD capacities to support communities on climate change adaptation have not been sustained, but some awareness remains. This was mostly due to gaps in the availability of resources to support prolonged government services to the targeted beneficiaries after PARSACC's end, but also to limited ownership with regards to these responsibilities. NGOs have become empowered to support communities.	Moderately unsatisfactory
1.2 Strengthened awareness, ownership, planning and management capacities at community level	While some level of awareness about climate change has been maintained across visited project communities, they have not continued to plan for adaptation. However, one of the VMCs created by the project is building its capacity sustainably manage its natural. resources.	Moderately satisfactory
1.3 National ecologic monitoring system strengthened and tested	The activities related to the national ecologic monitoring system have not been sustained, neither have related benefits.	Unsatisfactory

[67] Developed by evaluation team

2.1 Advance of sand dune slowed down, halted or reversed	There is evidence of dune stabilization in both project sites that implemented this activity, effectively protecting homes, buildings and/or agricultural land, but poor maintenance threatens future sustainability of related benefits as vegetation on dunes degrades.	Moderately satisfactory to Satisfactory
2.2 Increased vegetation cover in intervention zones	Few vegetation-related activities were successful by the end of the project. Nonetheless, protected grazing areas and dune stabilization have resulted in increased vegetation cover in all three communities, leading to benefits such as increased fodder availability and controlled soil erosion. However, the sustainability of these benefits is threatened in two out of three sites due to a lack of maintenance caused by the perception of limited benefits resulting of poor ownership and maintenance of organizational capacities. Conversely, in the third site (Kewalla), perception of significant benefits drives ownership and organizational capacities.	Moderately satisfactory
2.3 Decreased loss of water and soil through surface run-off	The two stone cordons built and still functional at the end of the project in Leweinatt have effectively retained water in two sites, improving soil fertility downstream, but lack of maintenance has affected its continued effectiveness since the end of the project. Organizational capacities in Leweinatt are insufficient to plan for high labor-intensive maintenance.	Moderately satisfactory
3.1 Increased number of sources of income for participating households	Out of 12 IGAs operational in 2019, seven are still functioning: two butcher's shops, two community shops, improved cookstoves craftsmanship in two villages, and market gardening in one village.	Moderately satisfactory
3.2 Increased income for participating households	96% of participants still engaged in IGAs are reporting an increase in income as a result of the activity. However, the number of active IGAs and of participants has decreased since the end of the project.	Satisfactory
3.3 Increased availability of and access to food for participating communities	95% of participants still engaged in IGAs report an increase in access to food for themselves and 75% also report an increase in access to food for their households.	Satisfactory

4.2. How do project's sustained outcomes contribute to the system's resilience and adaptive capacity?

In the previous section, we assessed the extent to which the project's outcomes have been sustained over time and identified the key factors contributing to their sustainability. In this final step, the focus shifts to examining how these sustained outcomes are currently influencing the resilience of the systems—ecological, social, or institutional—that affect project beneficiaries. This analysis is guided by a set of resilience attributes that serve as analytical lenses: Scale, Redundancy, Diversity and Inclusion, Flexibility, and Connectedness and Feedback Loops (see Box 1. for detailed descriptions of each attribute[68]).

[68] AF-TERG (2024). Toolkit for the Ex Post Evaluation of Adaptation Interventions (Version 1.3).

As mentioned earlier, the overall goal of the PARSACC project was to enhance the resilience of vulnerable communities to the effects of climate change on food security. Evidence from the sites selected for the ex-post evaluation shows that, five years after the project's closure, the sustained outcomes continue to contribute meaningfully to key resilience attributes. Notably, they support the attribute of *Scale* through the maintenance of ecosystem services at the local landscape level, particularly via dune stabilization, the creation of protected grazing areas, and water retention measures. They also contribute to *Redundancy* and *Diversity & Inclusion* by increasing the availability of livelihood options for project beneficiaries, especially for women, through IGAs**.** Regarding *Flexibility*, there is little evidence of broader community adoption of new actions or approaches to manage climate risks post-project, with the exception of one site where the women's cooperative has continued to adopt new practices to ensure the sustainability of market gardening beyond the project's end. The contribution to *Connectedness and Feedback Loops* remains limited. While communication channels like radio and social networks persist, the absence of systematic mechanisms, such as a functioning EWS or access to ecological data, as envisaged at project design stage, hinders capacity to adapt. The absence of structured partnerships and consistent communication pathways further limits proactive decision-making.

Box 2. AF-TERG methodology for resilience analysis

The final step of the AF-TERG methodology for ex post evaluation of adaptation interventions aims to explore how the sustained outcomes of the project are enhancing the resilience of the broader system. Specifically, it looks at the ways in which these outcomes contribute to system resilience, using a set of selected resilience attributes as follows:

Scale. Impact on the temporal or spatial scale needed for human-natural systems to maintain or change their functions and structures in the face of climate disturbances.

Redundancy. Impact on the availability of diverse resources, means, or options to support climate resilience.

Diversity & inclusion. Impact on the variety of actors and inputs working/interacting towards common goals and the extent to which the project outcomes support equity and inclusiveness.

Flexibility. Impact on the system's agility in responding to uncertainty, effectively tackling challenges and seizing opportunities that may arise from change.

Connectedness and feedback loops. Impact on communication lines, access to information or partnerships to respond or adapt to shocks or stressors.

Below is an analysis of the project's contribution to resilience, organized by key resilience attributes. Each attribute is examined in terms of how the sustained outcomes of the project contribute to the resilience of the systems and communities involved. For a detailed breakdown of this analysis, please refer to the Annex 7.4, which contains the full assessment of how these sustained outcomes support each resilience attribute.

4.2.1. Impact on the temporal or spatial scale for systems to maintain or change their functions and structures in the face of climate disturbances

The project aimed to improve the speed of beneficiary communities' responsiveness to climate disturbances through the establishment of an early warning system (EWS) at the community level. The ex-post evaluation confirmed that while groundwork was initiated through institutional partnerships under development at project closure, the system was never effectively established after that. As a

result, based on available evidence, **the project made no positive contribution to the time scale needed for beneficiary communities to adapt to climate disturbances.**

However, findings from the ex-post evaluation demonstrate **evidence of positive impacts on the spatial scale required for human-natural systems to maintain or adapt their functions in response to climate change**. The site visits conducted as part of the ex-post evaluation case studies confirm that **several sustained outcomes of the project continue to contribute to the maintenance of ecosystem services at the local landscape level**, particularly through **dune stabilization, the creation of protected grazing areas, and water retention measures (outcomes 2.1-2.3).** In addition to directly enhancing ecosystem services through biological fixation, **dune stabilization also contributes as protective infrastructure of sufficient scale to shield communities from climate disturbances**, particularly through the prevention of sand encroachment on homes, water infrastructure, and agricultural lands.

Box 3. Evidence of restoration and protection of the Kewalla protected grazing reserve supporting sedentarization by increasing local fodder availability

The restoration and protection of the Kewalla protected grazing reserve have contributed to improved fodder availability, supporting the gradual sedentarization of pastoralist communities. Sustainable land management and community-led rangeland governance have helped improve pasture growth and quality in the intervention site. As a result, local herders are increasingly able to maintain their livestock closer to homesteads year-round, reducing the need for long-distance transhumance and promoting more stable, settled livelihoods.

According to village stakeholders interviewed, before the project, dune movement in Moyasser 2 and Dionaba caused sand encroachment into houses and local infrastructure, leading residents to relocate in order to protect their property and livelihoods. Site visits conducted in the context of the ex-post evaluation confirmed that dune stabilization remained effective in both sites several years later, with dunes in these areas appearing to have remained mostly stable. In Moyasser 2, dune stabilization continues to play a strong protective role, helping to safeguard agricultural zones and infrastructure (especially houses) from sand encroachment. In Dionaba, the protective effect was still present but more limited, as partial sand encroachment is now visible on the infrastructure and land that the stabilization efforts were meant to protect. In both sites however, evaluators noted early signs of degradation of the stabilization works (in particular fences put in place to prevent grazing and deterioration of the biological fixation) due to the lack of maintenance and community follow-up mentioned above, and thus their protective function are likely to be eventually compromised.

The project also aimed to enhance vegetation cover through the establishment of community-managed firewood plantations and protected areas. By project closure, 25 protected areas and 37 plantation perimeters had been set up, totaling more than 1,400 hectares and involving the planting of 280,000 local tree species. During the ex-post site visits, Kewalla stood out as a site where a firewood plantation had successfully transitioned into a protected grazing reserve. Still actively used, it significantly expanded the local grazing area and improved fodder availability (Box 3.[69]). In contrast, the grazing perimeter in Moyasser 2 remained physically visible but showed clear signs of neglect and deterioration, with no associated increase in fodder availability at the time of the site visit largely due to weak or absent maintenance mechanisms. These divergent outcomes are mirrored in community perceptions: in the evaluation survey, 80% of respondents in Kewalla identified fodder availability as

[69] Based on interviews/FGDs, direct observation and the results of the survey conducted for the Ex Post Evaluation

a key factor influencing their access to food in 2024 (a drought year in both sites), compared to only 44% in Moyasser 2.

Finally, the project had restored 440 hectares of degraded land through the construction of low-tech water retention structures, aimed at improving surface and sub-surface water availability for agriculture. In Leweinatt, the ex-post evaluation confirmed that these structures continued to enhance soil moisture and improve the productivity of downstream agricultural lands. Despite visible signs of wear, the simplicity and robustness of the structures likely contributed to their sustained effectiveness up to this date, although their gradual deterioration due to lack of upkeep was also noted.

In sum, the ex-post evaluation found concrete evidence of sustained localized landscape restoration. While results varied across sites, the project clearly contributed to restoring and maintaining the resilience of local ecosystems and infrastructures by stabilizing sand dunes, enhancing vegetation cover, and improving water retention. In most sites, these resilience benefits are compromised in the short to medium term due to the lack of ongoing maintenance of the protected perimeters

4.2.2. Project contribution to expanding or creating resources and options for climate resilience (Redundancy)

Sustained adaptation outcomes contributed to increasing the availability of livelihood options for project beneficiaries, supporting resilience to climate risks. Prior to the implementation of the project, the livelihoods of the population within beneficiary communities were hardly diversified. In the villages visited, the introduced IGAs were not in operation at the time the project was implemented, with the exception of the market gardening activity in Kewalla, which had been supported by another initiative. As discussed in section 4.2.3, at the time of the ex-post evaluation, across the 3 project sites visited, 7 out of the 12 IGAs (covering a total four types of different IGAs) that were in operation at project closure were still being practiced across the three case study sites **all of them contributing as additional sources of revenues and/or food production for the participants**. Survey data indicates that participation in IGAs led to increased income, which was primarily used to purchase food and for saving purposes (see Table 14 below). In terms of impact on food security, 51% of evaluation survey respondents in Dionaba reported that the IGAs they participated in was one of the main factors influencing their household's access to food in 2024. In contrast, the percentage was significantly lower in Kewalla and Moyasser 2, at 21% and 17%, respectively. This discrepancy is likely linked to the fact that market gardening activities in Kewalla and Moyasser 2 were compromised by limited water availability, whereas in Dionaba, market gardening emerged as a highly successful IGA. The stronger impact of IGAs on food security in Dionaba may also be explained by the fact that market gardening it is not only a source of income for participants, but is often, if not more commonly, used as a direct alternative source of food for their households. Increased pasture and fodder availability in Moyasser 2 and Kewalla, resulting from the protected perimeter used for both grazing and fodder production, provided a supplementary source of livestock feed. **This combination of diversified livelihoods and improved local resources offers communities additional options to cope with climate-related shocks.**

Among the four types of IGAS still practiced at the project sites visited, both market gardening and the butcher shop remain vulnerable to climate-related shocks. Market gardening depends heavily on reliable water access, making it sensitive to droughts and irregular rainfall. Meanwhile, the butcher

shop is indirectly affected through disruptions in livestock supply caused by drought and heat stress. To better contribute to resilience through redundancy of livelihood options, further diversification of IGAs would be needed. Over the past 5 years, community shops have also been affected by climate-related challenges, including food scarcity, rising prices, and population exodus during drought periods. These factors undermine their operation by reducing customer traffic, lowering sales and profitability, and sometimes even leading to temporary closures. Likewise, in Moyasser 2, over the past five years, climate shocks, especially the recent drought from 2024 have compromised the benefits derived from protected vegetation cover by reducing pasture and fodder availability, increasing livestock feed costs, and limiting access to grazing areas. These disruptions, combined with the lack of maintenance of the protected area mentioned above, have weakened livestock productivity and overall resilience, reducing the value of the protected area for the community. Interestingly, in Kewalla, where consistent maintenance efforts have been made, the benefits of the protected area have not been significantly compromised so far despite a severe drought in 2024.

Table 14. Declared use of income generated by IGAs.[70]

Use of income	Kewalla	Moyasser 2	Dionaba	Total
I save money to meet my needs and those of my family in case of problems.	9%	27%	29%	24%
I buy more food to meet my needs and those of my family.	89%	30%	62%	65%
I reinvest in the same IGA.	0%	7%	11%	7%
I invest in livestock or in caring for livestock.	0%	5%	0%	1%
I invest in other IGAs.	2%	2%	10%	6%
I buy better quality food (more nutritious and diverse food) to meet my needs and those of my family.	0%	7%	6%	5%

4.2.3. Impact on broadening and deepening the range of actors and inputs working toward shared goals (Diversity & inclusion)

Prior to the project, the absence of structured, coordinated efforts to involve diverse community members, including women, youth, and other vulnerable groups, in adaptation efforts meant there was limited coordinated engagement of a broad range of actors. This lack of inclusivity hindered progress toward deepening the diversity of inputs and expanding the participation of marginalized groups in decision-making roles. Additionally, without a systematic approach to adaptation, access to scientific research or traditional knowledge to inform responses to climate-related shocks was limited.

The sustained outcomes of the project suggest **potential** for increasing gender equity in leadership and broader participation of marginalized groups. **Most women in the villages visited remain active in the successful IGAs cooperatives and contribute to decision making at this level**. Moreover, **women's involvement in traditionally male-dominated activities**, such as operating a butcher's shop, marks a significant innovation and a meaningful step toward greater equity in opportunities.

[70] Survey conducted for this evaluation.

Some perceived effects were reported at the individual level: a number of IGA participants highlighted that their participation contributed to increased financial autonomy or a greater role in family and community decision-making (see detailed in Table 15 below). Finally, **IGAs primarily target individuals from the most vulnerable groups**, offering them opportunities to acquire new skills and increase their autonomy. **While these results suggest some meaningful progress in terms of equity and inclusiveness, there is limited evidence of a broader diversification of actors and contributions working toward shared resilience objectives beyond the immediate, practical management of IGAs.**

Table 15. Reported Benefits of IGAs Beyond Financial and Nutritional Aspect.[71]

	Kewalla		Moyasser 2			Dionaba	
	Butcher's shop	Improved stoves	Community shop	Butcher's shop	Improved stoves	Community shop	Market Gardening
It allows me to play a greater role in family and community decision-making (Empowerment)	7%	0%	17%	38%	33%	27%	27%
It allows me to have greater autonomy	22%	100%	22%	15%	33%	9%	25%
It allows me to gain skills that I can apply in other areas	48%	0%	0%	0%	0%	0%	13%
It allows me to build stronger social ties within my community	2%	0%	0%	0%	0%	0%	15%
No other benefits	22%	0%	44%	38%	33%	64%	20%

4.2.4. Impact on the system's agility to respond to uncertainty and emerging challenges and opportunities (Flexibility)

Before the project began, the capacity of stakeholders to support new actions or approaches to manage climate risks was limited. DREDDs lacked the capacity to assist communities. They did not visit villages relaying updated climate-related information or provide guidance, and received little support or information from the central level. At the community level, there were no strong coordination mechanisms or platforms to plan for climate risks. Inter-village collaboration was rare, and many groups were excluded from local decision-making. These gaps limited the ability of communities and institutions to act together, adjust to changing conditions, or take advantage of emerging opportunities. Communities were aware of environmental degradation but had limited understanding of its causes or of possible adaptation strategies. Although some studies had been conducted under previous projects, they were not made available to local stakeholders. No ecological monitoring system existed in the sites targeted by the PARSACC, and no consistent system for collecting or analyzing climate data was

[71] Survey conducted for this evaluation.

in place. As a result, decisions were made based on limited or outdated information, reducing the capacity of local actors to anticipate risks or make strategic choices in response to new developments.

The project's sustainable outcomes have had mixed effects on the system's agility to respond to uncertainty and emerging challenges. While the strengthened capacities of NGOs have improved their ability to support climate adaptation, the limited sustainability of DREDD's capacity-building efforts has hindered their continued engagement with communities. NGOs, empowered by the experience and skills gained through the project, have successfully integrated climate adaptation into their broader activities, demonstrating flexibility in adopting new approaches.

In terms of decision-making based on new information, the project has raised awareness about climate disturbances among communities and stakeholders, but there is no clear evidence that mechanisms were put in place to systematically incorporate new data into governance or planning processes. The continued use of radio and social networks for climate information suggests potential channels for adaptive responses, yet the absence of a functioning EWS limits stakeholders' ability to proactively use new insights to reduce risks. Likewise, while training in environmental monitoring was provided, the systems' discontinuation has prevented stakeholders from effectively utilizing ecological data for informed decision-making.

While the project laid crucial groundwork for adaptation, its long-term impact on systemic agility remains uneven. The varying functionality of VMCs further illustrates differences in local organizational structure in support of resilience. While some communities, like Kewalla, have made progress in formalizing their resource management structures (see section 4.1.1.2 above), others have struggled to maintain momentum (Moyasser 2 and Dionaba).

Women's groups, particularly women's cooperatives, demonstrated resilience and continuity beyond the end of the project. In all three sampled project sites, these cooperatives remained active and strong, even while the functionality of other local structures like VMCs varied (Box 4.[72]). This suggests that women's groups may have been more effective at maintaining organizational momentum and adapting to evolving local conditions, making them a potential lever for enhancing system flexibility in future community-based climate adaptation efforts. While these actions reflect a positive experience and tangible benefits, particularly through IGAs, there is no further concrete evidence that the community, including women's groups, has more broadly supported new actions or approaches to manage climate disturbances and risks, or to seize related opportunities to date.

Box 4. Evidence of improved agility to respond to emerging challenges in Dionaba

In Dionaba, a readiness to adjust to emerging challenges has been observed in the domain of market gardening. Women, in particular, have shown initiative by actively seeking out drought-resistant plant varieties and developing protective covers to shield their gardens from extreme heat. While these practices remain relatively modest in scale, they suggest an emerging capacity for adaptation at the community level and reflect a growing ability to identify and implement locally appropriate solutions in response to increasing climate stress.

[72] Based on interviews/FGDs and direct observation

4.2.5. Impact on communication, information access and partnerships to respond or adapt to shocks and stressors (Connectedness and feedback loops)

Prior to the project, communities in the intervention areas faced major limitations in communication, access to information, and partnerships to respond or adapt to climate shocks and stressors. The DREDD lacked the capacity to engage with communities, provide guidance, or facilitate local processes, and they received little information or support from the central level. At the community level, communication channels were weak. There were few inclusive community discussions, no inter-village coordination, and no village management committees to support structured dialogue related to climate adaptation. Access to information was limited, with no radio broadcasts or awareness campaigns on climate risks and adaptation options. Existing studies were scattered and not made available locally. Moreover, there were no structured partnerships with NGOs or other actors to support sustained engagement or capacity building. These gaps underscored the absence of tools and systems needed for coordinated, informed responses to climate-related stressors.

The project led to some improvements in communication, access to information, and partnerships to support adaptation to shocks and stressors, though results were uneven. While DREDDs participated in project activities and their capacities were strengthened during implementation, this support was not sustained, and they no longer provide adaptation-related information or coordination support to communities. In contrast, NGOs involved in the project retained their capacities and have continued to engage in adaptation-related work, including through new initiatives, suggesting a more durable impact on local partnerships, although none of the case study sites have directly benefited from such partnership.

The planned establishment of a community-level early warning system did not materialize, and no such functioning mechanism exists, limiting access to potentially critical information at the community level. However, by the end of the project, journalists had been trained on climate change adaptation and food security, and radio programs on these topics were being aired weekly in local languages. Evaluation survey results show that 56% of respondents had prior knowledge of a climate shock that arose in the past five years, with radio and social networks being key sources of information. While it is difficult to isolate the project’s contribution in this regard—particularly as the continuation of the radio programs beyond the project period could not be confirmed—the capacity built among trained journalists may continue to contribute, at least in part.

Community structures set up during the project, such as village management committees, have had mixed outcomes, some remain active, while others have become inactive, indicating uneven impact on local communication lines and potential coordination mechanisms. However, the continued activity of women’s cooperatives beyond the end of the project highlights the project's success in strengthening these groups' capacity for self-organization. Their ability to remain active, even as other local and regional structures weakened, reflects a tangible impact on these specific local networks and the continued relevance of the intended project outcomes at this level. While these cooperatives have become key actors in fostering collaboration and building partnerships within their communities, there is limited evidence to suggest that these partnerships have extended beyond the context of IGAs to support broader community-level adaptation efforts at this stage.

Table 16. Summary of the identified contributions of the project's sustained outcomes to resilience attribute

	Sustainability	**Scale (Time and space)**	**Redundancy**	**Diversity & inclusion (including of practices)**	**Flexibility (adaptability)**	**Connectedness & feedback loop (communication/ information /partnerships)**
1.1 Strengthened awareness, ownership and facilitation capacities of government services	Minimal	No effect identified	No expected effects	No expected effects	✓(NGO)	✓(NGO)
1.2 Strengthened awareness, ownership, planning and management capacities at community level	Variable	No expected effects	No expected effects	✓	✓	No effect identified
1.3 National ecologic monitoring system strengthened and tested	No	No expected effects	No expected effects	No expected effects	No effect identified	No effect identified
2.1 Advance of sand dune slowed down, halted or reversed	Yes, but compromised	✓	No expected effects	No expected effects	No effect identified	No expected effects
2.2 Increased vegetation cover in intervention zones	Variable	✓	✓	No expected effects	✓	No expected effects
2.3 Decreased loss of water and soil through surface run-off	Partially	✓	Potential through increase soil fertility and productivity	No expected effects	No effect identified	No expected effects
3.1-3.3 Income generating activities	Partially (7/12)	Potential through reduce wood consumption /collection	✓	✓	✓	✓

5. CONCLUSIONS

Over five years after the end of PARSACC, the sustainability of project outcomes is Moderately Satisfactory. Some benefits to communities have been sustained in the project sites visited. The benefits sustained vary from one site to the other, and include dunes stabilized (2/2 sites), increased vegetation cover (3/3 sites), and improved water retention (1/1 site). The sustainability of some of these outcomes is however threatened by a lack of maintenance. Benefits have also resulted from the implementation of IGAs. Out of 12 IGAs in place at the end of the project, seven are still operational. Overall, they constitute an additional source of income, and increased incomes and access to food. Some of these outcomes were achieved through unexpected means, with failure of firewood production being replaced by protected grazing areas in one site. Outcomes pertaining to institutional capacity building have not had the same success, especially at regional level where DREDDs have not sustained their capacities to support communities plan for adaptation. This translates into gaps in terms of capacities and resources, and significant gaps in terms of partnerships to sustain the project's outcomes. Nevertheless, unexpected outcomes in terms of NGO capacity to support both communities and DREDDs in adaptation planning and implementation present an opportunity to help tackle these gaps.

PARSACC's exit strategy was not implemented, yet some outcomes were still sustained. The project's exit strategy relied essentially on the implementation of a Phase 2 project. Since this did not happen, communities did not receive additional support (from the PARSACC or any other donor) that would have consolidated key achievements, such as additional support for agriculture and market gardening, and also strengthening of VCMs. The only additional support identified was technical assistance provided by the MEDD to support the institutionalization of the Kewalla VMC. Nonetheless, in the sites visited as part of this evaluation, many project outcomes are still in place.

The poor sustainability of institutional strengthening outcomes is weakening overall project outcomes sustainability and contribution to resilience. Component 1 of the project aimed to give decentralized institutions (DREDDs) as well as communities the capacities to plan for adaptation. However, these were among the least sustained outcomes. While DREDDs received significant support during the project, and some have also benefitted from subsequent projects, their ability to support community adaptation planning remains limited. This is due not only to a lack of financial resources but also of institutional motivation to maintain these activities. Furthermore, the information systems intended to support decision-making—such as the EWS and environmental monitoring tools—are not operational. As a result, DREDDs are not playing a meaningful role in sustaining project outcomes. They are not continuing to strengthen community capacities, nor are they acting as engaged and supportive partners. Additionally, they are not facilitating stronger networks or feedback mechanisms that could enhance community resilience over the long term.

Activities that generate direct, short-term benefits are the ones that continue to contribute the most to outcome sustainability. These include several IGAs, such as butcher's shops and improved cookstoves craftsmanship, as these benefits drive a strong sense of individual and community ownership. Other IGAs that have sometimes failed, like market gardening or grain mills, have also generated strong ownership. Equipment and asset failure has been the most important constraint to the success of IGAs in the three visited sites. Other activities perceived as beneficial but only in the longer-term, like arboriculture, have ultimately failed.

Ownership and capacities reinforce each other and have ensured the continued success of some activities, despite lack of partnerships and limited resources. Building ownership was a strong focus of the project implementation. Where ownership was strong – like for market gardening in Dionaba and protected grazing areas in Kewalla – strong community organization followed suit, and ensured sustainability. Slightly weaker ownership – like for dune stabilization in Moyasser 2 – is not conducive to a strong community organization, and results in dwindling benefits. In Kewalla, inadequate prioritization of activities led to failure of firewood plantations, which were replaced by a more coveted activity (fodder production / pastures)

This is especially true for women's organization, where ownership and organizational capacities have successfully reinforced each other. Women's organizations have remained particularly strong in all visited communities, reflecting not only the direct financial benefits they receive from their participation in IGAs, but also more intangible ones like gains in autonomy and the acquisition of new skills.

Unfortunately, damages to crucial infrastructure and assets, and in particular water access infrastructure, have sometimes become insuperable. This was the case for market gardening in two sites as well as arboriculture, but also the grain mill in Kewalla. Support from DREDDs in most cases could have made a difference, especially with regards to maintenance and repair of water infrastructure, which is beyond the financial capacities of communities. These partnerships are also lacking for maintenance of infrastructure requiring high labor-intensive work in Leweinatt, where community organization has proved insufficient to coordinate maintenance activities for water retention infrastructure. In the absence of maintenance of the stone cordons, their benefits have been progressively decreasing and could be threatened in the future.

Many of the outcomes are still vulnerable to climate change, and in particular to droughts. The importance of ensuring access to water in the context of Mauritania cannot be understated. Taken individually, many of the activities that continue to generate benefits still depend on water access and are vulnerable to climate shocks. Market gardening is the first one, but livestock for butcher's shops is also affected by extreme weather, and its price fluctuates significantly. Protected grazing areas and even dune stabilization have successfully endured extreme climate, including the 2024 drought, but may not survive the next one.

The additional sources of income available therefore only have a limited contribution to resilience. While every additional source of income contributes to redundancy, and restored ecosystems facilitate responses to climate extremes, with only a few successful activities in each site, many of them vulnerable to the same shocks, each community is only slightly more resilient as a result of these activities.

Still, **the examples of unexpected outcomes identified throughout this evaluation provide valuable indications as to the types of opportunities that could be leveraged in future adaptation projects**. This includes the opportunities to build on women's cooperatives for sustainable change. The resilience that these groups demonstrated in introducing new agricultural practices in Dionaba adapted to their extreme conditions could be encouraged, as well as the cross-subsidization of IGAs could be leveraged in future projects. The benefits of building the capacities of local NGOs also present a strong potential for strengthening the network of partners for climate resilience. Future projects could also support the commitment and organizational capacity to sustainably manage grazing areas for community benefits.

Finally, it is important to recognize that the **sustainability of project results often significantly relies on a complex combination of local variables that are difficult to fully anticipate, and even to evaluate**. In the case of Kewalla, the project came at a time when the community was transitioning from a nomadic to a sedentary lifestyle. Having access to increased fodder reserves responded to an interest to decrease the need for transhumance, and in doing so, supported the sedentarization process. The perceived benefits were high, and provided an incentive for establishing strong rangeland governance mechanisms. This could explain why there was less buy-in in other communities, but other factors related to ethnicity and local practices could also have played a role.

6. LESSONS LEARNT AND CORRESPONDING RECOMMENDATIONS

For Implementing and executing Entities

Institutional capacity-building efforts are unlikely to deliver sustainable results unless they are accompanied by clear mandates, adequate resourcing, and sustained engagement mechanisms. Strengthening institutions without clarifying their continued relevance and ensuring their accountability, and motivation leads to rapid erosion of initial gains.

- **Establish roles, responsibilities, performance incentives, and identify resources for post-project sustainability**. Executing entities should define clear roles and responsibilities for decentralized institutions, along with performance incentives, a minimal level of resources, and appropriate regulatory or financing instruments (e.g., budget allocations for decentralized adaptation planning or formal mandates for decentralized institutions) to support their continued involvement in adaptation planning and implementation beyond the project's end.
- **Strengthen capacity-building and institutional support for effective information management in decentralized institutions**. Capacity-building efforts through the project should also focus on ensuring robust and locally anchored systems for data collection, storage, and use, including basic information storage and transmission systems to enhance the effectiveness of decentralized institutions, particularly in the context of high staff turnover. In addition to generating capacities with the support of the implementing entities, it is important to highlight the need for executing entities to fund and institutionalize sustainable M&E and data use strategies. This will enable these decentralized institutions to continue supporting communities and effectively monitor results despite staffing changes.
- **Consider continued support to PARSACC beneficiaries to maintain and possibly scale up sustained results.** To consolidate gains and avoid reversal of progress, it is essential to maintain technical, financial, and institutional support for some of the PARSACC beneficiaries. This includes strengthening local governance mechanisms and promoting linkages with ongoing programs or partners that can provide long-term accompaniment. In this context, implementing and executing entities should consider whether NGOs strengthened during the project could become long-term partners to help sustain results beyond the project's timeframe.

Although not a guarantee of success, implementing income-generating activities through local women's organizations can lead to stronger ownership and sustainability. Tangible and intangible benefits often reinforce their resourcefulness and initiative, increasing the likelihood that outcomes will be maintained over time.

- **Consider the use of local women's organizations as implementing structures for income-generating activities.** The strong ownership and demonstrated resourcefulness of local women's organizations can support the sustainability of project outcomes, as they tend to stay active beyond the project due to both concrete, direct benefits and gains in autonomy and skills.

For projects designed with infrastructure and labor-intensive activities (relevant to all stakeholders involved)

The sustainability of **larger-scale infrastructure** or infrastructure requiring **significant labor-intensive input** can not be ensured without at least minimal partnership, whether with local actors, NGOs, or other donors, that can provide continued support, oversight, or resources beyond the project's duration.

- **Secure partnerships to support the sustainability of community infrastructure beyond the project's duration.** For projects designed with such components, secure at least minimal partnerships with local institutions or other development partners to support the long-term sustainability of community level infrastructure. This includes shared responsibility for maintenance, ongoing technical support, and regular follow-up beyond the project's duration.

For projects designed for arid areas (relevant to all stakeholders involved)

In arid areas, the sustainability of production activities is deeply tied to reliable water access. When water infrastructure is damaged or insufficient due to climate shocks, it can undermine entire project outcomes, which were precisely intended to strengthen resilience to such shocks. This was observed in market gardening and arboriculture, and it could also eventually impact butcher shops, where livestock production is vulnerable to extreme weather conditions. Inadequate maintenance of water access infrastructure, often due to financial constraints or lack of local capacity, has proven to be a critical barrier to long-term success.

- **Prioritize water access and water infrastructure sustainability from the outset in arid region project design.** Project design in arid regions must prioritize water access and infrastructure sustainability from the outset. Adequate support and partnership building for maintenance, should be integrated explicitly into the project exit strategy. Additionally, a detailed risk assessment should consider water scarcity as a major sustainability challenge, with contingency plans for droughts and climate change impacts, precisely what Adaptation Fund projects intend to address.

For improvements in M&E to capture data on sustained results after project completion

Detailed information on implemented activities and site-specific outcomes is essential for conducting robust ex-post evaluations and for accurately assessing sustained results and contributions to resilience as this information becomes the baseline for assessing outcome sustainability ex post.

- **Archive data on project activities and results to enable future evaluations.** For projects with the potential of being subject to an ex-post evaluation, the Adaptation Fund should ensure that detailed documentation of all implemented activities and end-of-project results, including outcomes achieved and disaggregated by site, is systematically collected and safely stored to enable future access and use. This responsibility could be operationalized through contractual clauses with the Implementing Entity, or alternatively managed directly by the Adaptation Fund through a centralized data storage mechanism.

For the Adaptation Fund and funders

When project outcomes do not lead to direct and immediate benefits, they are often perceived as less relevant by stakeholders. This can limit ownership and reduce the likelihood of sustaining results over time.

- **Focus on the practical demonstration of longer-term resilience benefits to foster ownership and ensure the sustainability of project outcome.** To foster ownership of project outcomes and ensure their sustainability, especially when benefits are indirect or long-term, it is important to focus on demonstration and practical applications that make the resilience benefits more tangible for stakeholders. This could be achieved through interventions focused on smaller geographic areas and implemented over an extended timeframe, for instance by adopting a multi-phase project approach from the outset. This would allow for more visible and measurable changes at the landscape level, while also providing an opportunity to apply adaptive management and build on the aspects of the project that are working best (grounded in emerging evidence that beneficiaries are demonstrating greater adaptive capacity) and on emerging opportunities.

For the AF-TERG on methods

When a project addresses a wide range of outcomes across a large number of sites, budgetary constraints may necessitate limiting data collection to a small number of locations. This restricted coverage significantly limits the ability to draw robust, representative conclusions about the project's overall results and impact across the full beneficiary population. It also highlights the trade-off between collecting data on a wide range of outcomes versus focusing in depth on a limited number. While the latter can offer more detailed insights and the opportunity to build a rich and nuanced narrative with regards to the evolution of the resilience of the beneficiary, it can also be difficult to isolate and understand the long-term effects of individual outcomes.

- **Ensure that evaluation design is aligned with the scale and scope of the project.** In contexts where resources are limited, this may require narrowing the focus of the evaluation to a smaller set of key outcomes, in order to enable broader coverage across a larger number of sites and generate more robust and insightful findings.

Analyzing the potential contribution of the project's outcomes to resilience attributes prior to fieldwork is essential. It is important to recognize that these contributions may fall outside the explicit logical framework of the project. This approach ensures that both qualitative and quantitative data collection tools capture all relevant information, including aspects not directly outlined in the project's framework.

- **Encourage early reflection on how each project's outcomes contribute to resilience.** Prior to fieldwork, the AF-TERG methodology should encourage evaluation teams to conduct an analysis of how each project expected sustained outcome as well as the project as a whole potentially contributes to resilience attributes, including those that extend beyond the explicit logical framework of the project. This will ensure that both qualitative and quantitative data collection tools are designed to capture all relevant information, providing a more comprehensive understanding of the project's impact, even when these contributions are not explicitly covered within the project framework.
- **Prioritize relevant resilience attributes to investigate the project's outcomes' contribution**. In a context of limited resources, analyzing contributions to resilience by

resilience attributes involves documenting multiple indicators and requires significant data collection efforts. To strengthen the robustness and feasibility of the analysis, it is recommended to prioritize the most relevant resilience attributes or focus on specific aspects within each attribute that are either most meaningful in the project context and/or more relevant in terms of learning objectives. This prioritization could be carried out as a joint effort between the evaluation team, the AF-TERG and the implementing agency to ensure both analytical rigor and practical feasibility.

7. ANNEXES

7.1. List of interviewed stakeholders

Organization	Stakeholder name	Position	Evaluation phase	Date and location
WFP (former)	Ghazi Gader	Central Project Team - Project coordinator	Design	Online
MEDD	Sidi Mohammed Wavi	Central Project Team – National Project Director	Design	Online
WFP Mauritania	Mohammed Jiddou	Programme Officer – Asset Creation and Resilience	Design	Online
WFP Mauritania	Issa Oumarouissa	Head of Research, Analysis and Monitoring (RAM)	Design	Online
WFP Mauritania	Tourad Saleck	Senior Program Assistant	Design	Online
WFP Mauritania	Maribeth Black	Head of Programme	Design	Online
WFP Mauritania	Patrick Teixeira	Deputy Country Representative	Design	Online
MEDD (Direction du Climat et de l'Économie Verte)	Sidi Mohamed El Wavi	Coordinator of the PNA team, former PARSACC coordinator	Design	Online
MEDD	Alioune Fall	Deputy coordinator of NC2, former PARSACC Technical advisor	Qualitative data collection	February 7th, Nouakchott
MEDD	Maouloud Ndiaye	NAP Team Leader, former PARSACC M&E specialist	Qualitative data collection	February 13th, Nouakchott
National Meteorological Office (ONM)	Sidi Ould Mohamed Lemine	Director	Qualitative data collection	February 7th, Nouakchott
DREDD	Diallo Demba	Regional environment delegate	Qualitative data collection	February 12th, Aleg
DREDD	Boubacar XX		Qualitative data collection	February 12th, Aleg
DREDD	Mohammed Mahmoud Moustapha	Head of the operational environment department	Qualitative data collection	February 10th, Kiffa
DREDD	Mouhamed Lamine Seneygelne	Regional environment delegate	Qualitative data collection	February 10th, Kiffa
APEP	Ahmed O. Brahim	President	Qualitative data collection	February 14th, telephone call

(From APEP-ODSAZAM consortium)				
	Goulo Hamadi	Project beneficiary	Qualitative data collection	Kewalla
	Aissata Dembe	Project beneficiary	Qualitative data collection	Kewalla
	Hawa Nama	Project beneficiary	Qualitative data collection	Kewalla
	Penda Seydou BA	Project beneficiary	Qualitative data collection	Kewalla
	Penda Samba Sow	Project beneficiary	Qualitative data collection	Kewalla
	Houraye Ba	Project beneficiary	Qualitative data collection	Kewalla
	Mariata Abdoul	Project beneficiary	Qualitative data collection	Kewalla
	Ndickel Ousmane	Project beneficiary	Qualitative data collection	Kewalla
	Penda Ba	Project beneficiary	Qualitative data collection	Kewalla
	Wourou Guilé	Project beneficiary	Qualitative data collection	Kewalla
	El ghadi Ould Mokatr	Project beneficiary	Qualitative data collection	Moyasser 2
	Mohamed Ahmed	Project beneficiary	Qualitative data collection	Moyasser 2
	Nava Mohamed	Project beneficiary	Qualitative data collection	Moyasser 2
	Fatimetou Ahmed Tayib	Project beneficiary	Qualitative data collection	Moyasser 2
	Mariem salem	Project beneficiary	Qualitative data collection	Moyasser 2
	Khalikhi demba	Project beneficiary	Qualitative data collection	Moyasser 2
	Abdellahi	Project beneficiary	Qualitative data collection	Dionaba
	Sidi Ahmed	Project beneficiary	Qualitative data collection	Dionaba
	Sidi Mohamed taleb Ely	Project beneficiary	Qualitative data collection	Dionaba
	Aïcha mint Abbeilil	Project beneficiary	Qualitative data collection	Dionaba

	Oum Nasr mint Essalek	Project beneficiary	Qualitative data collection	Dionaba
	Hadija mint Abbeilil	Project beneficiary	Qualitative data collection	Dionaba
	Aïcha mint Mbarek	Project beneficiary	Qualitative data collection	Dionaba
	El-Mahjouba mint Abdallah	Project beneficiary	Qualitative data collection	Dionaba
	Jebjebou mint El-Gassem	Project beneficiary	Qualitative data collection	Dionaba
	Fatima mint El-Hadj	Project beneficiary	Qualitative data collection	Dionaba
	Mariem mint Echemi	Project beneficiary	Qualitative data collection	Dionaba
	Amina mint Mohamed Mellane	Project beneficiary	Qualitative data collection	Dionaba
	Khadija mint Ma	Project beneficiary	Qualitative data collection	Dionaba
	Yehyib mint El-Mouled	Project beneficiary	Qualitative data collection	Dionaba
	Messoud Bilal	Project beneficiary	Qualitative data collection	Dionaba
	Fatimetou Mohamed radi	Project beneficiary	Qualitative data collection	Leweinatt
	Fatima Zayid	Project beneficiary	Qualitative data collection	Leweinatt
	Mariem Awdou	Project beneficiary	Qualitative data collection	Leweinatt
	Khadijetou Mouhamed	Project beneficiary	Qualitative data collection	Leweinatt
	Aichetou Sidi	Project beneficiary	Qualitative data collection	Leweinatt
	Bakeu diye	Project beneficiary	Qualitative data collection	Leweinatt
	Maimouna Moctar	Project beneficiary	Qualitative data collection	Leweinatt
	Kertoumeu Sidi Salem	Project beneficiary	Qualitative data collection	Leweinatt
	Toumeneu M Mohamed	Project beneficiary	Qualitative data collection	Leweinatt
	Abeu sidi Salem	Project beneficiary	Qualitative data collection	Leweinatt

	Khaliyouneu Mouhamed	Project beneficiary	Qualitative data collection	Leweinatt
	Teaguibe Mouhamed	Project beneficiary	Qualitative data collection	Leweinatt
	Zeidane Mouhamed	Project beneficiary	Qualitative data collection	Leweinatt
	Abheu Mouhamed	Project beneficiary	Qualitative data collection	Leweinatt
	Youmeu Mouhamed	Project beneficiary	Qualitative data collection	Leweinatt
	Salkeu Cheikh	Project beneficiary	Qualitative data collection	Leweinatt
	Diaguili Ould Mohamed	Project beneficiary	Qualitative data collection	Leweinatt
	Mohamed ould sidi	Project beneficiary	Qualitative data collection	Leweinatt
	Ely ould yahya	Project beneficiary	Qualitative data collection	Leweinatt

7.2. PARSACC Results Framework

Logframe	Indicator	Baseline	Target
Objective 1: Enhanced understanding, skills and means of decentralized government and communities for leading and facilitating participatory adaptation planning	Number of community adaptation plans prepared through participative local planning supported with information and facilitation by DREDD	No adaptation plans exist in intervention zones	20 clusters of villages have established adaptation plans in a participatory manner
Outcome 1.1: Strengthened awareness, ownership and facilitation capacities of government services (DREDD)	DREDD have played an active and supportive role in the mobilization, organization and implementation of inter-village adaption planning processes	DREDD do not have capacity to provide any support to communities	DREDD have succeeded to provide information, guidance and facilitation support to 20 village clusters
Output 1.1: Technical services strengthened to access and analyze climate change information, food security, livelihoods and vulnerability information, and to monitor local development, and mobilize and support communities.	DREDD have been trained, have communicated with department and local level, have visited communities, have facilitated village cluster establishment and discussions	DREDD do not visit communities and do not provide information, support, guidance or facilitate processes	DREDDs have regular contact and trustful relationship with village clusters and communities that value their support
Output 1.2: Strengthening of Government's threat, risk and vulnerability analysis capabilities by expanding current Vulnerability and Analysis methodologies to overlay climate threats and monitoring changes in landscapes using GIS technologies.	Preparation and communication to regional level of up-to-date and reliable information and analysis of climate change information and of government priorities	DREDD hardly receive any guidance, information and analysis from central level	Regular communications between central level and DREDD provide up-to date information and guidance, adapted to the capacity at regional level
Outcome 1.2: Strengthened awareness, ownership, planning and management capacities at community level for local natural resource management and climate change adaptation	Communities and their relevant sub-groups (e.g. women, livelihood groups, etc.) have actively participated in the preparation of the inter-village adaptation plans prepared and see their interests adequately reflected.	There is only little joint discussion at community level, and not all groups are involved; no inter-village discussions take place	About 100 villages in 20 village clusters understand, own and manage their adaption plans and their natural resources

Logframe	Indicator	Baseline	Target
Output 1.3: 20 inter-village associations established and supported.	Inter-village associations exist and are active in on form or the other in each of 20 targeted clusters	In some clusters, some form of cooperation structure may exist, on which the project can build.	20 inter-village associations with a role in managing natural resources and adaptation plans recognized by population and DREDD
Output 1.4: Communities trained in climate change threats and adaptation measures, which reduce vulnerability, in particular related to food insecurity.	Number of people (gender-disaggregated) and communities trained	Communities are aware of degrading natural resources, but rarely of context, causes and adaptation options	Communities have the capacity to analyse and understand their situation, and adaptation options
Output 1.5: 100 villages, being clustered according to landscape, ecosystem and livelihoods, have prepared adaptation plans that are integrated into local development planning. Identification of adaptation technology requirements such as integrated livestock water and cropping systems.	20 village cluster adaptation plans developed in a participatory way and officially recognised by DREDD Specific studies on adaptation technology requirements are available at the relevant levels	Communities and village associations do not prepare comprehensive adaptation plans A number of *ad hoc* studies exist within several projects, but are not systematically made available	Adaptation plans include analysis, discussion of options, decision on priorities and analysis of implications (costs, maintenance) Studies on technology for 3-4 "standard" adaptation assets are available to all partners and stakeholders
Output 1.6: Communities share success stories and lessons learned, including through the establishment of 4 community radio stations focused specifically on sharing information on early warning and adaptation management.	Community radios are on air, involving communities in programming and feed-back	To be established during project year 1 as part of CR feasibility study	Four CR are on air, have strong volunteer involvement and a sustainability strategy
Outcome 1.3: National ecologic monitoring system strengthened and tested	Participating communities and government services have provided quality, timely and reliable ecologic monitoring reports aligned with the national monitoring system	No ecologic monitoring system exists – this will be established as part of PANE II operationalization.	The new national ecologic monitoring system is known, used and maintained by DREED and in project village clusters
Output 1.7: Monitoring system in place (establishment, training, production of data and reports) to track climate events and ecologic development in project intervention zones.	Number of people trained at regional and village cluster level; amount and quality of data provided by village clusters / regional teams	There is no systematic collection, consolidation and analysis of data on nationally agreed-upon indicators	Participating DREDD and village clusters provide data on agreed-upon indicators; and receive, understand and use reports.
Objective 2	Number of implemented community adaptation plan action aiming to combat	No comprehensive community (cluster) adaptation plans exist in	20 comprehensive adaptation plans have been implemented with respect to combat

Logframe	Indicator	Baseline	Target
Design and implement concrete adaptation measures identified through community adaptation planning that aim to combat desertification, soil erosion and land degradation	desertification, soil erosion and land degradation	the intervention zones to be selected.	desertification, soil erosion and land degradation.
Outcome 2.1: Advance of sand dunes slowed down, halted or reversed	Reduced, halted or reversed dune advance in participating communities	To be established during project year 1	Significant deceleration – and ideally reversal – of dune advance
Output 2.1: 1,500-2,000 ha of dunes fixated.	Plants – and other measures – have stopped advance of dunes	Sand dune fixation does take place as part of several projects, but hardly in the zones to be selected.	Communities have fixated dunes and have a clear plan for maintaining / reinforcing fixation
Outcome 2.2: Increased vegetation cover in intervention zones	Increased Vegetation Cover Index in participating communities	ICV is not used systematically (mainly in ProGRN). Baseline to be established as part of adaptation plan preparation	Increase of ICV by at least 10% in participating village clusters until end of project, and clear prospect for further increase
Output 2.2: Augmentation 1,000-1,500 ha of vulnerable zones protected.	Area of land protected from against uncontrolled grazing and bush fires	There will only be sporadic protected areas in selected village clusters	1,000 – 1,500 ha of land protected and encompassed by sustainable management plan
Output 2.3: 1,000-1,500 ha of community fuel wood forests planted.	Area of land planted and controlled for fuel wood production; volume of produced fuel wood	There is hardly any controlled fuel wood plantation in areas to be selected	Participating communities cover at least 50% of their fuel wood requirements from controlled wood production
Outcome 2.3: Decreased loss of water and soil through surface run-off	Increased surface and underground water availability	There are only few – if any – water retention structures functioning in areas to be selected	Area where days of water availability has increased with at least 20% has grown by at least 20%
Output 2.4: Water retention structures built covering approx. 500 ha.	Number, kind, surface size and volume (where applicable) of water retention structures	To be established as part of adaptation plan preparation	Communities construct and maintain retention assets according to plan
Objective 3 Design and implement concrete adaptation measures identified through community adaptation planning that aim to diversify and strengthen the livelihoods of the most vulnerable population	Number and type of implemented community adaptation plan action aiming to diversify and strengthen the livelihoods of the most vulnerable population	No adaptation plans are in place, livelihood bases are hardly diversified in areas to be selected	Communities have implemented adaptation plan action and continue to gain sustainable income from new sources
Outcome 3.1: Increased number of sources of income for participating households	Number and type of sources of income for participating households before and after the project	Livelihood bases are hardly diversified in areas to be selected – specific baselines to be established as part of adaptation plan preparation	At least 20 % of village cluster population have widened their livelihood bases with new sources of income

Logframe	Indicator	Baseline	Target
Outcome 3.2: Increased income for participating households	Level of income for participating households before and after the project	Participating households are among the poorest in the selected areas.	Participating households have increased their revenues by at least 40%
Outcome 3.3: Increased availability of and access to food for participating communities	Food gap (number of weeks/months) for participating households before and after the project	Participating households have the greatest food gap in the selected areas.	Participating households have decreased their food gap by at least 50%
Output 3.1: Approx. 300,000 trees for revenue generation and food planted in protected areas.	Number of trees planted and growing in protected areas; amount of food and revenue gained from these	Baseline to be established as part of adaptation plan preparation	Planted trees already are – or have at least a clear prospect of – providing substantial amounts of food and income
Output 3.2: 4,000 technical staff and community leaders trained in livestock management, agricultural techniques and water utilizatio	Number of people (gender disaggregated) trained	Hardly any training is available in areas to be selected; extension staff requires training, too	Extension staff and cluster population are aware of and apply appropriate techniques
Output 3.3: 5,000 technical staff and community leaders trained and equipped for plant/seed multiplication.	Number of people (gender disaggregated) trained	Hardly any training is available in areas to be selected; extension staff requires training, too	Extension staff and cluster population are aware of and apply appropriate techniques
Output 3.4: 4,000 technical staff and community leaders trained and equipped for poultry development.	Number of people (gender disaggregated) trained	Hardly any training is available in areas to be selected; extension staff requires training, too	Extension staff and cluster population are aware of and apply appropriate techniques
Output 3.5: 1,600 technical staff and community leaders trained and equipped for apiculture.	Number of people (gender disaggregated) trained	Hardly any training is available in areas to be selected; extension staff requires training, too	Extension staff and cluster population are aware of and apply appropriate techniques
Output 3.6: Approx. 20 community cereal banks established.	Number of functioning village cereal bank associations; volume of cereals and money in bank.	No village-owned cereal banks exist in areas to be selected – to be confirmed during adaptation planning	Participating communities own their VCB, membership, money and food held by associations is stable
Output 3.7: 30,000 fuel efficient stoves provided.	Number of fuel efficient stoves built by participating communities; share of reduced consumption of fuel wood	Fuel-efficient stoves are hardly known and available in areas to be selected – to be confirmed during adaptation planning	Communities know, understand and use fuel efficient stoves; fuel-wood consumption by participating households reduced by at least 40%
Output 3.8: 2,000 community members (mostly youth) trained to build	Number of people (gender-disaggregated) trained	No training is available in areas to be selected; extension staff requires training, too.	In all participating communities a group of people regularly builds and repairs fuel-efficient stoves;

Logframe	Indicator	Baseline	Target
and maintain fuel-efficient stoves.			

7.3. Conditions driving sustainability

Component 1: Support technical services and the communities they serve to (a) better understand climate risks, their impact on livelihoods and food security and (b) facilitate participatory decentralized adaptation planning

Outcome 1.1: Strengthened awareness, ownership and facilitation capacities of government services (DREDD)		
Outcome delivered: 8 DREDD led, participated in and supervised the implementation of 85 climate change adaptation action plans in 85 villages in the project area.		
Description: DREDD's capacities have been strengthened through training. Work equipment and vehicles were provided. DREDDs were then responsible to raise awareness about climate change and monitor and guide project's implementation. Under this outcome, the project also set the groundwork for the establishment of an early warning system (EWS) at the community level by initiating a process to develop a partnership framework between producers of information and broadcasters. At the end of the project, the Coordination Unit of the National Program on Climate Change (CCPNCC), under the MEDD was formalizing this framework partnership agreement.[73]		
Expected sustainability duration (without ***additional*** interventions): Short to medium term		
Factor	**Desk-based analysis**	**Field work findings (based on institutional interviews)**
Ownership	According to the project's impact assessment and exit strategy, sustainability was supported by the project's empowerment of regional institutions throughout the project, from the definition of activities to their implementation. However, key technical staff required to ensure continuity was insufficiently involved.[74] Interviews indicate ownership was low within the Ministry (incl. DREDDs). There may have been a loss of interest in pursuing climate change adaptation activities and the development of an EWS associated with the end of project funding.	Interviews with DREDDs confirmed their limited drive for undertaking initiatives that support communities with their climate change adaptation efforts in the absence of specific projects. NGOs have expressed strong interest and commitment in supporting adaptation planning for communities and at the regional scale.
Capacities	Capacities have been strengthened at the local level in the 8 DREDDS for each of the project's targeted wilayas. This has taken place through training and involvement in supporting communities with their climate change adaptation plan (learning by doing), which is favorable to capacity retention. However, interviews indicate high turnover within the Ministry (incl. DREDDs). In the absence of subsequent projects, resources to	Interviews during field visits revealed: Good levels of awareness and knowledge about climate change adaptation within DREDDs High turnover: DREDD staff is regularly moved from one wilaya to the other. In the absence of information systems, new Heads of DREDDs will not have information about previous projects Incomplete or unclear information about DREDD's responsibilities with regards to community adaptation planning. High level MEDD staff

[73] PARSACC PPR 5 (Final) June 2020.
[74] Selmane M. L. (2019). Évaluation d'impact des actions d'adaptation au changement climatique et préparation de la stratégie de sortie du projet PARSACC.

	retain trained personnel would be limited. New projects in some areas may have supported the maintenance of the capacities.	indicate it is within DREDD's purview, and a DREDD confirmed adaptation action plans exist and committees at the wilaya level (maybe not for all wilayas), however supporting communities with adaptation was not mentioned as one of their responsibilities during interviews. Instead, tasks focused on environmental monitoring, protection of vegetation cover and enforcement. NGOs interviewed demonstrated strong understanding of climate change issues. Which was acquired through project training. One of the NGOs also mentioned receiving additional training on adaptation from UNWomen. The Kewalla adaptation plan shows adequate use of climate change vulnerability assessment terminology.
Partnerships	Local environmental NGOs were contracted by the project to support DREDDs in their work with communities (support to action plans and other activities, monitoring and reporting). This collaboration probably ended at the end of the project. The project "Development of an improved and innovative management system for sustainable livelihoods resilient to climate change in Mauritania" (DIMS) intervened with the DREDDs of four PARSACC wilayas (Guidimakha, Assaba, Hodh El Gharbi et Hodh El Chergui) to build their institutional capacity to implement ecosystem-based adaptation. It was implemented from 2017 to 2023 and could have contributed to sustain the capacities built in these DREDDs..[75] There is no information on whether the partnerships developed as part of the work to establish an EWS was formalized after the end of the project and whether it was sustained.	Other projects have helped sustain DREDD capacities. DIMS was specifically mentioned as having helped mitigate "withdrawal effect" from the end of PARSACC in Guidimakha. Other projects mentioned included an FAO project and the Great Green Wall Initiative. NGOs have established themselves as capable partners to support both DREDD and development partners climate change adaptation activities. Following the project, they have remained involved in the topic with both of them.
Resources / assets	Physical assets obtained during the project like vehicles and computers have a short lifespan (a couple of years after project end). The salary "top up" from the project for conducting climate change adaptation activities ended with the project. The DIMS project likely brought additional resources for DREDDs to renew some of their equipment and possibly retain some personal. Communication of agropastoral information was low at Terminal Evaluation.	Some of the equipment provided to the DREDDs by the project is still functional, including a few cars. However, DREDDs confirmed having no financial capacity to support communities with their adaptation planning. Financial resources from development partners are required to that end.
Sustainability at ex post	Likely: Based on the above assessment, outcome 1.1 may have been sustained where other projects continued supporting DREDDs with their capacity, such as in the wilayas where the DIMS project	Actual: Sustainability of this outcome lacks ownership and resources. Despite knowledge retention on climate change, specific information about project activities does not survive staff turnover. Subsequent

[75] https://www.thegef.org/projects-operations/projects/5580

	intervened. The outcome on EWS was not achieved by project's end.	projects and the capacities of partner NGOs have helped sustain some of the benefits.

Outcome 1.2: Strengthened awareness, ownership, planning and management capacities at community level for local natural resource management and climate change adaptation		
Outcome delivered: The sensitized communities about climate change impacts of 85 villages have played an important role and have actively participated to all the steps of the process of elaboration of climate change adaptation action plans, including the identification and prioritization of adaptation options. Most of these adaptation action plans were reviewed and updated by the NGOs with the participation of all targeted groups (man, women and young beneficiaries).		
Description: The project supported existing inter-village associations where they existed or created VMCs to support the planning and implementation of project activities and longer-term sustainable management of natural resources. It delivered an awareness raising program through the DREDDs, NGOs and radio broadcasts, and supported the preparation of adaptation action plans.		
Expected sustainability duration (without additional interventions): Medium to long-term		
Factor	**Desk-based analysis**	**Field work findings**
Ownership	The Impact Assessment Report states that community engagement was a strong asset of the project. Among survey respondents to the Impact Assessment, 68.6% had participated to the needs assessment and the selection of the activities to be implemented in their community. The participation of women in project activities is perceived as "high" by 78.6% of respondents. Finally, 92.5% of respondents considered that they received sufficient information about PARSACC processes. The Impact Assessment Report notes that "the project has had a positive impact on social dynamics and organisation, helping to motivate local people" And that "some management committees are dynamic and take ownership of the project's achievements." Interviewees concur with the assessment that the engagement of communities was a strong feature of the project and supports sustainability. Interviewees indicated some VMCs are still active today, but the extent of support provided by DREDDs in implementing adaptation action plans beyond the project lifetime is to be validated.	In the three sites: some awareness remains about climate change, but no clear concept of what resilience means or how to achieve it. The women in Kewalla gave the example of needing more trees within the community to face heat waves. A village leader also noted changes in their environment, such as the disappearance of tree species. The sense of ownership for the adaptation activities overall is variable, as is engagement with community groups in IGAs and other activities.
Capacities	Among survey respondents to the Impact Assessment, 49.6% had participated in the project's capacity-building activities (although the report does not specify if this includes specific training on livelihoods). The strengthening of organizational and management capacities of communities is considered an asset for the sustainability of this outcome in the Impact Assessment Report and the Final Evaluation.	The CCA plans developed during the project are no longer used. Interviews with local partners confirmed these were meant to guide and select project activities, but not as standalone documents that communities would implement beyond the project's lifetime. It seems unlikely that communities would have the capacity to undertake the development of new plans by themselves.

	However, their capacities are described as variable in the Impact Assessment Report and as required further support to be consolidated, in the Terminal Evaluation. Both reports emphasize the need to strengthen VMC capacity as a priority for the project's exit strategy, and identify the lack of functionality of VMCs as hindering sustainability. Interviewees confirm that the capacities strengthened among local organizations were crucial in ensuring sustainability, and indicate that some of the VMCs created may still be operational today, especially in Guidimakha. Organizations that existed before the project, but received support, are likely to still be in place. The Impact Assessment Report notes that 71.7% of respondents stated that they had the capacity and means to carry out resource protection and management activities without the support of the project. Nearly 28% do not think they have these capacities and means. Some interviewees consider that VMCs would still have the capacity to coordinate activities. However, the sustainability of their role in planning for adaptation is unclear. An interviewee mentioned that the NGOs involved had grown and become empowered by the project, and that some of them went on to execute projects with international agencies (e.g. FAO)	In Kewalla, the VMC is still active and operating village activities, including the management of fodder/grazing areas. Two interviewees mentioned that it is in the process of becoming an AGLC. This would not only formalize its capacity to plan land use for the community, but it would also enable them to access more funding (this funding would likely come from development partners rather than government). There is also a strong cooperative (not created by the project) that engages all women from the village (according to women FGD) and oversees IGAs (PARSACC and non-PARSACC). Decisions on which IGAs to pursue (or stop pursuing) are made at the community level – but the mechanism to do this is unclear. In Dionaba, the VMC is still operational and overseeing some of the activities. The women's cooperative is strong and active managing IGAs. In Moyasser 2, the VMC no longer seems active, although a few interviewees mentioned its existence. The women's cooperative, on the other hand is operational. In the three villages visited, VMCs were led by men, who were the village chiefs. The role of women is strong within their cooperative, but no visible within the VMCs. This organization aligns with traditional gendered roles, where men take care of cattle and women focus on household chores.
Partnerships	See Outcome 1.1 for continuation of DREDD engagement According to interviewees, the engagement of some of the NGOs is likely to have continued with support from other projects/donors.	Communities no longer received support from DREDDs after the end of the project. Only in Kewalla is the DREDD still involved with the VMC as it evolves into an AGLC, a process which takes several years and requires significant support. No information was gathered on who (DREDD, donor…) may be supporting them with that process. NGOs have not been involved in the three villages since the end of the project.
Resources / assets	The Impact Assessment Report notes that 71.7% of respondents (community members) stated that they had the capacity and means to carry out resource protection and management activities without the support of the project. Nearly 28% do not think they have these capacities and means. As mentioned above, carrying out specific activities could be sustainable (see assessment on Component 2 and 3), but it is unclear which resources and assets would be available to continue planning for adaptation and implementing adaptation action plans.	No evidence of resources additional to those related to specific activities under component 2 and from IGAs.
Sustainability at ex post	Likely: The sustainability of this outcome is highly dependent on the capacities of organizations on each site. Where these organizations are structured, sustainability is likely, as they will have been able to	Actual: Any sustainability on this outcome depends on the strength of local organizational capacities. This is strong for women's cooperatives

	sustain and transmit capacities acquired, and continued undertaking actions to sustainably manage their natural resources.	in the three sites, and variable for VMCs. Awareness about climate change remains, but capacity to plan adaptation activities is not present.

Outcome 1.3: National ecologic monitoring system strengthened and tested		
Outcome delivered: DREDDs have already been trained in this system and regularly contribute to providing it with the necessary data, including those from the project's intervention areas.		
Description: The Monitoring System for the Second National Environmental Action Plan (PANE II) had been set up in 2014 by the MEDD with GIZ support. It aimed to provide monitoring data to the MEDD about ecological conditions (sand dune fixation areas, wood-fuel plantation areas and the protected grazing areas). **The project provided training on its use and developed monitoring guides. It also organized data collection missions with the DREDDs on project sites, to contribute to the national monitoring system.**		
Expected sustainability duration (without additional interventions): Short term		
Factor	**Desk-based analysis**	**Field work findings**
Ownership	There is no information on this aspect.	Across institutional interviews, there was no clarity and limited memories about this activity. Some were able to mention that it was supported by GIZ, but displayed no sense of ownership about this activity. In one of the DREDDs visited, information from environmental monitoring collected during the project was still available (paper form). The interviewee was enthusiastic about this information being available, and regretted that it could not be updated.
Capacities	According to project progress reports, the training received by DREDDs was used to conduct monitoring reports during the project, which is favorable to consolidation of capacities. Interviewees indicated there was a discontinuity with the system's operation at the national level. Lack of continuity of monitoring activities after the end of the project and staff turnover would likely lead to attrition of these capacities.	Institutional interviews confirmed environmental monitoring is a key DREDD responsibility. However, there is no current framework to undertake it. The system established by GIZ is no longer operational. The DREDDs therefore lack the capacity to fulfil this mandate.
Partnerships	There is limited information on the institutional structure within which these activities were conducted, which was not within the project's scope. Leadership at the national level for the continued implementation of the monitoring system at the local level would be necessary, for local data collection to continue., Currently available information (see Capacities and Resources sections) indicate it is unlikely that this structure was sustained in the years right after the end of the project (within the expected sustainability duration of this outcome).	This activity was implemented in line with GIZ PANE II system. In the absence of continuity of this system, related activities could not continue.

	A new partnership with the World Bank to strengthen environmental monitoring was launched in 2024.[76]	
Resources / assets	The key asset necessary for the sustainability of this outcome is an operational environmental monitoring system. This system, as it was set up at the time of the project, does not appear to have been maintained. The website where it was hosted (http://www.medd-sepane.mr/) is no longer operational and an interviewee mentioned some discontinuity in the system's operations, making it highly unlikely that any related outcomes have been sustained. The continuation of activities beyond the project lifetime would have required additional budget. To date, there is no information that such additional budget was made available. The guides developed with project support for data collection are the key assets developed by the project that could have supported continued activities. There is no information from interviews as to their continued use and relevance. Considering the discontinuities and possible changes in the system, these guides may not be relevant to the current version of the system.	This activity was implemented in line with GIZ PANE II system. In the absence of continuity of this system, related activities could not continue. Even if the system had been operational, no financial resources were available to continue related activities.
Sustainability at ex post	Likely: In the absence of continued operation of the monitoring system, it is not possible to continue generating related benefits. Capacities built will likely have been lost by now or would no longer be relevant to updated versions of the system.	Actual: Not sustained. None of the required sustainability factors were in place.

Component 2: Design and implementation of concrete adaptation measures identified through community adaptation planning that aim to combat desertification and land degradation.

Outcome 2.1: Advance of sand dunes slowed down, halted or reversed		
Outcome delivered: With the process of mechanical and biological fixation of sand dunes covering 995 ha, the advance of the dunes has been slowed down at the treated sites. In many sites this advance was totally halted even reversed (Tichoutine site in Brakna and Ghoueisbou Site in Assaba).		
Description: Dune stabilization was achieved through a combination of mechanical fixation that involved 707km of weaving, combined with biological fixation. It was implemented by communities through a food for assets (FFA) mechanism (cash incentives).		
Expected sustainability duration (without additional interventions): Medium to long term		
Factor	**Desk-based analysis**	**Field work findings (Dionaba and Moyasser 2)**
Ownership	There is limited specific information on the extent of ownership of these efforts. Interviews and the Impact Assessment Report concur	Dionaba:

[76] http://environnement.gov.mr/fr/index.php/accueil/actualite/439-vers-une-gestion-efficace-du-systeme-d-information-environnemental-en-mauritanie

	that community engagement was a strong asset of the project (as a whole). Engagement of communities from the selection/definition of activities to their execution is favorable to their sustainability. The FFA approach had the benefit of actively involving communities in dune fixation activities, which is favorable to ownership, especially if the fixation is successful. On the other hand, this involvement may remain transactional and end with the financial incentives. Ownership of the DREDDS is unknown.	Some awareness of the benefits of the outcome but low interest as benefits are long-term and do not directly generate income. Interviewees mentioned that early on, efforts were made by men to maintain the infrastructure (watering plans), but they progressively lost interest. There is currently no evidence of engagement of time or resources allocated to maintenance by the community. Only 2-3 men still claim to undertake some maintenance (observation and confirmed through interviews/FGDs) Moyasser 2: Good level of awareness about the benefits of the outcome. Currently, there is no evidence of allocation of time or resources to maintenance by the community (from interviews and observation)
Capacities	Community involvement in fixation activities built their technical capacity to undertake dune fixation activities. Approximately 60% of survey respondents in the Impact Assessment Report described their proficiency in wattle techniques, nursery and planting techniques and dune stabilization techniques as "good". There was a good understanding of the usefulness of the techniques applied.[77] The project developed a set of rules for managing the dune fixation sites, however there is no information on whether this was adopted by communities. The report on the development of these rules indicates that due to the lack of maturity of the vegetation planted, the rules are still preliminary.[78] This is one of the outcomes where sustainability would have been influenced by the capacities of VMCs to sustainably manage the assets, although no specific information on whether these capacities were sustained was collected during interviews. The sustainability of the capacities of the DREDDs in this area is unknown.	The technical capacities required to maintain the benefits are relatively basic: caring for vegetation and maintaining the fences. Dionaba: Know how to maintain the area has been maintained. Management committee to support the initiative no longer functional. Survey respondents pointed out that disruptions related to COVID-19 led to an interruption of maintenance activities, which has decreased their effectiveness. Moyasser 2: Know how to maintain the area has been maintained. Some interviewees mentioned the existence of a management committee that supports the management and maintenance of the infrastructure. However, its existence seems only theoretical, as there is no evidence that efforts have been undertaken to manage the site.
Partnerships	The rules developed for managing fixation sites followed a "co-management model" that aims to empower different stakeholders in local actions. The VMC was expected to manage the sites and oversee the continuation of the fixation process, with technical support and monitoring from the DREDDs. According to an interviewee, some sites have benefitted from continued support through a WFP/MEDD project in the context of the	Dionaba and Moyasser 2: None additional support or partnerships have been available to communities to support their efforts.

[77] MEDD (2018) Rapport de mission pour l'élaboration des règles de gestion des zones de mise en défens, reboisements villageois et fixation des dunes
[78] MEDD (2018) Rapport de mission pour l'élaboration des règles de gestion des zones de mise en défens, reboisements villageois et fixation des dunes

	Great Green Wall (GGW) initiative, through a Spanish government debt swap..[79]	
Resources / assets	The rules developed for managing fixation sites indicate that each village was expected to establish a self-funding mechanism to continue funding fixation activities. Depending on the level of advancement at each site, different maintenance activities are required to ensure the sustainability of the achievements (either increasing the height of the mechanical barriers, caring for vegetation or maintaining protective barriers). This may be undertaken by communities, but funding would be required for materials. Interviews did not ascertain whether this had been done in specific sites. Additional financial and technical resources may have contributed to sustainability in some sites (WFP/MEDD/GGW).	Dionaba: Clear presence of trees (no grass) on site. No visible erosion, partial silting of the infrastructure that the stabilization was intended to protect – buildings, water points, fertile cultivable areas, etc.) The fences are degraded, half of them have fallen. Vegetation is clearly present, but no longer protected. Evidence of presence of animals and of firewood collection within the area. Tangible resources: Some local equipment was available for maintenance (shovels, pliers, wire) and were sufficient. No additional financial resources available, but this has not been perceived as a barrier yet. Moyasser 2: Observation did not identify mechanical fixations, but biological fixation (trees, not grass) was evident, with dense (and alive) plants. There is no visible erosion or silting. There is no evidence of recent maintenance, and fallen fences give access to animals. Interviewees state that the dune fixation continues to protect the village against silting. It benefits both men and women – in their differentiated roles. A government official noted that recent years of drought had affected the effectiveness of the activity by hampering natural regeneration, which threaten the ability of plants to grow strong roots that resist winds and stabilize the ground. Tangible resources: Some local material available for maintenance but not used. An interviewee mentioned the quality of the equipment (fences) was poor and had contributed to the degradation of their condition. No additional financial resources available, whereas purchasing new fences would require significant investments.
Sustainability at ex post	Likely: Variable from site to site depending on maturity of activities at the end of the project, level of community organization, and additional funding, among other factors.	Actual: Yes, but compromised. Lack of maintenance has been affected by different factors depending on the site.

[79] WFP (2021). Mauritania Annual Country Report 2021 and https://www.angmv-mr.com/signature-convention-entre-medd-et-pam-2/

Outcome 2.2: Increased vegetation cover in intervention zones		
Outcome delivered: • Twenty-five protected grazing areas of 25 to 50 ha totaling 1,000 ha have been created. In 2017, 2018 and 2019, tree plantations and pastoral improvements were carried out, planting some 280,000 local plant species. • 37 perimeters of firewood plantations have been established on more than 460 ha. • 995 ha were mechanically and biologically fixed on 36 sites as part of the sand dune fixation activity, increasing the vegetation cover in the targeted project communities. All these plantations were carried out with an average density of 400 plants per hectare, increasing the density of vegetation by more than 10% compared to the baseline situation.[80]		
Description: In 2017, 2018 and 2019, pastoral improvements were made in the 25 areas protected by planting local species to restore vegetation and improve the forage balance of these reserves, which will play an important role for these communities, especially during drought years when pastures are insufficient to cover livestock needs. Rules were developed and community representatives trained to enable the management committees of these areas to better ensure their sustainability. 460 ha of collective land ranging from 5 to 10 ha were planted in 37 villages for fuelwood production, with the purpose of providing communities with a space where they can extract their firewood needs, thus preserving existing natural resources already weakened by over-exploitation and overgrazing. Operating regulations have been elaborated and communities' representatives have been trained to ensure the sustainable management and exploitation of these areas by the Village Management Committees. .[81]		
Expected sustainability duration (without additional interventions): Medium to long-term		
Factor	**Desk-based analysis**	**Field work findings (Kewalla, Dionaba, Moyasser 2)**
Ownership	There is limited specific information on the extent of ownership of these efforts. Interviews and the Impact Assessment Report concur that community engagement was a strong asset of the project (as a whole). Engagement of communities from the selection/definition of activities to their execution is favorable to their sustainability. The Impact Assessment Report notes that significant benefits resulted from the *protection activities*, which are likely to promote ownership. Indeed, 98% of respondents that benefitted from these activities consider them either "useful" or "very useful", and 56% generated income from these areas. These areas also increase fodder availability and reduce the need for transhumance. The Impact Assessment Report also indicates that 77% of respondents that benefitted from *tree plantation* considered that it had significantly contributed to protect their natural resources, habitat and living environment. However, the validity of this finding is limited by the fact	Kewalla: No evidence of ownership in relation to wood resources (initially planned outcome), even though it was prioritized in the CCA plan. This prioritization seems to stem from a mistake in the analytical process leading to prioritization. The need for increased fodder was mentioned in several locations, and the related adaptation priority identified was to improve the management of grazing areas. However, the specific options proposed included protecting trees and protection against bushfires. This led to a "village wood" activity that was not coherent with the initial need. Strong ownership of grazing/fodder areas, resulting from high awareness about the need to protect vegetation and the importance of fodder to feed animals. High level of awareness among men about the benefits of protecting vegetation cover against uncontrolled grazing. The FGD with men also mentioned that women and children too are

[80] PPR 5 (April 2020)
[81] PPR 5 (April 2020)

	that several plantations failed due to lack of water and others were not mature enough to generate such benefits. The effects of the use of an FFA approach to implement these activities on ownership is uncertain (see Outcome 2.1 above).	aware and keep an eye on the fences. There was a collective investment to fix the fences once they were degraded. Moyasser 2: Good awareness of the benefits of the outcome. Theoretical existence of a monitoring and maintenance committee. FGD indicated that the community actively participates in site maintenance, driven by awareness of related benefits. However, the state of deterioration of the site does not support this statement: Currently no evidence of engagement of time or resources allocated to maintenance by the community Dionaba: There is limited awareness about environmental challenges. Along with limited perceived immediate benefits, this leads to low community engagement (FGD).
Capacities	Technical capacities required to maintain *protected areas* are limited (fence maintenance), which is favorable to sustainability. Sustainable management of the areas to ensure sustainable consumption is more challenging. Rules have been elaborated to this end[82] with village management committees responsible for ensuring continued protection and fining of trespassers. The template agreement is quite general and there is no information about the extent to which it has been adopted and applied. The Impact Assessment Report includes a quote from one community where this system is operational. The capacity of village management committees is variable. Nonetheless, interviewees consider it likely that this outcome has been sustained, given the limited capacities required to maintain the assets. On the other hand, tree plantation requires ongoing technical support in the long-term (except in the case of natural regeneration). This support would not have been available after the end of the project. As for protected areas, rules were elaborated and management/enforcement placed under the responsibility of village management committees with various levels of capacities, with no information about their actual level of enforcement.	Kewalla: No organization was established to manage firewood production – probably due to a lack of ownership. Primary users of firewood are women, and it would have required the involvement of women in its management. Technical capacities are evidently good, as hay is abundant and of good quality, providing a good source of food to livestock. These capacities are not very complex. Knowledge and good practices are shared within the community (FGD) Instead, the VMC (led by men) manages the grazing area and ensures maintenance. It is very active. (Interviews) It seems unlikely that women would have had that capacity. Fodder is abundant and of high quality (observation) Moyasser 2: Maintenance requires a few skills to identify and maintain plans, in addition to fixing the fences. These are locally available, but knowledge could be improved (FGD). A plan had been established to ensure sustainability of the protected grazing area to ensure the survival of trees, even if fences failed. The FGD participants mentioned that maintenance activities are undertaken regularly. However, site visits show no evidence of maintenance, as the fences are highly degraded. The existence of a management committee to support the initiative seems only theoretical.

[82] MEDD (2018) Rapport de mission pour l'élaboration des règles de geston des zones de mise en défens, reboisements villageois et fixation des dunes

		Dionaba: There is no plan to manage or sustain results related to vegetation cover. Even though skills are locally available to ensure maintenance, they are not used for lack of interest (FGD).
Partnerships	The main partnership necessary for the sustainability of protected areas is that of the village management committee. Regional authorities were expected to support communities in case of conflict with a trespasser. NGOs were involved in providing technical support to communities for tree planting activities. Their continued engagement at the end of the project is uncertain. There is no information about projects that would have continued to support these specific sites and activities.	Kewalla: No further support received on that activity. Moyasser 2: None
Resources / assets	The Final Evaluation states that the result of many of the tree planting activities and protected grazing areas would be seen in the years following the end of the project. It also notes that the success rate of tree plantation was between 50 and 60% of those remaining 50-60%. Resources required for the maintenance of protected areas are relatively limited (fence maintenance, security staff). Income generated by users is expected to cover these costs, along with any fines collected. Resources to sustain planted forests are significant due to the need to obtain technical support. The longer timeframe to start generating benefits (income, fuelwood) could have hindered the ability of the village management committees to collect funds to achieve and sustain results.	Kewalla: Low success rate of tree planting due to slow growth exposing them to extreme weather for longer (institutional interview) Fences are in an excellent state of maintenance and effectively protect the two sites. (Observation) A user fee allows to collect funds for maintenance of fences and security. The community owns basic equipment required to ensure maintenance: picks, pliers and wire. However, there is a need for more plants and seeds – especially adapted and good quality seeds. (FGD) Moyasser 2: When the fences were in a good state, this enabled vegetation cover to grow. They are now deteriorated, hindering effectiveness (observation and interviews) Tangible resources: Some local material available for maintenance but not used. Financial resources: A guard is paid by the community through the levy of a small user fee. No evidence that the user fee is used to invest in equipment. Drought has compromised the effectiveness of the asset. Many survey respondents point out the lack of rain last year that significantly affected fodder availability (not only on the protected area). Dionaba: Some of the areas are still in a good state, despite the lack of fences. They improve biodiversity and fodder availability. (FGD)

		The fences are in a very poor state and have not been maintained. A few shrubs have been planted recently. (Observation) There is no equipment or seeds to maintain or improve the site (FGD).
Sustainability at ex post	Likely: Sustainability of protected areas is likely in communities where village management committees have the capacity to collect fees and ensure security. While success of reforestation/plantation activities may have been limited, in project sites where restoration was successful by the end of the project, results may still be visible. On the other hand, several obstacles linked to the complexity and longer-term nature of plantation activities may have hindered the achievement of outcomes after the end of the project and their sustainability.	Actual: Variable across sites.

Outcome 2.3: Decreased loss of water and soil through surface run-off		
Outcome delivered: 440 ha of degraded lands have been restored, increasing sub-soil water availability and agriculture lands.		
Description: 18 water retention structures were built in 6 villages in Guidimakha and 4 villages in Gorgol. The structures which are water retention dikes, filter dams and stony cordons, were entirely built by local population without heavy machinery, with only local tools and supervising technicians offered by the project. These water retention structures have restored and reclaimed approximately 440 ha of lands in which have been cultivated by the beneficiary communities since 2018.		
Expected sustainability duration (without additional interventions): Long term		
Factor	**Desk-based analysis**	**Field work findings (Leweinatt)**
Ownership	There is limited specific information on the extent of ownership of these efforts. The effects of the use of an FFA approach to implement these activities on ownership is uncertain (see Outcome 2.1 above). The Impact Assessment Report reports mixed perceptions on the benefits on these activities, with only 30% of beneficiaries considering that these efforts had greatly improved soils productivity, while 52% considered improvement as “medium”. These limited perceived benefits may have adversely influenced sustainability. The fact that these benefits are rapidly observable is however an advantage and may compel communities to maintain infrastructure.	Interviews in Leweinatt indicate a relatively good awareness about the benefits from water retention infrastructure. Land located downstream for the tow stony cordons is adequately maintained and visibly productive. Some of the land is held collectively, while other is individual.
Capacities	These structures were built by the communities themselves, which, according to interviewees, gave them the capacity to maintain and	The technical capacities required for maintaining the infrastructure are low. A technician could be brought in to make sure they are done properly.

	rehabilitate them in the future. The techniques used are simple which facilitates the maintaining of capacities. Limited institutional capacity is required to maintain infrastructure. Unlike for other project assets, no management agreements were developed for water retention infrastructure. Yet, awareness and ownership of these assets would be required to ensure minimal maintenance of the assets.	This activity is considered high labor intensity: It mostly requires carrying rocks around and setting them up on the structure. Leweinatt does not have the capacity to organize such maintenance activities. It requires mobilizing a lot of people for heavy work. It also requires bringing rocks from another location and into the village. As a result, no maintenance activities have been organized.
Partnerships	The main partnership necessary for the sustainability of protected areas is that of the village management committee. There is no information about projects that would have continued to support these specific sites and activities.	No partnerships have supported the sustainability of this outcome.
Resources / assets	Equipment and materials required to maintain infrastructure are limited and should be available locally (cord, rocks, etc.). Infrastructure does not deteriorate rapidly and could still be in place with minimal maintenance.	The two stone cordons are still in place but visibly degraded. Interviews confirm they do not retain water as well as they used to. The cost of resources (rocks) for maintenance is limited. But the challenge is bringing them to the village, and then to the specific sites.
Likely sustainability at ex post	Despite perhaps limited ownership, the durable low low-tech nature of these interventions could have enabled this outcome to be sustained.	Organizational capacities in Leweinatt are insufficient to plan for high labor-intensive maintenance.

Component 3: Design and implement concrete adaptation measures identified through community adaptation planning that aim to diversify and strengthen the livelihoods of the most vulnerable population.

The three outcomes under this component stem from the same set of activities and outputs. These involved:

- Tree planting in protected areas for revenue generation and food: 280,000 trees in 25 protected areas
- Training to technical staff and community leaders on livestock management, agricultural techniques and water utilization: 31,021 participants (63% women and 37% men) trained
- Training and equipment for plant/seed multiplication: support to 42 women's cooperatives to set up vegetable gardens, training on preserving and drying surplus.
- Training to technical staff and community leaders and equipment for poultry development: 16 semi-intensive and 40 traditional poultry farming units succeeded
- Training and equipment for apiculture: 5,517 participants involved in this activity (284 women and 233 men)
- Provision of fuel-efficient cookstoves: 20600 cookstoves built and distributed
- Training of community members (mostly youth) on building and maintaining fuel-efficient cookstoves: 179 young volunteers and artisans among 60 sites of the project in the 8 Wilayas were trained and participated in their distribution and maintenance.

a) Desk review

<table>
<tr><th colspan="2">Outcome 3.1: Increased number of sources of income for participating households</th></tr>
<tr><td colspan="2">Outcome delivered: New income-generating activities (IGAs) have been introduced in many project sites, which resulted in increased livelihood bases for 46% of project beneficiaries.</td></tr>
<tr><td colspan="2">Description:
New IGAs included:
High value crop production, in 52% of total project sites
Poultry, in 55% of total project sites
Beekeeping, in 9% of total project sites
Fruit farming, in 21% of total project sites
Manufacturing improved stoves, in more than 70% of project sites
Butchers, in 26% of total project sites
Bakeries, in 7% of total project sites
Community shops, in 40% of total project sites
Vegetable marketing unit, in 1% of total project sites
Couscous production units, in 11% of total project sites
Sewing units, in 2% of total project sites
Fattening units for small ruminants, in 4% of total project sites
Livestock feed stores, in 2% of total project sites
Grain mills, in 16% of total project sites
Dyeing units, in 5% of total project sites
In addition, according to the Impact Assessment Report, 15% of respondents used income derived from IGAs to develop new IGAs.</td></tr>
<tr><td colspan="2">Expected sustainability duration (without additional interventions): Medium to long term</td></tr>
<tr><td>Ownership</td><td>Interviews and the Impact Assessment Report concur that community engagement was a strong asset of the project (as a whole). Engagement of communities from the selection/definition of activities to their execution is favorable to their sustainability.
IGAs are directly owned and managed by communities, either individually or through associations or cooperatives.
Training delivered to individuals or cooperatives, and especially to women, empowers them to undertake IGAs, which may generate a sense of ownership if businesses are successful. Both progress reports and interviewees observed re-investment in IGAs with own funds, which would support this assumption.</td></tr>
<tr><td>Capacities</td><td>Technical capacities for specific IGAs are likely to be maintained by direct beneficiaries as long as they are used. The Impact Assessment Report considers it as an asset for sustainability. In addition to technical capacities, managerial capacities are needed to sustain activities, and were also included in the training provided. Nonetheless, the Impact Assessment Report concludes that the duration and content of some of the training was not sufficient, which could hinder sustainability.
One interviewee considered that the capacities built were likely to stay and be transmitted informally within communities, for successful IGAs.
The involvement of existing cooperatives is favorable to sustaining both technical and managerial capacities.
VMCs played a key role in IGAs, but he Impact Assessment Report expresses concern that their continuity would be threatened by the end of the project, which would destabilize many of the achievements (see Outcome 1.2). This is an area to be further explored, as the</td></tr>
</table>

	exit strategy involved further strengthening their capacities. Loss of capacities may be caused by outmigration and competing priorities (e.g. family care, transhumance obligations, etc.)
Partnerships	Technical support from local authorities was not leveraged during the project, which could have hindered sustainability (according to the Impact Assessment Report). The Impact Assessment Report notes that communities perceive a continued need for support. Other projects like the DIMS may have delivered similar support, but it may not have targeted the same beneficiaries.
Resources / assets	Reinvestment with own funds was already observed during project implementation, and interviews indicate it could have continued after its closure. Interviewees indicate some of the small businesses may have failed while others may have been sustained or may even have grown. Specific infrastructure supports IGAs (grain mills, boreholes and wells, community shops, market gardening or protected areas) and has to be maintained to continue operating. Access to equipment and technical skills to maintain infrastructure is essential. Capacity to maintain this infrastructure would only be available where IGAs are supported by dynamic and proactive associations (cooperatives or village management committees). The Impact Assessment Report notes that their levels of dynamism and proactivity are variable. While this is not explicitly stated anywhere, IGAs and IGA infrastructure should be planned to be protected or resilient to climate hazards (heat, drought, storms, flooding, dune movement). The Impact Assessment Report noted that water pumps were often insufficient to cover the irrigation needs of established gardens, limiting their potential sustainability and growth.
Likely sustainability at ex post	As a whole, it is likely that many of the new IGAs have continued, in one way or another, with significant variations depending on the specific IGA and community. It is also possible that some small businesses have closed and have been relaunched or replicated within the same community or even elsewhere.

Outcome 3.2: Increased income for participating households
Outcome delivered: The survey conducted for the final evaluation shows that vegetable production has increased significantly compared to the past. Production is used for both domestic consumption and the sale of surpluses.[83]
Description: According to the Impact Assessment Survey: • FFA cash has improved the living conditions of almost 88% of people who were involved. • 70% of households involved in market gardening activities use their produce (market gardening) for both food and income purposes. 79% of them declared increased income and purchasing power from market gardening. • 29.1% of survey respondents noted an increase in income thanks to IGAs, while 58% did not. 62.5% observed collective positive effects of IGAs on the economic situation of the whole community. • 91% stated that the cost of water had fallen as a result of the project's new facilities
Expected sustainability duration (without additional interventions): Short to medium term

[83] PPR 5 (April 2020).

Note: Most sustainability conditions are the same as for Outcome 3.1. Only those specific to this outcome are mentioned here.	
Ownership	
Capacities	
Partnerships	Income generation from IGAs requires access to markets. The need to assess alternative sources of income and existing markets was included in the exit strategy. Accessing markets may require the establishment of partnerships beyond each community.
Resources / assets	Income generation requires the generation of excess production. This may have been constrained by access to water resources, as water pumps were already described as insufficient. Inflation on price of inputs may also affect profitability, and thus the sustainability of the increased income. Climate hazards are a threat to market gardening and smallstock.
Likely sustainability at ex post	At small scale, increased income may have been sustained.

Outcome 3.3: Increased availability of and access to food for participating communities	
Outcome delivered: The survey conducted for the final evaluation shows that 98.5% of respondents benefitting from market gardening recognize that the production of vegetables has improved household nutrition and food security.[84]	
Description: People involved in FFA used their income primarily to purchase food. 74% of respondents involved in market gardening activities indicate that their production increased significantly. 70% use their produce for food and income purposes, and 98.5% agreed that vegetable production had improved household nutrition and food security. 99% think that market garden produce contributes to better nutrition for children and women. For 98% of beneficiaries, poultry production contributes to improving household nutrition and food security.	
Expected sustainability duration (without additional interventions): Medium term	
Note: Most sustainability conditions are the same as for Outcome 3.1. Only those specific to this outcome are mentioned here.	
Ownership	If successful, there are high incentives for continuation of food production for self consumption.
Capacities	Even at small scale, production for self-consumption may be continued, and help sustain capacities. This is more likely to be the case for women who are less required to travel outside of the community. However, some activities may compete with daily responsibilities.
Partnerships	
Resources / assets	At small scale, it may be more difficult to acquire and maintain equipment, which may hinder the continuation of some activities. Small businesses that were created by the project to distribute food locally may still be operational, if they have been adequately managed, or that new businesses have replaced them.
Likely sustainability at ex post	Even if at small scale, it is likely that increased food availability may have been sustained.

b) Field work

Ownership	**Kewalla:** Strong women's ownership for IGAs. They have established a management mechanism and a common fund. For each IGA, individuals and communities have made cost-benefit analyses that determine whether to continue or not an activity. Perceived high benefits will drive ownership. When asked the reason for abandoning one of the IGAs supported by the project: • I take part in other activities that are more profitable to me: 69% (women: 73%, men: 58%)

[84] PPR 5 (April 2020).

	• I lack time: 33% (women: 30%, men: 42%) • There is no direct benefit for me: 19% (women: 23%, men: 8%) • I had to leave the village for an extended period of time: 7% (women 3%, men 17%) • Damaged equipment prevented me from continuing: 7% (women: 7%, men: 8%) **Grain mill** was abandoned because the cost of repairing the assets compromised profits. Women used it for their own needs, but generated income by grinding grains for neighbouring communities to generate an income. However, the mill required multiple repairs which consumed their profits. Women decided to stop fixing the mill. (FGD). Decisions to continue or not an activity are made collectively, although there is no formal mechanism established to do so. **Butcher's shop:** generates strong ownership based on a high local demand for meat. Meat being a staple food in the region, the butcher's shop meets a daily need of the local population, guaranteeing a constant market for this sector. Women (29) devote an average of 19 hours a week to this activity, with slight seasonal variations. Men are employed for activities not perceived as suitable for women. The men involved (5 men) spend an average of 14 hours a week. Although the cooperative manages the main investments related to the operation of the butchery, 22% of women reported having made major investments to support operations (0% of men). 11% of women and 20% of men mentioned making small investments. Improved cookstoves craftsmanship requires approximately 20 hours of work per week (1 respondent). **Market gardening** benefitted from strong ownership. Another plot existed before the one created by PARSACC. Women wanted to use PARSACC as an additional parcel to alternate between sites. When water failed, women continued using the parcel for a time, carrying water and trying to draw water from neighbouring ponds that were unfortunately salty. **Arboriculture:** only one person still practices this, and has not made any related investments. **Moyasser 2:** **Shops:** members of the women's cooperative dedicating several hours per week to the activities. On average, people involved in the butcher's shop over the past year (13) have invested 27hrs per week in this activity, while women involved in the community shop dedicate on average 34 hours per week to that activity (variable as they take turns) (survey). These activities are well integrated into the community and run directly by the women, who ensure their management and sustainability. (FG- AGR Butchery) **Improved stoves:** each craftsman dedicates several hours per week to the activity and make modest investments in equipment and materials to continue the activity. None of the IGAs were completely abandoned for lack of commitment. **Dionaba:** **Gardening:** The members of the community are passionate about market gardening and have developed techniques adapted to maintaining the crops despite the difficult conditions (extreme heat and salty water). Members of the women's cooperative dedicating several hours per week to the activity. More than 75% of participants are making investment in the activity. They maintain the fencing themselves, reinforcing the structures with wood and wire when the original material deteriorates. **Shops:** Members of the women's cooperative are also dedicating several hours per week to the activities.
Capacities	**Kewalla:** Strong women's cooperative and supports effective management of resources. The survey confirms that the women's cooperative manages most of the investments required for IGAs, including market gardening (not supported by PARSACC) and butcher's shop

	Technical capacities are sufficient. The women's management skills have been sufficient to date to manage the IGAs, and in particular to pay for repairs to the mill. However, there are limits to this ability, as they are not aware of the risks and planning requirements in the event of major equipment breakdown, such as that of the freezer used for meat. Only 2% of respondents who had given up IGA practice said they had done so because of a lack of skills. 91% of butcher's shop participants consider they have the knowledge they need to continue in the business and maximize the benefits. All current participants to cookstoves crafts and arboriculture (3 respondents) consider having the sufficient skillset to continue their practice. Financial management capacities are sufficient to manage operations but lacking for longer-term planning (larger investments) **Moyasser 2:** 100% of those surveyed who still practice the IGAs confirmed they have the necessary knowledge to perform the activities. This includes participants to butcher's shop, improved cookstoves and arboriculture. Among those who stopped participating in IGAs, only two out of 39 did so for lack of skills. Both shops are managed by a functional women's cooperative **Dionaba:** 100% of those surveyed who still practice the IGAs confirmed they have the necessary knowledge to perform the activities (market gardening and community shop). The community shop operates irregularly, mainly because of the seasonal migration of women to the city. However, in an FGD, women pointed out the need for training in farming techniques adapted to local climatic conditions to optimise their yields. IGA managed by a functional women's cooperative
Partnerships	**Kewalla:** The community does not receive support on IGAs from the government Some projects have been active in the area that have supported complementary efforts (community store, etc.) Only 2% of respondents who had given up practicing an IGA said they had done so for lack of support. **Moyasser 2:** No other development projects in the last 5 years **Dionaba:** None
Resources / assets	**Kewalla:** Management of financial resources through the women's cooperative and village management committee. The system pools resources across all IGAs. This enables for example the profits from the butcher's shop to subsidize the purchase of seeds for market gardening. Damages to and repair costs for equipment have posed a challenge for sustainability. This includes the grain mill, which was abandoned because the cost of repairing the assets compromised profits. PARSACC's market gardening was also abandoned because of failure of irrigation infrastructure. The existing equipment is no longer functional. All current butcher's shop participants (100%) consider that they have the material resources they need to run the shop. During seasons when demand is lower, the shop relies on a freezer to preserve meat longer. This is powered by solar energy (all supplied by the project). Replacing the batteries is a financial constraint, but has so far been covered by the cooperative. When not in use, it is stored. The cooperative does not appear to have the funds to replace the freezer in the event of breakage, which would represent a major (and inevitable in the long term) investment. Arboriculture was adopted by a few households (only a few trees remained by the end of the project), but trees did not survive 2024 drought.

	Moyasser 2: Shops: A local is available. A larger refrigerator is needed to increase capacity. Improved stoves: Kits and toolboxes available for the craftsmen. Stoves are sold in the community shop Financial resources: Shops: Contribution to the women's cooperative. The income generated enables supplies to be purchased and equipment to be maintained. However, there are still needs to be met (a larger, functional fridge, a borehole, quality fencing). (interview) Improved stoves: Craftsmen have revenues to make small investment in the activity They have kits and toolboxes to facilitate the work of the craftsmen, which supports the continuity of the activity. (FGD) Market gardening was not developed this year due to a lack of water. Extreme heat and strong winds have made market gardening and poultry farming more difficult, compromising their viability. Increasing desertification is also reducing arable land, making it more difficult to develop farming and livestock activities (FGD) Poultry farming failed, mainly due to the poor adaptation of the introduced roosters and the extreme climatic conditions. The first rooster was in poor health and did not mate, while the second succumbed to the heat after losing all its feathers, making reproduction impossible. Despite the creation of a dedicated area and the installation of fencing, these efforts were not enough to ensure the success of the project. (FGD) **Dionaba:** Shop: A local and basic material are available. Market Gardening: Some but lack of agricultural input/water. The project provided essential equipment such as ponds, fences, solar panels, watering cans and rakes. Women maintain the fencing themselves, reinforcing the structures with wood and wire when the original material deteriorates. However, equipment deteriorates rapidly and must be frequently replaced. Their productivity is currently constrained by limited access to water. Financial resources: Shops: Income covers inventories. Market Gardening: Income covers some of the tools and input needed. Logistical and financial support is also needed to enable them to develop and diversify their crops despite soil and water constraints. Poultry farming has not been maintained due to the extreme weather conditions. The heat made it impossible to raise chickens, which cannot withstand the high temperatures. Furthermore, it was impossible to control the heat to ensure their survival. Faced with these difficulties, the business ceased, resulting in major losses (FGD).

7.4. Resilience analysis

Resilience attribute: Scale

Positive impact on the temporal or spatial scale needed for natural and/or human systems to maintain or change their functions and/or structures in the face of climate disturbances.			
Evaluation indicators	**Potential contribution of the project sustained outcomes**	**Findings from desk review and interviews with key informants regarding the expected sustainability of the relevant project outcomes**	**Information gap documented during field work and/or data analysis to assess the sustained outcome contribution to the system's resilience**
Evidence that sustained adaptation outcomes contributed to increasing the speed of (human) responsiveness to expected and actual climate disturbances	**Potential - through the implementation of an early warning system at the community level (outcome 1.1).** Such a system can be expected to increase the speed of human responsiveness to climate disturbances. The system was not fully established at project closure. The project has set the groundwork for the establishment of an early warning system at the community level by establishing a partnership between the National Meteorological Office, the agro-meteorological services and Radio Mauritania. The process of formalization has been entrusted to the Coordination Unit of the National Program on Climate Change (CCPNCC), under the MEDD.	NONE - There is no information available on the sustainability of the work conducted under the project to establish an early warning system.	**1. Is the EWS system operational? What information is being communicated, by whom, to whom, how and in what circumstances?** The EWS was never established. **2. If such a system is in place, what is its concrete impact on the local community's speed of response to expected and actual climate disturbances?** Question not applicable due to lack of sustained outcome
Evidence that sustained adaptation outcomes contributed to the restoration of a sufficiently large landscape to restore/maintain ecosystem services	Potential 1 – **through the mechanical fixation of dunes to reduce, halt or reverse dune advances in participating communities (one of the objectives is to protect agricultural lands in the sites, threatened by sand encroachment) (outcome 2.1**).	Based on interviews with key informants, the sustainability if this project outcome varies from site to site depending on maturity of activities at the end of the project, level of community organization, and additional funding, among other factors.	**1. Have the areas restored/protected by dune stabilisation, increased vegetation cover (fuel wood plantations and community conservation areas) and the construction of water retention structures maintained since project closure?**

	With the process of mechanical and biological fixation of sand dunes covering 995 ha, the advance of the dunes has been slowed down at the treated sites. In many sites this advance was totally halted even reversed (Tichoutine site in Brakna and Ghoueisbou Site in Assaba). 2- **Through increasing the forest cover by the plantation of community fuel wood forests and support to protected areas (outcome 2.2).** Twenty-five protected areas of 25 to 50 ha totalling 1,000 ha have been created. In 2017, 2018 and 2019, tree plantations and pastoral improvements were carried out, planting some 280,000 local plant species. 37 perimeters of firewood plantations have been established on more than 460 ha 3– **through construction of water retention structures to increased surface and sub-soil water availability (outcome 2.3)**. 440 ha of degraded lands have been restored, increasing sub-soil water availability and agriculture lands contributing to the restoration/sustainability of the productive ecosystems.	Sustainability of protected areas is likely in communities where village management committees have the capacity to collect fees and ensure security. In project sites where restoration was successful by the end of the project, results may still be visible. On the other hand, several obstacles linked to the complexity and longer-term nature of plantation activities may have hindered the achievement of outcomes after the end of the project and their sustainability. Despite possible limited ownership, the durable low-tech nature of these interventions could have enabled this outcome to be sustained. .	Yes, evidence was found in all project sites visited. **2.What is the current impact of this landscape restoration/protection on local ecosystem services (particularly in relation to agricultural and agroforestry systems)?** • Evidence of effective fixation of dune in Moyasser 2 and Dionaba (deterioration is expected due to lack of maintenance) • Evidence of the restoration/protection of a protected grazing reserve in Kewalla increasing local fodder availability (initially envisaged as a firewood plantation) and some limited evidence in Moyasser 2 (a grazing reserved was established but is now deteriorating due to lack of maintenance). • Evidence that water retention structures to increase surface and sub-soil water availability have contributed and are still contributing to the restoration and fertility of downstream agricultural land in Leweinatt (although the infrastructure is deteriorating due to a lack of maintenance). .
Evidence that sustained adaptation outcomes contributed to the construction of infrastructure of	Potential – through the mechanical fixation of dunes to reduce, halt or reverse dune advances in	Variable from site to site depending on maturity of activities at the end of the project, level of community organization,	**Does dune stabilisation from the project site currently help to protect houses, water infrastructure and**

sufficient scale to protect beneficiaries from climate disturbance	participating communities (the objective is to protect houses, hydraulic infrastructures and agricultural lands in the sites, threatened by sand encroachment) (outcome 2.1). With the process of mechanical and biological fixation of sand dunes covering 995 ha, the advance of the dunes has been slowed down at the treated sites. In many sites this advance was totally halted even reversed (Tichoutine site in Brakna and Ghoueisbou Site in Assaba). Potential – through the digging and rehabilitating wells, building water reservoirs	and additional funding, among other factors.	**agricultural land or other relevant assets in the project areas?** Good positive evidence in Moyasser 2 and limited evidence in Dionaba. **Does the water retention infrastructure built during the project protect the beneficiaries from climate disturbance? In what way?** Good positive evidence in Leweinatt
Evidence that the sustained adaptation outcomes have an impact on the temporal or spatial scale needed for natural and/or human systems to maintain or change their functions and/or structures in the face of climate disturbances in other ways	No clear contribution of the project to this dimension.	N/A	**Are there any sustained project outcomes that impact the temporal or spatial scale needed for natural and/or human systems to maintain or change their functions and/or structures in the face of climate disturbances (other than through increasing the speed of (human) responsiveness to expected and actual climate disturbances, the restoration of a sufficiently large landscape to restore/maintain ecosystem services, or the construction of infrastructure of sufficient scale to protect beneficiaries from climate disturbance)?** No evidence found

Characteristic: Redundancy How do the sustained adaptation outcomes contribute to increasing the availability of resources, means or options, or created new ones to support resilience to climate risks?			
Evaluation indicators	**Potential contribution of the project sustained outcomes**	**Findings from desk review and interviews with key informants regarding the expected sustainability of the relevant project outcomes**	**Information gap documented during field work and/or data analysis to assess the sustained outcome contribution to the system's resilience**
Evidence that the sustained adaptation outcomes contribute to availability of multiple livelihoods or sources of income, creates a financial surplus or additionality that can be used to respond to climatic events by the project beneficiaries	Potential – through the diversification and strengthening of the livelihoods of the most vulnerable population (Component 3). An increase in food production for domestic consumption and income-generating activities have been introduced in the majority of the project sites. For example, at project closure, the vast majority of households (77.5%) reported using production from gardening activities for food and income purposes[85].	As a whole, it is likely that many of the new IGAs or food production activities for consumption have continued, in one way or another, with significant variations depending on the specific IGA and community. It is also possible that some small businesses have closed and have been relaunched or replicated within the same community or even elsewhere.	**1. Has the diversification of livelihoods and income sources, financial surpluses or additionality (e.g. increased food production, water reserves, etc.) achieved by project beneficiaries at project completion been maintained to date?** Yes, several IGAs were still maintained across the three case study sites. Of the 12 IGAs in operation at project closure, 7 were still being practiced at the time of the ex-post evaluation. In addition, the increased pasture and fodder availability in Kewalla and Moyasser 2 provides an extra feeding source for livestock, offering communities an additional option to support their animals. **2. How have project beneficiaries used (or could use) the available range of livelihoods or income sources, financial surpluses or additionality to respond to climatic events (droughts, floods, etc.)?** There is clear evidence that sustained IGAs have expanded the range of

[85] Selmane, Mohamed Lemine. (2019) EVALUATION D'IMPACT DES ACTIONS D'ADAPTATION AU CHANGEMENT CLIMATIQUE ET PREPARATION DE LA STRATEGIE DE SORTIE DU PROJET. RAPPORT FINAL. Avril 2019

			income-generating options available to project beneficiaries. 100% of respondents involved in IGAs reported an increase in income, which was primarily used to purchase food and, to a lesser extent, for savings.
Evidence that the sustained adaptation outcomes contribute to availability of multiple options (including duplicate systems or backup systems) to respond to climate disturbances	No clear contribution of the project to this dimension.	N/A	**1. Are there any sustained project outcomes that contribute to the availability of duplicate or back-up systems to respond to climate disruption?** The increased pasture and fodder availability in Kewalla and Moyasser 2 due to the protection of grazing areas provide an extra feeding source for livestock, offering communities an additional option to support their animals. **2. Are there any sustained project outcomes that contribute to the availability of other types of options to respond to climate disruption?** No evidence found in the sites visited

Characteristic: Diversity & inclusion **How do the sustained adaptation outcomes widen/deepen the variety of actors and inputs working/interacting towards common goals.**			
Evaluation indicators	**Potential contribution of the project sustained outcomes**	**Findings from desk review and interviews with key informants regarding the expected sustainability of the relevant project outcomes**	**Information gap documented during field work and/or data analysis to assess the sustained outcome contribution to the system's resilience**
Evidence that the sustained adaptation outcomes contribute to	Potential – through the active involvement of project beneficiaries	It is not clear how the involvement of the marginalised group in decision-making	**1. Are the marginalised groups involved in decision-making during**

increasing the engagement of marginalized groups in decision-making	that have played an important role and have actively participated to all the steps of the process of elaboration of climate change adaptation action plans, including the identification and prioritization of adaptation options. Most of these adaptation action plans were reviewed and updated by the NGOs with the participation of all targeted groups (man, women and young beneficiaries). (Outcome 1.2)	during the project implementation has been sustained beyond the project, except possibly within the Village Management Committee in some of the beneficiary communities.	**the project implementation (i.e. during the process of developing climate change adaptation action plans) still involved in further decision-making processes? Who is involved in what decision-making processes?** Most women in the villages visited remain active in successful IGA cooperatives and contribute to decision-making at that level. However, there is no evidence that the project had a lasting impact on the inclusiveness of other climate resilience processes.
Evidence that the sustained adaptation outcomes contribute to increasing gender equity in leadership	Potential seen above. Also, training to technical staff and community leaders on livestock management, agricultural techniques and water utilization were mostly provided to women.	The capacity built at community level is likely to be maintained, at least in part, and some adaptation options will continue to be implemented.	**1. Does the participation of women in the development and implementation of adaptation actions at the community level and their participation in a range of training activities related to the implementation of adaptation options contribute to increasing gender equality in leadership at the community level?** Some perceived effects were reported at the individual level: a number of IGA participants highlighted that their participation contributed to increased financial autonomy or to gaining a greater role in family and community decision-making. However, beyond these perceptions, no concrete example of increased gender equality in leadership at the community level could be identified in the visited sites. **2. Are there other sustained project outcomes that contribute to increasing gender equity in leadership?**

			No evidence found in the sites visited
Evidence that the sustained adaptation outcomes contribute to equity and inclusiveness in other ways	Potential - through trainings that were delivered to individuals or cooperatives, and especially to women (outcome 3.1). 99% of respondent to the project impact assessment survey think that market garden produce contributes to better nutrition for children and women (outcome 3.3).	The capacity built at community level is likely to be maintained, at least in part, and some adaptation options will continue to be implemented with possible ongoing effect on food security.	**1. Are the sustained outcomes in terms of increased, capacities, income for participating households or increased availability of and access to food for participating communities contributing to equity and inclusiveness? In what ways?** Some perceived effects were reported at the individual level: a number of IGA participants highlighted that their participation contributed to increased financial autonomy or to gain a greater role in family and community decision-making. **2. Are there other sustained outcomes that contribute to equity and inclusiveness? In what ways?** No evidence found in the sites visited
Evidence that the sustained adaptation outcomes contribute to increasing access to different sources of scientific research and/or information, as well as to traditional/indigenous knowledge, to inform responses to shocks	Potential – through broadcasts by local radio stations and rural radio. Thousands of people, including outside the project intervention areas, are made aware of the challenges of climate change on food security and adaptation strategies, through weekly broadcasts by local radio stations and rural radio, prepared on the basis of PARSACC's good adaptation practices.	Unknown – There is no information on the sustainability of the broadcasts by local radio stations and rural radio regarding climate change, food security and good adaptation practices.	**1. If (still) in existence, do the broadcasts by local radio stations and rural radio contribute to increasing access to different sources of scientific research and/or information, as well as to traditional/indigenous knowledge, to inform responses to shocks?** No evidence was found of the continued existence of broadcasts by local radio stations and rural radio on the link between climate change and food security, or on sharing successful adaptation methods. However, evaluation survey results show that respondents had prior knowledge of a climate shock that occurred in the past five years, with radio and social

			networks being key sources of information. While it is difficult to isolate the project's contribution in this regard, particularly since the continuation of the radio programs beyond the project period could not be confirmed, the capacity built among trained journalists may still contribute, at least in part. **2. Are there other sustained project outcomes (e.g.,: EWS, increased capacity of NGO partners) that contribute to increasing access to different sources of scientific research and/or information, as well as to traditional/indigenous knowledge, to inform responses to shocks?** No evidence found in the sites visited
Evidence that the sustained adaptation outcomes contribute to the diversification of relevant practices (including farming methods)	Potential – Through the mastery of the techniques of wattle and daub, nurseries, planting and dune fixation (outcome 2.1-2.2) through the diversification and strengthening of the livelihoods of the most vulnerable population (outcome 3.1). the project promoted approaches based on the valuation of natural capital, environmental protection, the adoption of practices that improve soil fertility, reduce erosion and promote the regeneration of natural resources by optimizing their use.	It is likely that the diversification and strengthening of livelihoods has been sustained in at least some of the project sites.	**1. Was the use of diverse climate-resilient practices adopted through the project (e.g.: wattle and daub, nurseries, planting and dune fixation and the various new climate resilient livelihoods) sustained?** Interview and survey results show that the capacities gained during the project are still in place. While several are no longer in use, such as nurseries, planting, and dune fixation techniques, practices related to IGAs and those related to the protected grazing area in Kewalla have been sustained. **2. Are new practices still being adopted independently by project beneficiaries? Which practices and why?**

			There is very little evidence of this, with the exception of the following: a readiness to adjust to emerging challenges has been observed in the domain of market gardening in Dionaba. Women, in particular, have shown initiative by actively seeking out drought-resistant plant varieties and developing protective covers to shield their gardens from extreme heat.

Characteristic: Flexibility **How do the sustained adaptation outcomes contribute to increasing the system's agility to respond to uncertainty and emerging challenges and opportunities?**			
Evaluation indicators	**Potential contribution of the project sustained outcomes**	**Findings from desk review and interviews with key informants regarding the expected sustainability of the relevant project outcomes**	**Information gap documented during field work and/or data analysis to assess the sustained outcome contribution to the system's resilience**
Evidence that the sustained adaptation outcomes contribute to the availability of flexible people, groups and institutions supportive of new actions or approaches to manage climate disturbance and risk and seize opportunities	**The project could have contributed to this through the knowledge, capacity and experience gained by the different stakeholders (communities, NGOs, VCM, government representatives) during the project implementation.**	**N/A**	**Do the sustainable outcomes of the project (e.g.: capacities, experience gained through implementation of new practices) contribute to the flexibility of the stakeholders involved (communities, NGOs, VCM, government representatives) to support new actions or approaches to manage climate disturbance and risk and seize opportunities (in the context of the implementation of new project for examples)?** The strengthened capacities of NGOs have improved their ability to support climate adaptation but there is no

			evidence that this resulted in supporting new actions or approaches in the sites visited after the project's closure.
Evidence that the sustained adaptation outcomes contribute to the ability to inform decisions with new information that becomes available to manage climate disturbance and risk and seize opportunities	The project could have contributed to this through the knowledge, capacity and experience gained by the different stakeholders (communities, NGOs, VCM, government representatives) during the project implementation.	**N/A**	**Do the sustainable outcomes of the project (e.g.: capacities, experience gained through implementation of new practices) contribute to the ability of the stakeholders involved (communities, NGOs, VCM, government representatives) to make decisions based on new information that becomes available (through different channels) to manage climate disturbance and risk and seize opportunities?** No evidence found in the sites visited
Evidence that the sustained adaptation outcomes contribute to the ability to adopt new tools or inputs to manage climate disturbance and risk and seize opportunities	The project could have contributed to this through the knowledge, capacity and experience gained by the different stakeholders (communities, NGOs, VCM, government representatives) during the project implementation.	**N/A**	**Do the sustainable outcomes of the project (e.g.: capacities, experience gained through implementation of new practices) contribute to the ability of the stakeholders involved (communities, NGOs, VCM, government representatives) to adopt new tools or inputs to manage climate disturbance and risk and seize opportunities?** A readiness to adjust to emerging challenges has been observed in the domain of market gardening in Dionaba. Women, in particular, have shown initiative by actively seeking out drought-resistant plant varieties and developing protective covers to shield their gardens from extreme heat. While these practices remain relatively modest in scale, they suggest an emerging capacity for adaptation at the community level and reflect a growing ability to

			identify and implement locally appropriate solutions in response to increasing climate stress.

Characteristic: Connectedness & feedback loops How do the sustained adaptation outcomes contribute to supporting communication, information access and partnerships to respond or adapt to shocks and stressors?			
Proposed evaluation indicators	**Contribution of the project to this dimension at project closure**	**Likelihood of sustainability (based on the analysis presented in section 3.1.3)**	**Information gap to document during field work and/or data analysis to assess the sustained outcome contribution to the system's resilience**
Evidence that the sustained adaptation outcomes contribute to supporting communication lines/coordination mechanisms to respond or adapt to shocks and stressors	Potential - through the implementation of an early warning system at the community level (outcome 1.1). Such a system can be expected to support communication lines to respond or adapt to shocks and stressors. -through the village management committees set up with the support of PARSACC and which constitute new spaces for dialogue and discussion on project interventions and on local community issues.	Unknown - There is no information on the sustainability of the work conducted under the project to establish an early warning system. Unknown - There is no information on the sustainability of the village management committees.	**1. If (still) in place, what is the concrete impact of the EWS in supporting lines of communication between stakeholders to respond or adapt to shocks and stressors?** EWS not in place **2. If (still) in existence, do the Village Management Committees act as a kind of coordination mechanism to respond or adapt to shocks and stressors at the community level?** VMC are not functional in Dionaba and only theoretical in Moyasser 2. The Committee is well functioning in Kewalla and continue to manage effectively the protected grazing areas. Theres is ongoing work to formalize the committee into an Association for the Collective Local Management of Natural Resources (AGLC) that could ensure the sustainability and the scaling up of the outcomes achieved in this locality.

			3. **Are there other sustained project outcomes that contribute to supporting lines of communication/coordination mechanisms to respond or adapt to shocks and stressors at community, regional or national level**? The continued activity of women's cooperatives beyond the end of the project highlights the project's success in strengthening these groups' capacity for self-organization.
Evidence that the sustained adaptation outcomes contribute to supporting access to information to respond or adapt to shocks and stressors	Potential – through broadcasts by local radio stations and rural radio. Thousands of people, including outside the project intervention areas, are made aware of the challenges of climate change on food security and adaptation strategies, through weekly broadcasts by local radio stations and rural radio, prepared on the basis of PARSACC's good adaptation practices.	Unknown - There is no information on the sustainability of the broadcasts by local radio stations and rural radio regarding climate change, food security and good adaptation practices.	**1. If (still) in existence, do the broadcasts by local radio stations and rural radio contribute to supporting access to information to respond or adapt to shocks and stressors at community, regional or national level?** Evaluation survey results show that 56% of respondents had prior knowledge of a climate shock that arose in the past five years, with radio and social networks being key sources of information. While it is difficult to isolate the project's contribution in this regard—particularly as the continuation of the radio programs beyond the project period could not be confirmed—the capacity built among trained journalists may continue to contribute, at least in part. **2.Are there other sustained project outcomes that contribute to supporting access to information to respond or adapt to shocks and stressors at community, regional or national level?** None identified

Evidence that the sustained adaptation outcomes contribute to supporting partnerships to respond or adapt to shocks and stressors	Potential – though the engagement of some NGOs with the communities throughout the project implementation (in particular in terms of capacity building and ongoing support).	The engagement of some of the NGOs is likely to have continued with support from other projects/donors.	**1. If still in place, do partnerships with NGOs contribute to responding or adapting to shocks and stressors at community, regional or national level?** There is no indication of sustained partnerships with NGOs in the sites visited. **2. Are there other sustained project outcomes that contribute to supporting partnerships to respond or adapt to shocks and stressors?** None identified

7.5. List of documents consulted

National documents

Revised Nationally Determined Contribution (2021)

4th National Communication Report (2019)

AF documents

AF-TERG, Guidance in support of the operationalization of the evaluation policy. Annex 2: Draft guidance note, evaluation criteria

AF-TERG, Toolkit for the Ex Post Evaluation of adaptation interventions (2024)

AF-TERG, approach to evaluating adaptation projects Ex Post: the sustainability framework of the ex post evaluation of adaptation interventions (ExPost-EAI) (2024)

Adaptation Fund, Evaluation policy of the Adaptation Fund (2022)

AF Strategic Results Framework

Context documents

UNDP Mauritania, Annual Report 2023

République de Mauritanie, Stratégie et Plan d'action de mise en œuvre de l'Initiative de la Grande Muraille Verte en Mauritanie

WFP, Mauritania: Annual Country Report (2019)

WFP, Mauritania: Annual Country Report (2023)

WFP, Mauritania country strategic plan (2024-2028)

World Bank Group, Mauritania Human Capital Review

PARSACC documents

Project Document

AF PARSACC results map

"Évaluation technique et financière du programme pilote pour l'introduction de l'apiculture pour le compte du PARSACC"

PARSACC Final evaluation

Évaluation d'impact des actions d'adaptation au CHANGEMENT CLIMATIQUE ET PREPARATION DE LA STRATEGIE DE SORTIE DU PROJET

Mid Term Evaluation report

Completion report

PARSACC Progress Report

PARSACC monitoring data base

DIMS documents

Mid-Term Review

Terminal Review

7.6. Final Evaluation Matrix

The evaluation matrix is in the file below. It has been updated from the draft version provided in the Design report to reflect the actual sources of information for this evaluation. Table 16 provides an overview of how different data collection methods were used to assess each outcome.

Annex%207.6.%20Final%20Evaluation%20r

Table 17: Data collection methods per outcome assessed

Outcome	Analytical dimensions to consider	KII	FGD	Direct observation/ transect walks	Quantitative survey	Satellite images
Outcome 1.1: Strengthened awareness, ownership and facilitation capacities of government services (DREDD)	• Continued support of DREDDs to communities on adaptation planning • Nature of capacities, resources and incentives to continue providing this support • Progress on establishing an early warning system	Ministries DREDD Directors DREDD Technical staff NGOs				
Outcome 1.2: Strengthened awareness, ownership, planning and management capacities at community level for local natural resource management and climate change adaptation	• Continued awareness about climate change adaptation and access to new information on the topic • Existence of local organizations with capacity to implement adaptation or natural resource management actions • Inclusiveness of decision-making mechanisms (gender, ethnic) • Continued implementation of adaptation action plans, other adaptation activities, or natural resource protection and management activities	Ministries DREDD Directors DREDD Technical staff NGOs Village chief	VMC Women's associations		X	

Outcome	Analytical dimensions to consider	KII	FGD	Direct observation/ transect walks	Quantitative survey	Satellite images
Outcome 1.3: National ecologic monitoring system strengthened and tested	• Continued operation of monitoring system • Continued relevance and use of manuals for data collection at the local level	MEDD DREDD				
Outcome 2.1: Advance of sand dunes slowed down, halted or reversed	• Presence of stabilized sand dunes and/or progress in stabilization since project end • Maintenance measures for stabilized dunes • Perception of risk levels from dunes • Types of assets protected from dunes • Existence of local capacities and plans to address new threats	DREDD technical staff NGOs Village chief	Households in the area	X	X	X
Outcome 2.2: Increased vegetation cover in intervention zones	• Evolution of local ecosystems, including: o Continued availability of fodder in protected areas o Evolution of plantation areas o Evolution of agricultural and agroforestal ecosystems • Mechanisms to sustainably manage fodder • Benefits derived from these areas • Inclusiveness of mechanisms and equity in benefits (gender, but also ethnic)	DREDD technical staff NGOs Village chief	VMC Households with livestock	X	X	X
Outcome 2.3: Decreased loss of water and soil through surface run-off	• Continued functionality of water retention infrastructure			X		X
Outcome 3.1: Increased number of sources of income for participating households	• Continued existence of small businesses created (or of similar, new businesses) • Continued production of food and other products supported • Diversity of income sources • Mechanisms in place to support these activities • Inclusiveness of these activities and equity in benefits (gender, but also ethnic)	DREDD technical staff NGOs Village chief Women's association	Beneficiaries by type of activity Cooperatives	X	X	
Outcome 3.2: Increased income	• Sustained levels of income generation from small businesses and productive activities	DREDD technical staff	Beneficiaries by type of activity		X	

Outcome	Analytical dimensions to consider	KII	FGD	Direct observation/ transect walks	Quantitative survey	Satellite images
for participating households	• Factors that may have influenced income generation (e.g. capacity to generate surplus) • Availability of surplus income to respond to climate events	NGOs Village chief Women's associations	Cooperatives			
Outcome 3.3: Increased availability of and access to food for participating communities	• Diversity of sources of food • Diversity in types of food • Continuity in food availability • Volume of food available (in relation to needs) • Proportion of needs fulfilled by self-production • Proportion of needs purchased and capacity to purchase food • Availability of surplus food to respond to climate events	DREDD technical staff NGOs Village chief Women's associations	Beneficiaries by type of activity Cooperatives	X	X	

7.7. Project sites short list

Wilaya	Moughataa	Commune	Village	Population	Ethnic group	Distance from Nouakchott (km)	Presence of other projects	Covered during Impact Assessment	Covered during Terminal Evaluation
Trarza	R'kiz	Tekane	Oum El ghoura	5200	Moors	270	PRODEFI+ (PCVASGEF-PATAM/ BAD)	Yes	Yes
Trarza	R'kiz	Tekane	Nasra 2	1500	Moors	270			
Trarza	Mederdra	Tiguent	Nimjat	3500	White Moors	130			
Trarza	Mederdra	Mederdra	Charatt	1200	Moors	180			
Trarza	Mederdra	Mederdra	Moyasser 2	816	Moors	180	PAM		Yes
Brakna	Aleg	Cheggar	Kremi Rag	1500	Moors	350	PRAPS-PROGRES+ AMCC		Yes
Brakna	Bababé	Elvarea	Essaada	700	Moors	370			
Brakna	Maghtaa lahjar	Dionaba	Dionaba	2700	Moors	370			
Brakna	Bababé	Haire Mbare	Dounguel Réo	460	Peuls	380			
Brakna	Mbagne	Debaye Hejaj	Oualad yaré	2080	Moors	370			
Gorgol	Maghama	Maghama	Dar El Beidha	350	Moors	650			
Gorgol	Kaédi	Tifoundé Civé	Dimechgha	500	Moors	600			
Gorgol	M'bout	Djadjibine Gandega	Djadjibine	3500	Soninkés	730			
Gorgol	Mounguel	Azgueilem	Azgueilem	1968	Moors	500			
Assaba	Kiffa	Kouroudjel	Goueisbou	2031	White Moors	700	PRAPS-PERZI	Yes	Yes
Assaba	Kankossa	Blajmil	Kewalla	900	Peuls	750			

Wilaya	Moughataa	Commune	Village	Population	Ethnic group	Distance from Nouakchott (km)	Presence of other projects	Covered during Impact Assessment	Covered during Terminal Evaluation
Assaba	Boumdeid	Hsey tine	B'roude	504	Moors	870			
Assaba	Guérou	Kamour	Glaguima	306	Moors	580			
Assaba	Kiffa	El melgua	Guiguih	270	Moors	650	PAM		
Guidimakha	Ould yengé	Dafort	Dafort	10000	Soninkés	590	DIMS		
Guidimakha	Selibaby	Tachott	N'yeliba	1500	Mixed	500	RIMFIL + GRDR	Yes	
Guidimakha	Selibaby	Ajar	Aguweinitt	7000	Soninkés	640			

7.8. Profiles of selected sites

General characteristics					Outcomes covered						
Waliya	**Locality**	**Pop.**	**Ethnic group**	**Other project**	**1.2 Training**	**2.1 Dune stabilization**	**2.2 Protected areas**	**2.2 Firewood & fruit plantations**	**2.3 Water retention**	**3. IGA Small business**	**3. Local food production**
Brakna	Dionaba	2700	Moors		Yes	Yes	Yes	Yes		Yes	Yes
Trarza	Moyasser 2	816	Moors	PAM	Yes	Yes	Yes			Yes	Yes
Assaba	Kewalla	900	Peuls		Yes			Yes		Yes	Yes

The detailed profile and list of activities undertaken for each of these sites can be found in the file below.

Profile%20of%20selected%20sites%20feb2

7.9. Interviews/FGD questionnaires

The questions below provide an overview of the content of the interviews that will take place during the evaluation field mission and the household survey. They are elaborated to cover all aspects of the AF Ex Post Evaluation of Adaptation Interventions methodology. However, they are not intended to be administered directly to project stakeholders. Based on this list of questions, specific interview protocols will be developed for each type of project stakeholder. These protocols will reflect the specific outcomes with which the interviewees are likely to be familiar and the language will be adapted to ensure optimal communication between interviewer and interviewee.

Introductory questions

- Have you been involved with the PARSACC project implemented between 2014 and 2019? In what capacity?

Maintenance of the project outcomes at the time of the ex-post

- To your knowledge, have the outcomes achieved by the project at the time of its closure been maintained to date (select and name the outcome(s) relevant to the different stakeholders interviewed)? Who do they benefit most?
- To the best of your knowledge, have any of the expected outcomes of the project, which had not been achieved at the time of project closure, been subsequently achieved and maintained to date (select and identify the outcome(s) relevant to the different stakeholders interviewed - focusing on outcomes that are likely to have been achieved after project closure, such as the EWS)?
- To what extent are the various outcomes achieved by the project, but not maintained to date, still desirable/relevant to the project stakeholders today (select and name the outcome(s) relevant to the different stakeholders interviewed)?
- (If some outcomes are identified as no longer relevant) Why is one or more of the expected and/or achieved outcomes of the project no longer relevant in the current context? Is this linked to a change in the context of the physical/environmental or human system?
- To your knowledge, are there any unintended outcomes (positive or negative) that have arisen since the end of the project and that continue to this day? How did the project contribute to these outcomes?

Conditions contributing to sustaining the project's adaptation outcomes over time - changes in the conditions of the human or natural systems

- What have been the main changes in human systems since the end of the project (social, economic and political conditions and dynamics) that have influenced the sustainability of the project outcomes (select and name the outcome(s) relevant to the different stakeholders interviewed)?

- To what extent have changes in climate stresses or shocks since the end of the project influenced the sustainability of the project outcomes (select and name the outcome(s) relevant to the different stakeholders interviewed)?
- To what extent have other changes in natural systems (other than those related to climate stresses or shocks) that have occurred since the end of the project (environmental/natural conditions, dynamics and interactions, including between living species, natural resources and their impacts on human systems) directly or indirectly affected the sustainability of the project outcomes (select and name the outcome(s) relevant to the different stakeholders interviewed)?

Conditions contributing to sustaining the project's adaptation outcomes over time - ownership, capacities, resources and partnerships

- Do you feel a sense of ownership or responsibility for the sustained outcomes of this project until now (select and name the outcome(s) relevant to the different stakeholders interviewed)? If yes, could you share how you see your role contributing to its success?
- From your perspective, what skills and knowledge (your own or those of others) are contributing to the sustainability of the outcomes of the project so far (select and name the outcome(s) relevant to the different stakeholders interviewed)? Did the project contribute to the development of these skills and knowledge?
- From your perspective, what collaboration among and between different stakeholders (government, NGO, private sector, new donors, communities, etc.) are contributing to the sustainability of the outcomes of the project so far (select and name the outcome(s) relevant to the different stakeholders interviewed)? Did the project contribute to the development of these partnerships?
- From your perspective, what financial or other types of resources (from IGA, from new projects, government, etc.) are contributing to the sustainability of the outcomes of the project so far (select and name the outcome(s) relevant to the different stakeholders interviewed)? Did the project contribute to the availability of these resources?
- From your perspective, what other factors are contributing to the sustainability of the outcomes of the project so far (select and name the outcome(s) relevant to the different stakeholders interviewed)? Did the project contribute to these factors?
- Do you consider that there are any gender or group-specific barriers or enablers that have influenced the sustainability of results for one gender or group over the other, such as differences in access to resources, knowledge, know-how, decision-making power or support systems?

Sustained outcomes contribution to system resilience

Spatial and temporal scale

- Is the EWS system still operational? What information is being communicated, by whom, to whom, how and in what circumstances?
- If such a system is still in place, what is its concrete impact on the local community's speed of response to expected and actual climate disturbances?
- Have the areas restored/protected by dune stabilisation, increased forest cover (fuel wood plantations and community conservation areas) and the construction of water retention structures maintained since project closure?

- What is the current impact of this landscape restoration/protection on local ecosystem services (particularly in relation to agricultural and agroforestry systems)?
- Does dune stabilisation from the project site currently help to protect houses, water infrastructure and agricultural land or other relevant assets in the project areas?
- Does the water supply infrastructure built during the project protects the beneficiaries from climate disturbance? In what way?
- Are there any sustained project outcomes that impact the temporal or spatial scale needed for natural and/or human systems to maintain or change their functions and/or structures in the face of climate disturbances (other than through increasing the speed of (human) responsiveness to expected and actual climate disturbances, the restoration of a sufficiently large landscape to restore/maintain ecosystem services, or the construction of infrastructure of sufficient scale to protect beneficiaries from climate disturbance)?

Redundancy

- Has the diversification of livelihoods and income sources, financial surpluses or additionality (e.g. increased food production, water reserves, etc.) achieved by project beneficiaries at project completion been maintained to date?
- How have project beneficiaries used (or could use) the available range of livelihoods or income sources, financial surpluses or additionality to respond to climatic events (droughts, floods, etc.)?
- Are there any sustained project outcomes that contribute to the availability of duplicate or back-up systems to respond to climate disruption?
- Are there any sustained project outcomes that contribute to the availability of other types of options to respond to climate disruption?

Diversity and inclusion

- Are the marginalised groups involved in decision-making during the project implementation (i.e. during the process of developing climate change adaptation action plans) still involved in further decision-making processes? Who is involved in what decision-making processes?
- Does the participation of women in the development and implementation of adaptation actions at the community level and their participation in a range of training activities related to the implementation of adaptation options contribute to increasing gender equality in leadership at the community level?
- Are there other sustained project outcomes that contribute to increasing gender equity in leadership?
- Are the sustained outcomes in terms of increased, capacities, income for participating households or increased availability of and access to food for participating communities contributing to equity and inclusiveness? In what ways?
- Are there other sustained outcomes that contribute to equity and inclusiveness? In what ways?
- If (still) in existence, do the broadcasts by local radio stations and rural radio contribute to increasing access to different sources of scientific research and/or information, as well as to traditional/indigenous knowledge, to inform responses to shocks?
- Are there other sustained project outcomes (e.g., EWS, increased capacity of NGO partners) that contribute to increasing access to different sources of scientific research and/or information, as well as to traditional/indigenous knowledge, to inform responses to shocks?

- Was the use of diverse climate-resilient practices adopted through the project (e.g.: wattle and daub, nurseries, planting and dune fixation and the various new climate resilient livelihoods) sustained?
- Are new practices still being adopted independently by project beneficiaries? Which practices and why?

Flexibility

- Do the sustainable outcomes of the project (e.g.: capacities, experience gained through implementation of new practices) contribute to the flexibility of the stakeholders involved (communities, NGOs, VCM, government representatives) to support new actions or approaches to manage climate disturbance and risk and seize opportunities (in the context of the implementation of a new project for example)?
- Do the sustainable outcomes of the project (e.g.: capacities, experience gained through implementation of new practices) contribute to the ability of the stakeholders involved (communities, NGOs, VCM, government representatives) to make decisions based on new information that becomes available (through different channels) to manage climate disturbance and risk and seize opportunities?
- Do the sustainable outcomes of the project (e.g.: capacities, experience gained through implementation of new practices) contribute to the ability of the stakeholders involved (communities, NGOs, VCM, government representatives) to adopt new tools or inputs to manage climate disturbance and risk and seize opportunities?

Connectedness & feedback loops

- If (still) in place, what is the concrete impact of the EWS in supporting lines of communication between stakeholders to respond or adapt to shocks and stressors?
- If (still) in existence, do the Village Management Committees act as a kind of coordination mechanism to respond or adapt to shocks and stressors at the community level?
- Are there other sustained project outcomes that contribute to supporting lines of communication/coordination mechanisms to respond or adapt to shocks and stressors at community, regional or national level?
- If (still) in existence, do the broadcasts by local radio stations and rural radio contribute to supporting access to information to respond or adapt to shocks and stressors at community, regional or national level?
- Are there other sustained project outcomes that contribute to supporting access to information to respond or adapt to shocks and stressors at community, regional or national level?
- If still in place, do partnerships with NGOs contribute to responding or adapting to shocks and stressors at community, regional or national level?
- Are there other sustained project outcomes that contribute to supporting partnerships to respond or adapt to shocks and stressors?

7.10. Project contribution to AF Results Framework

Fund outcome	Adaptation Fund outcome indicator	PARSACC Achievements
Outcome 3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	3.1 Percentage of targeted population aware of predicted adverse impacts of climate change, and of appropriate responses	**Through Component 1:** • 10% of the target population was sensitized on the challenges of climate change on food security and adaptation and risk reduction strategies • A community EWS was drafted to support communities in adapting better and reducing risks • Thousands of people outside of direct project beneficiaries were made aware of the challenges of climate change on food security and adaptation and risk reduction strategies thanks to broadcasts on local radio stations.
Fund output	Fund output indicator	PARSACC Achievements
Output 3: Targeted population groups participating in adaptation and risk reduction awareness activities	3.1.1 No. and type of risk reduction actions or strategies introduced at local level	Through **Component 1,** 87 villages prepared climate change adaptation action plans
Fund outcome	**Fund outcome indicator**	**PARSACC Achievements**
Outcome 5: Increased ecosystem resilience in response to climate change and variability-induced stress	5. Ecosystem services and natural assets maintained or improved under climate change and variability induced stress	Through Component 2, PARSACC supported the long-term sustainability of the productive ecosystems: 87 adaptation action plans were designed and implemented at village-level. Actions included concrete adaptation measures aimed at halting/reversing desertification, soil erosion and land degradation, as well as preserving natural resources and improving the supply of ecosystem services.
Fund output	Fund output indicator	PARSACC Achievements
Output 5: Vulnerable physical, natural, and social assets strengthened in response to climate change impacts, including variability	5.1. No. and type of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type of assets)	Through Component 2: • 955 ha of fixed dunes • 460 ha of planted forests • 1000 ha of protected and improved pastoral reserves • 440 ha of land restored through Water and Soil Conservation techniques increasing water availability in soils • 20600 improved stoves built and distributed leading to 40% reduction in household wood consumption
Fund outcome	**Fund outcome indicator**	**PARSACC Achievements**

Outcome 6: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas	6.1 Percentage of households and communities having more secure (increased) access to livelihood assets 6.2. Percentage of targeted population with sustained climate-resilient livelihoods	• *Indicator not reported*

Fund output	Fund output indicator	PARSACC Achievements
Output 6: Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	6.1.1.No. and type of adaptation assets (tangible and intangible) created or strengthened in support of individual or community livelihood strategies 6.2.1. Type of income sources for households generated under climate change scenario	Through component 3, PARSACC contributed to diversifying livelihood alternatives: • 41 vegetable cooperatives promoted in 41 villages benefitting 8728 households, particularly women • 16 semi-intensive poultry cooperatives and 40 traditional poultry cooperatives supported benefitting 560 households • 9330 fruit plants plated benefiting 3973 households in 20 villages • 179 artisans trained and equipped to produce improved stoves • 97 IGAs promoted in 55 villages benefiting 5806 households

Baastel

30 Years Promoting Sustainable Development

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