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Terminal Evaluation of the Adaptation Fund / UNEP Project "Promoting Climate Resilience in the Rice Sector through Pilot Investments in Alaotra-Mangoro Region" (AFB-5060-1111-2G49)

Evaluation Office of the
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Promoting Climate Resilience in the Rice Sector through Pilot Investments in Alaotra-Mangoro Region
Project AFB-5060-1111-2G49
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The evaluation consultant hopes that the findings, conclusions and recommendations will contribute to the successful finalisation of the current project, formulation of a next phase and to the continuous improvement of similar projects in other countries and regions.

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ABOUT THE EVALUATION

Joint Evaluation: No

Report Language: English (Executive Summary in English and French)

Evaluation Type: Terminal Evaluation

Brief Description: a UNEP-Adaptation Fund project implemented between 2012 and 2019.The project's overall development goal was to demonstrate pathways towards the transformation of the rice sub-sector to make it more resilient to current climate variability as well as expected climate change and associated hazards, through implementation of pilot investments in the Alaotra-Mangoro region that have the potential of being upscaled at national level. The evaluation sought to assess project performance (in terms of relevance, effectiveness and efficiency), and determine outcomes and impacts (actual and potential) stemming from the project, including their sustainability. The evaluation has two primary purposes: (i) to provide evidence of results to meet accountability requirements, and (ii) to promote learning, feedback, and knowledge sharing through results and lessons learned among UNEP, the Adaptation Fund and their executing partner Ministry of Environment and Sustainable Development and the relevant agencies in Madagascar.

Key words: Ecosystem-based Adaptation; Agriculture; Resilience; Rice; Water Management; Reforestation; Storage; Project Evaluation; Climate Change; Climate Change Adaptation; Ecosystem Management; TE; Terminal Evaluation; Adaptation Fund; Adaptation Fund Project; Madagascar; Alaotra-Mangoro

Primary data collection period:

January 2020 – April 2020

Field mission dates:

February 2020

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List of acronyms and abbreviations

AF	Adaptation Fund
ANCOS	National Agency for the Official Control of Seeds and Seedlings (Agence Nationale de Contrôle Officiel des Semences et plants)
AWS	Automatic Weather Station
BNCCC-REDD+	National Office for the Coordination of Climate Change (Bureau National de Coordination des Changements Climatiques)
BNGRC	National Office for Risks' and Catastrophes' Management (Bureau National de Gestion des Risques et Catastrophes)
CALA	Lake Alaotra Agricultural Research Centre (Centre de Recherche Agronomique du Lac Alaotra)
CIRAD	French Agricultural Research Centre for International Development (Centre de coopération internationale en recherche agronomique pour le développement)
CTA	Chief Technical Advisor
DGM	General Directorate for Meteorology (Direction Générale de la Météorologie)
DRAEP	Regional Directorate for Agriculture, Livestock and Fisheries (Direction Régionale de l'Agriculture, de l'Elevage et de la Pêche)
DREDD	Regional Directorate for Environment and Sustainable Development (Direction Régionale de l'Environnement et du Développement Durable)
EE	Executing Entity
EOU	Evaluation and Oversight Unit
FAO	Food and Agriculture Organisation of the United Nations
FOFIFA	National Center for Applied Research on Rural Development (Centre National de la Recherche Appliquée au Développement Rural, in Malagasy: **Fo**ibem-pirenena momba ny **Fi**karohana ampiharina amin'ny **Fa**mpandrosoana ny eny Ambanivohitra)
GPS	Seed Producing Groups (Groupements de Producteurs de Semences)
IFAD	International Fund for Agricultural Development
IR	Inception Report
IRRI	International Rice Research Institute
JICA	Japan International Cooperation Agency
M&E	Monitoring & Evaluation
MAEP	Ministry of Agriculture, Livestock and Fisheries (Ministère de l'Agriculture, de l'Elevage et de la Pêche)
MEDD	Ministry of Environment and Sustainable Development (Ministère de l'Environnement et du Développement Durable)
MIE	Multilateral Implementing Entity
MIRR	Integrated Resilient Rice Model (Modèle Intégrée de Riziculture Résiliente)
MTR	Mid-Term Review

MTS	Medium-Term Strategy
MWEH	Ministry of Water, Energy and Hydrocarbons
NAPA	National Adaptation Programme of Action
ONE	National Office for the Environment (Office National de l'Environnement)
PAPRIZ	Project to Improve the Productivity of Rice Cultivation in Central Highlands
PAZC	Adapting Coastal Zone Management To Climate Change In Madagascar Considering Ecosystem And Livelihood Improvement
PC	Project Coordinator
PCU	Project Coordination Unit
POW	Programme of Work
PPR	Project Performance Report
PRODAIRE	Project for the Development of an Integrated Approach to promote Environmental Restoration and Rural Development in Mararano Chrome
Prodoc	Project document
PSC	Project Steering Committee
PURSAPS	Emergency Project for Food Security and Social Protection
RBF	Results-based Framework
SMART	Specific, Measurable, Assignable, Realistic, Time-bound
SNDR	National Strategy for Rice Development (Stratégie Nationale de Développement Rizicole)
SNGF	National Silo for Forest Seeds (Silo National des Graines Forestières)
TE	Terminal Evaluation
TM	Task Manager
ToC	Theory of Change
ToR	Terms of Reference
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
WUA	Water users' association

Project Identification Table

UNEP PIMS ID:	N/A	**Adaptation Fund ID:**	AFB-5060-1111-2G49
Implementing Partners	Ministry of Environment and Sustainable Development (MEDD)		
Sub-programme:	Climate Change	**Expected Accomplishment(s):**	A.a, A.d, A.e & C.c (UNEP Medium-Term Strategy 2010-2013)
UNEP approval date:	October 2011	**Programme of Work Output(s):**	13.1, 15.3, 15.1, 15.2
***Expected* start date:**	February 2012	**Actual start date:**	October 2012
***Planned* completion date:**	October 2017	**Actual completion date:**	June 2019
***Planned* project budget at approval:**	USD 4,705,000	**Actual total expenditures reported as of March 2020:**	USD 4,399,665
***Planned* Adaptation Fund allocation:**	USD 4,705,000	**Actual Adaptation expenditures reported as of March 2020:**	USD 3,705,739
***Planned* Extra-Budgetary Financing:**	N/A	**Secured Extra-Budgetary Financing:**	N/A
		Actual Extra-Budgetary Financing expenditures reported as of March 2020:	N/A
First disbursement:	USD 123,785	**Date of financial closure:**	30 June 2020 (March 2018 initially planned)
No. of revisions:	6	**Date of last revision:**	March 2018
No. of Steering Committee meetings:	5	**Date of last/next Steering Committee meeting:**	Last: August 2017 / Next: N./A
Mid-term Review/ Evaluation *(planned date):*	2015	**Mid-term Review/ Evaluation (actual date):**	February 2016
Terminal Evaluation *(planned date):*	2017	**Terminal Evaluation (actual date):**	March 2020
Coverage - Country:	Madagascar	**Coverage - Region:**	Africa
Dates of previous project phases:	N/A	**Status of future project phases:**	N/A

Executive Summary

1. The present report constitutes the terminal evaluation of the project "Promoting Climate Resilience in the Rice Sector through Pilot Investments in Alaotra-Mangoro Region", known as "AF Rice". Funded by the Adaptation Fund, implemented by UNEP and executed by the Ministry of Environment and Sustainable Development of Madagascar, the AF Rice project had a budget of USD 4,705,000, started in October 2012 and ended operations in June 2019, after two no-cost extensions for a total of 20 months (first to June 2018, then to June 2019).

2. The rice sector is the most important sector in Madagascar's economy, employing approx. 10 million people along its value chain, and generating 41% of households' income[1]. Approximately 47% of the country's arable lands are dedicated to rice cultivation. Despite this importance, domestic production does not cover the national demand, and the country needs to import 10% of its consumption.

3. The main problem that the project sought to tackle is that, despite the existence of adequate best practices for rice cultivation in Madagascar, productivity in the rice sector remains low. This is because of the limited dissemination and uptake of the above-mentioned best practices, leading in turn to the implementation of extensive agricultural practices that have detrimental landscape conservation consequences. Typically, areas are deforested to extend agricultural land, in an attempt to make up for the lack of intensification of production in existing plots. This leads to widespread erosion from run-off, resulting in a loss of top-soil, depletion of soil nutrients, landslides and heavy siltation of lowlands and waterways.

4. These root causes are exacerbated by a series of existing and anticipated climate changes, such as a modification of rainfall patterns and a rise of temperatures. The main consequence for the rice sector is anticipated to be a reduction in water availability, leading to the stagnation or even decrease of rice yields.

5. In this context, the project's overall objective was to "demonstrate pathways towards the transformation of the rice sub-sector to make it more resilient to current climate variability as well as expected climate change and associated hazards, through implementation of pilot investments in the Alaotra-Mangoro region that have the potential for being upscaled at national level". The project addressed the above-mentioned challenges through three components: i) scientific and technical capacity; ii) adapted and resilient rice production cycle; and iii) leveraging policy change.

6. Three sites across the Alaotra-Mangoro region were targeted for the pilot interventions, and additional sites in the region as well as in two other regions – namely Itasy and Vakinankaratra – were selected for upscaling activities.

[1] *Sources: Prodoc and World Bank. 2016. Madagascar Economic Update*

7. The terminal evaluation process started in November 2019; it involved a review of project documents and deliverables, remote interviews with key project informants and a two-week in-country mission. Following a standardised methodology developed by the Evaluation Office of UNEP, the overall assessment of the project is "moderately satisfactory". Key findings from the evaluation are summarised below.

8. The strategic relevance of the project is undeniable, as changing climate conditions create economic, social, environmental and cultural risks for a sector that is of paramount importance for Madagascar. The choice of Alaotra-Mangoro – the main rice producing region of Madagascar – to pilot the interventions was also legitimate.

9. The AF Rice project undertook the development of a holistic intervention strategy, targeting agricultural, environmental and institutional factors of climate resilience. At the core of this strategy was the development of an Integrated Rice Resilience Model (MIRR, for its acronym in French). Designed in partnership with FOFIFA[2], a recognised agricultural research center affiliated with the Ministry of Agriculture, Livestock and Fisheries, the MIRR includes the use of improved, short-cycle rice varieties which are more resilient to erratic rainfall and temperature conditions, and can be harvested up to three times during one season. AF Rice achieved strong results in this respect, with average yields multiplied by 2.5 to 3 among targeted farmers. The MIRR also entails the use of improved agricultural practices – such as integrated pest management or crop rotation – that contribute to soil conservation, diversify income sources for agricultural households and mitigate economic risks in case of bad yields. Other livelihood options were also introduced, such as agroforestry and seed production.

10. Erosion control is another key factor to improve rice productivity. Although the project did acknowledge this aspect in its design and initially planned to reforest 5,000 ha of land surrounding rice fields, a series of management and climate issues impeded reforestation efforts, and only 1,132 ha were eventually planted – mostly with exotic species. The project timeframe and the limited scale of reforestation activities thus make it impossible to assess any benefits in terms of erosion control by project closure. The main positive result in this respect is the awareness acquired by local communities on the necessity and the planting techniques that would enable them to reduce the impact of erosion on rice yields.

11. To complement the implementation of the MIRR – including erosion control efforts – , two types of hard infrastructures were built or restored. Firstly, storage facilities were installed in the three target sites, that will eventually contribute to reduce post-harvest losses. Secondly, water infrastructures for the irrigation and drainage of rice fields were refurbished. The effectiveness of the latter work is somewhat difficult to assess: while local farmers report an increase in water availability and quality, expert measurements are more equivocal and do not conclude on a general increase in water availability. Furthermore, some of these infrastructures were already damaged by the time of the evaluation, probably because of the limited quality of the work and inadequate supervision/ maintenance.

[2] *Centre National de la Recherche Appliquée au Développement Rural, in Malagasy : Foibem-pirenena momba ny Fikarohana ampiharina amin'ny Fampandrosoana ny eny Ambanivohitra*

12. The institutional achievements of the project were both at the national, policy level with the mainstreaming of MIRR guidelines into national agricultural policies, and at the sub-national level with: i) the strengthening of water users' associations; ii) the creation of users' associations for storage facilities; iii) the integration of the MIRR into local development plans; and iv) the strengthening of the Regional Rice Platforms' capacity in Alaotra Mangoro, Itasy and Vakinankaratra.

13. The main difficulties met by the project were primarily due to inadequate financial and procurement procedures within the Ministry of Environment and Sustainable Development. In particular, these procedures are very sensitive to staff turnover at the senior level, which happened significantly during project implementation, and resulted in procurement and payment delays, leading in turn to a lesser quality of some deliverables and frustration of several contractors and project staff. Procurement processes also need to be more transparent, so that the selection of bidders can be based on merits and not on political or personal motives. Other difficulties faced included the limited capacity of some implementing partners and unfavourable climatic conditions (for reforestation). Finally, the limited budget available as well as constrained timeline only allowed to initiate the upscaling of the MIRR to other communes within Alaotra-Mangoro as well as to Itasy and Vakinankaratra regions. This upscaling work will need to be taken over by the Ministry of Agriculture, Livestock and Fisheries in partnership with the Ministry of Environment and Sustainable Development, so that technical capacities and lessons learned generated through the AF Rice project can be capitalised upon.

14. Besides the success of the MIRR, a number of lessons learned can be drawn from the experience of the AF Rice project. Firstly, the project intended to achieve ambitious results in several domains and at numerous sites with limited resources. When designing a project with a pilot and upscaling approach, enough time and budget should be planned for it to yield significant results. When it is foreseeable at the design phase that the available budget is unlikely to be sufficient to upscale project results, a phased approach is advisable, in which phase 1 would be about testing pilot options and phase 2 about upscaling them.

15. Another valuable lesson learned from the project is that, in contexts comparable to the target sites, reforestation by private land owners on private land can be more effective, efficient and sustainable than reforestation by external parties. When feasible, reforestation by local, private land-owners with adequate technical support – as opposed to planting operations carried out by an external contractor – has the added benefit of raising awareness about the benefits and technicalities of reforestation "on the job". This reforestation solution, which was eventually adopted in a relevant adaptive management approach, proved effective. In terms of reforestation, it is also unreasonable to expect being able to measure its benefits in terms of erosion control within a project timeframe of six to seven years[3].

16. The project attempted to structure and / or strengthen cooperatives and users' associations around several themes and activities. While users' associations to operate storage units and water infrastructures, and produce compost, are likely to be sustainable, cooperatives

[3] Even though the evaluator is not aware of systematic assessments of erosion control experiments in tropical contexts, one could assume that at least five years would be necessary after an entire area has been reforested to start measuring significant impacts on erosion.

set up for the production of improved seeds did not work well. A strong training programme on business skills, financial management and entrepreneurship is required when setting up cooperatives. Despite some training provided by the project, it is apparent that these groups were generally not autonomous enough to operate a viable production activity without project support.

17. Some actions need to be taken before the financial closure of the project. Besides these, some recommendations are formulated for future initiatives.

18. Firstly, there is a need to follow up on the upscaling of the MIRR. The project provided a documented proof of concept that should be upscaled in other rice-producing regions of Madagascar. A draft concept note for an upscaling project was prepared by the project team but needs to be refined. On this basis, the responsibility to source funding and proceed with the upscaling of the MIRR should be assigned. The chances of the MIRR guidelines actually being implemented in other communes and regions of Madagascar will likely depend on whether some institutions take on a leading role in the coming months and develop an actionable fund sourcing and implementation roadmap.

19. Secondly, a gender assessment should systematically be conducted in the project design phase – AF Rice lacked such a study. This would allow to identify any gender-specific adaptation and development challenges relevant to the project scope, and form a basis to formulate a gender-sensitive intervention strategy, thereby ensuring gender mainstreaming and equal access to project benefits to both women and men. Still on a methodological standpoint, it should be standard practice to translate the main project documents (including this evaluation report in its draft version) into the national language.

20. In terms of on-the-ground activities, opting for endogenous species in reforestation interventions is expected – especially for a project overseen by UNEP. This can prove challenging in practice, however, as community requests for specific species (e.g. acacias, eucalypts) may be at odds with best conservation practices. In such cases, securing community buy-in by agreeing to planting requested species can be at the expense of conservation objectives. A middle ground would be to use a mix of indigenous and requested species; in any case, only extensive awareness raising can trigger the behavioural change that is needed for communities to understand the benefits of adopting indigenous species.

21. Finally, a longer-term recommendation would be to consider establishing a UNEP National Focal Point in Madagascar. UNEP is involved in many projects in Madagascar, especially in collaboration with the Ministry of Environment and Sustainable Development. The presence of a permanent in-country focal point would facilitate daily cooperation, ease communication and provide more favourable conditions for the resolution of financial and procedural issues.

Résumé Exécutif

22. Le présent rapport constitue l'évaluation finale du projet "Promouvoir la résilience climatique de la riziculture à travers des investissements pilotes dans la région d'Alaotra-Mangoro, Madagascar ", connu sous le nom d'"AF Rice". Financé par le Fonds d'Adaptation, mis en œuvre par le PNUE et exécuté par le Ministère de l'Environnement et du Développement Durable de Madagascar, le projet AF Rice était doté d'un budget de 4 705 000 USD, a débuté en octobre 2012 et a pris fin en juin 2019, après deux prolongations sans coûts supplémentaires pour un total de 20 mois (d'abord jusqu'en juin 2018, puis jusqu'en juin 2019).

23. Le secteur du riz est le secteur le plus important de l'économie malgache, employant environ 10 millions de personnes tout au long de sa chaîne de valeur, et générant 41% des revenus des ménages. Environ 47% des terres arables du pays sont consacrées à la culture du riz. Malgré cette importance, la production nationale ne couvre pas la demande nationale, et le pays doit importer 10% de sa consommation.

24. Le principal problème que le projet a cherché à résoudre est que, malgré l'existence de bonnes pratiques adéquates pour la culture du riz à Madagascar, la productivité dans le secteur du riz reste faible. Cela est dû à la diffusion et à l'adoption limitées de ces bonnes pratiques, ce qui conduit à la mise en œuvre de pratiques agricoles extensives aux conséquences néfastes sur la gestion des paysages. Des zones sont déboisées pour étendre les terres agricoles, afin de compenser le manque d'intensification de la production dans les parcelles existantes. Cela conduit à une érosion généralisée due au ruissellement, entraînant une perte de sol arable, un épuisement du potentiel nutritif, des glissements de terrain et un envasement important des basses terres et des cours d'eau.

25. Ces causes profondes sont exacerbées par les changements climatiques existants et anticipés, tels qu'une modification du régime des précipitations et une hausse des températures. La principale conséquence pour le secteur du riz devrait être une réduction de la disponibilité en eau, entraînant une stagnation, voire une diminution des rendements de la riziculture.

26. Dans ce contexte, l'objectif général du projet était de "démontrer l'efficacité de transformations du sous-secteur du riz pour rendre celui-ci plus résistant à la variabilité climatique actuelle ainsi qu'aux changements climatiques prévus et aux risques associés, par la mise en œuvre d'investissements pilotes dans la région d'Alaotra-Mangoro – investissements ayant le potentiel d'être transposés à l'échelle nationale". Le projet a relevé ces défis à travers trois composantes : i) la capacité scientifique et technique ; ii) un cycle de production du riz adapté et résilient ; et iii) l'évolution des politiques.

27. Trois sites dans la région d'Alaotra-Mangoro ont été ciblés pour les interventions pilotes, et des sites supplémentaires dans la région ainsi que dans deux autres régions – à savoir Itasy

et Vakinankaratra – ont été sélectionnés pour les activités de transposition à plus grande échelle.

28. Le processus d'évaluation finale a débuté en novembre 2019 ; il a comporté un examen des documents et des livrables du projet, des entretiens à distance avec des informateurs clés du projet et une mission de deux semaines à Madagascar. Suite à la mise en œuvre d'une méthodologie standardisée développée par le Bureau de l'Évaluation du PNUE, le projet est évalué globalement comme "modérément satisfaisant". Les principales conclusions de l'évaluation sont résumées ci-dessous.

29. La pertinence stratégique du projet est indéniable, car le changement des conditions climatiques crée des risques économiques, sociaux, environnementaux et culturels pour un secteur qui est d'une importance capitale pour Madagascar. Le choix d'Alaotra-Mangoro – la principale région productrice de riz de Madagascar – pour piloter les interventions était également légitime.

30. Le projet AF Rice a entrepris l'élaboration d'une stratégie d'intervention holistique, ciblant les facteurs agricoles, environnementaux et institutionnels de la résilience climatique. Au cœur de cette stratégie se trouvait l'élaboration d'un Modèle Intégré de Riziculture Résiliente (MIRR). Conçu en partenariat avec le FOFIFA, un centre de recherche agricole reconnu affilié au Ministère de l'Agriculture, de l'Elevage et de la Pêche, le MIRR comprend l'utilisation de variétés de riz améliorées à cycle court, plus résistantes aux conditions de précipitations et de températures erratiques, et qui peuvent être récoltées jusqu'à trois fois au cours d'une saison. AF Rice a obtenu de bons résultats à cet égard, avec des rendements moyens multipliés par 2,5 à 3 chez les agriculteurs ciblés. Le MIRR implique également l'utilisation de pratiques agricoles améliorées – telles que la lutte intégrée contre les parasites ou la rotation des cultures – qui contribuent à la conservation des sols, à la diversification des sources de revenus des ménages ruraux et à l'atténuation des risques économiques en cas de mauvais rendements. D'autres moyens de subsistance ont également été introduits, tels que l'agroforesterie et la production de semences.

31. La lutte contre l'érosion est un autre facteur clé pour améliorer la productivité du riz. Bien que le projet ait reconnu cet aspect dans sa conception et qu'il ait initialement prévu de reboiser 5 000 ha de terres autour des rizières, une série de problèmes de gestion ainsi que d'aléas climatiques ont entravé les efforts de reboisement, et seuls 1 132 ha ont finalement été plantés – la plupart avec des espèces exotiques. Le calendrier du projet et l'échelle limitée des activités de reboisement rendent donc impossible l'évaluation des bénéfices en termes de contrôle de l'érosion à la clôture du projet. Le principal résultat positif à cet égard est la prise de conscience par les communautés locales de la nécessité et des techniques de plantation qui leur permettraient de réduire l'impact de l'érosion sur les rendements du riz.

32. Pour compléter la mise en œuvre du MIRR – y compris les efforts de contrôle de l'érosion –, deux types d'infrastructures ont été construites ou restaurées. Tout d'abord, des installations de stockage ont été installées dans les trois sites cibles, qui contribueront à terme à réduire les pertes post-récolte. Deuxièmement, les infrastructures hydrauliques pour l'irrigation et le drainage des rizières ont été remises en état. L'efficacité de cette dernière réalisation est quelque peu difficile à évaluer : alors que les agriculteurs locaux font état d'une augmentation

de la disponibilité et de la qualité de l'eau, les mesures des experts sont plus équivoques et ne concluent pas à une augmentation générale de la disponibilité en eau. En outre, certaines de ces infrastructures étaient déjà endommagées au moment de l'évaluation, probablement en raison de la qualité limitée des travaux et d'une supervision/maintenance insuffisante.

33. Les interventions institutionnelles du projet ont été menées à la fois au niveau national, avec l'intégration des directives du MIRR dans les politiques agricoles nationales, et au niveau sous-national avec : i) le renforcement des associations d'usagers de l'eau ; ii) la création d'associations d'usagers pour les installations de stockage ; iii) l'intégration du MIRR dans les plans de développement locaux ; et iv) le renforcement des capacités des Plateformes régionales du riz en Alaotra-Mangoro, Itasy et Vakinankaratra.

34. Les principales difficultés rencontrées par le projet étaient principalement liées à certaines procédures financières et de passation de marchés au sein du Ministère de l'Environnement et du Développement durable. En particulier, ces procédures sont très sensibles à la rotation des dirigeants du Ministère, qui s'est manifestée de manière significative au cours de la mise en œuvre du projet, et a entraîné des retards dans la passation des marchés et les paiements, conduisant à une baisse de la qualité de certains livrables et la frustration de plusieurs entrepreneurs et personnels du projet. Les procédures de passation de marchés doivent également être plus transparentes, de sorte que la sélection des candidats puisse être fondée sur les mérites et non sur des motifs politiques ou personnels. Parmi les autres difficultés rencontrées, on peut citer la capacité limitée de certains partenaires de mise en œuvre et les conditions climatiques défavorables (pour le reboisement). Enfin, le budget disponible limité ainsi que le calendrier contraint n'ont permis que d'amorcer la mise à l'échelle du MIRR à d'autres communes d'Alaotra-Mangoro ainsi qu'aux régions d'Itasy et de Vakinankaratra. Ce travail de mise à l'échelle devrait être pris en charge par le Ministère de l'Agriculture, de l'Elevage et de la Pêche en partenariat avec le Ministère de l'Environnement et du Développement Durable, afin que les capacités techniques et les enseignements tirés du projet AF Rice puissent être exploités durablement.

35. Outre le succès du MIRR, un certain nombre d'enseignements peuvent être tirés de l'expérience du projet AF Rice. Premièrement, le projet visait à obtenir des résultats ambitieux dans plusieurs domaines et sur de nombreux sites avec des ressources limitées. Lors de la conception d'un projet avec une approche pilote et de mise à l'échelle, il convient de prévoir suffisamment de temps et de budget pour que des résultats significatifs puissent être produits. Lorsqu'il est prévisible, lors de la phase de conception, que le budget disponible ne sera probablement pas suffisant pour transposer les résultats du projet à plus grande échelle, il est conseillé d'adopter une approche progressive, dans laquelle la phase 1 consisterait à tester les options pilotes et la phase 2 à les mettre à l'échelle.

36. Une autre leçon précieuse tirée du projet est que, dans des contextes comparables aux sites cibles, le reboisement par des propriétaires privés sur des terres privées peut être plus efficace, efficient et durable que le reboisement par des acteurs extérieures sur des terrains communaux. Lorsque cela est possible, le reboisement par des propriétaires fonciers privés locaux bénéficiant d'un soutien technique adéquat – par opposition aux opérations de plantation réalisées par un contractant externe – présente l'avantage supplémentaire de sensibiliser aux avantages et aux aspects techniques du reboisement "en conditions réelles".

Cette solution de reboisement, qui a finalement été adoptée dans le cadre d'une approche de gestion adaptative pertinente, s'est avérée efficace. En ce qui concerne le reboisement, il n'est pas raisonnable non plus de s'attendre à pouvoir mesurer ses avantages en termes de lutte contre l'érosion dans un délai de six à sept ans.

37. Le projet a tenté de structurer et/ou de renforcer les coopératives et les associations d'usagers autour de plusieurs thèmes et activités. Si les associations d'usagers chargées d'exploiter les unités de stockage et les infrastructures hydrauliques, et de produire du compost, sont susceptibles d'être durables, les coopératives créées pour la production de semences améliorées n'ont pas donné de bons résultats. Un programme de formation solide sur les compétences commerciales, la gestion financière et l'entrepreneuriat est nécessaire lors de la création de coopératives. Malgré une certaine formation fournie par le projet, ces groupes ne se sont pas révélés suffisamment autonomes pour poursuivre une activité de production viable sans le soutien du projet.

38. Certaines mesures devraient être prises avant la clôture financière du projet. En outre, certaines recommandations peuvent être formulées pour les initiatives futures.

39. Tout d'abord, il est nécessaire d'assurer le suivi de la mise à l'échelle du MIRR. Le projet a fourni une preuve de concept documentée qui devrait être étendue à d'autres régions rizicoles de Madagascar. Un projet de note conceptuelle pour un projet de transposition à plus grande échelle a été préparé par l'équipe du projet, et devrait être affiné. Sur cette base, la responsabilité de trouver un financement et de procéder à la transposition à plus grande échelle du MIRR devrait être attribuée. Les chances que les directives du MIRR soient effectivement mises en œuvre dans d'autres communes et régions de Madagascar dépendront probablement de la capacité de certaines institutions à jouer un rôle de premier plan dans les mois à venir et à élaborer une feuille de route réalisable pour la recherche de fonds ainsi que la mise en œuvre.

40. Deuxièmement, une analyse des enjeux liés au genre devrait être systématiquement menée dans la phase de conception du projet – or, une telle étude n'a pas été réalisée dans le cas d'AF Rice. Ceci permettrait d'identifier tout défi d'adaptation et de développement spécifique aux femmes et pertinent pour la portée du projet, et constituerait une base pour formuler une stratégie d'intervention sensible au genre, garantissant ainsi l'intégration de la dimension de genre et l'égalité d'accès aux avantages du projet pour les femmes et les hommes. Toujours d'un point de vue méthodologique, la traduction des principaux documents du projet (y compris le présent rapport d'évaluation dans sa version préliminaire) dans une langue nationale devrait être une pratique standard.

41. En ce qui concerne les activités sur le terrain, il serait légitimement attendu de favoriser des espèces locales dans les interventions de reboisement – en particulier pour un projet supervisé par le PNUE. Cela peut cependant s'avérer difficile dans la pratique, car les demandes des communautés pour des espèces spécifiques (par exemple, les acacias ou les eucalyptus) peuvent être en contradiction avec les bonnes pratiques de conservation. Dans ce cas, obtenir l'adhésion de la communauté en acceptant de planter les espèces demandées peut se faire au détriment des objectifs de conservation. Une solution intermédiaire consisterait à utiliser un mélange d'espèces indigènes et d'espèces demandées ; dans tous les cas, seule une campagne

de sensibilisation ambitieuse peut engendrer les changements de perception nécessaires pour que les communautés comprennent les avantages de l'adoption d'espèces locales.

42. Enfin, une recommandation à plus long terme serait d'envisager la création d'un point focal national du PNUE à Madagascar. Le PNUE est impliqué dans de nombreux projets à Madagascar, notamment en collaboration avec le Ministère de l'Environnement et du Développement Durable. La présence d'un point focal permanent dans le pays faciliterait la coopération quotidienne ainsi que la communication, et offrirait des conditions favorables à la résolution des questions financières et de procédure.

1 Introduction

43. The project "Promoting Climate Resilience in the Rice Sector through Pilot Investments in Alaotra-Mangoro Region" started in October 2012 and was planned to end in October 2017, but its duration was extended to June 2019. It is a UNEP-implemented project (overseen by the Ecosystem Division, Climate Change Adaptation Unit) funded by the Adaptation Fund (AF) and executed by the National Office for the Coordination of Climate Change (BNCCC-REDD+) of the Ministry of Environment and Sustainable Development (MEDD). The AF allocation for this project was USD 5,104,925 in grant, including an implementing fee of USD 352,920. Overall budget for project components and execution thus amounts to USD 4,705,000.

44. The project operated in Madagascar (Africa), and contributed towards the following Expected Accomplishments of the UNEP Medium-Term Strategy[4] 2010-2013: i) adaptation planning, financing and cost-effective preventative actions are increasingly incorporated into national development processes that are supported by scientific information, integrated climate impact assessments and local climate data; ii) increased carbon sequestration occurs through improved land use, reduced deforestation and reduced land degradation; iii) country policymakers and negotiators, civil society and the private sector have access to relevant climate change science and information for decision-making; and iv) countries and regions begin to realign their environmental programmes and financing to address degradation of selected priority ecosystem services.

45. The project underwent a Mid-Term Review (MTR) in February 2016. The present Terminal Evaluation (TE) builds on the results of the MTR and covers the implementation of the project since its inception in October 2012 until its operational closure in June 2019.

46. This TE, which conforms with the Terms of Reference (ToRs) presented in Annex II, was conducted in line with UNEP's Evaluation Policy (2016) and as such has both an accountability and a formative purpose. In terms of accountability, the TE analyses project performance in terms of delivery of outputs and outcomes for long-term impacts, and the use of resources to this end. The formative purpose of the TE involves understanding what has happened during implementation that affects results to encourage reflection and learning by UNEP staff and key project stakeholders and make recommendations for future relevant initiatives. A strong focus was placed on understanding the links between activities, outputs, outcomes and likely impacts, as well as execution.

[4] *This edition of the Medium-Term Strategy was relevant at the time of project formulation and inception. Relevant Expected Accomplishments from UNEP's Medium-Term Strategy 2018-2021 are: i) ecosystem health and sharing of ecosystem services and goods is enhanced through sectoral implementation of the ecosystem approach; ii) institutional capacity and policy and/or legal frameworks enhanced to achieve internationally agreed environmental goals, including the 2030 Agenda for Sustainable Development and its Sustainable Development Goals; and iii) science-based approaches that support the transition to sustainable development through multiple pathways including inclusive green economy and sustainable trade, and the adoption of sustainable consumption and production patterns at all levels.*

47. The primary audience for this evaluation will be UNEP, the AF, the Project Steering Committee (PSC), and the Project Coordination Unit (PCU). The secondary audience would include other project partners and stakeholders. The report will also serve to inform a wider community of stakeholders by communicating the project's accomplishments and challenges.

48. As per the ToRs, a two-page Evaluation Brief (Annex V) summarises the key evaluation findings for wider dissemination through the Evaluation Office of UNEP's website.

2 Evaluation methods

2.1 Inception Report

49. An Inception Report (IR) was produced, based on a preliminary documentation review, and interviews with UNEP, the Task Manager (TM) and the Project Coordinator (PC). This IR contained a preliminary reconstructed Theory of Change (ToC), which was informed by interviews. A revised version of this ToC is presented in Section 4 of the present report.

50. Annex III presents the review matrix produced for the IR, which is built around the nine evaluation criteria to be covered by the evaluation, namely: i) strategic relevance; ii) quality of project design; iii) nature of external context; iv) effectiveness, comprising assessment of the achievement of outputs, outcomes and likelihood of impact; v) financial management; vi) efficiency; vii) monitoring and reporting; viii) sustainability; and ix) factors affecting project performance. For each criterion, the matrix identifies evaluation questions and sub-questions, indicators, means of verification and sources of information. This matrix is the backbone of the TE, from the documentation review, to the analysis and report writing.

2.2 Document review

51. The evaluator systematically reviewed all project-related documentation. Reviewed documents include relevant background documentation, project design documents, baseline analysis, annual work plans and budgets or equivalent, revisions to the project, project budget, project reports (including Project Performance Reports – PPRs – and audits), steering committee meeting minutes, as well as relevant scientific studies produced by the project. A list of documentation reviewed during the evaluation is presented in Annex VI.

2.3 Interviews and field mission

52. The evaluator conducted a field mission to Madagascar between 16 and 27 February 2020. The mission objectives were to: i) meet and interview key project stakeholders; ii) meet with communities; and iii) conduct field visits across the three target districts in the Alaotra-Mangoro region. Twenty-four individual people were interviewed during the mission, in addition to approximately thirty people interviewed through group discussions (e.g. water user's associations, storage facility associations, beneficiaries).

53. The mission agenda was discussed with the PCU, UNEP TM and Chief Technical Advisor (CTA), based on an initial list of stakeholders to be met as well as logistical constraints.

54. The meetings and interviews with stakeholders were conducted in a semi-structured manner based on the interview protocols provided in Annex II of the IR (not reproduced here). These interviews provided information on stakeholders' perception of the project intervention.

55. In the visited sites, the evaluator carried out, as relevant:

- a focus group with the representative of the communities, including a range of persons (direct and indirect beneficiaries);
- a focus group with women; and
- field visits to assess project achievements through direct observation (including storage infrastructure, rehabilitated / new water infrastructure etc.).

56. During these field visits, the evaluator adopted a gender-sensitive approach, making sure that the situation and point of view of women was duly heard and taken into consideration. Additional exchanges were held with the UNEP TM, the PCU as well as the CTA via Skype and emails, both before and after the mission. Data collection allowed an in-depth analysis of the context around the AF project, its relevance, effectiveness and efficiency, results and sustainability, as well as the level of involvement of the different stakeholders and concerned communities.

57. At the end of the field mission, the evaluator organised a work session with the PCU to discuss preliminary findings. This ensured that the evaluator had a correct understanding of the situation, and gave the PCU an opportunity to provide feedback on the preliminary findings of the evaluation, and to contribute to refinement of the reconstructed ToC.

2.4 Analysis and reporting

58. The TE used a mix of quantitative and qualitative methods and both secondary and primary data to come up with evidence-based assessments.

59. The analysis not only used information on the implementation of each of the project outputs, but also on the context, on the role of the implementation partners, and on the institutional and political changes brought about by the project.

60. The evaluator ensured validation and triangulation of data and findings to build robust, credible and useful conclusions and lessons learned. In addition, this evaluation presents pragmatic and feasible recommendations. The report template provided in the ToRs was followed thoroughly.

2.5 Limitations to the evaluation

61. The evaluation was generally conducted in satisfying conditions, despite the in-country mission occurring both during the rainy season (with difficult access to some of the sites) and during a period of turn-over within the managing team of MEDD. This specific institutional context forced the evaluator and the PCU to improvise last-minute revisions to the mission agenda. Nevertheless, all main stakeholders could eventually be interviewed (see Annex IV).

62. The three minor limitations below can be evoked.

- Firstly, the mission occurred right after severe floods hit the Alaotra-Mangoro region, creating significant damages, including to rice paddies. As a result, some of the technicians from the DRAEP were mobilised in the field to attend to these emergencies, and were not available to meet the evaluator. However, this did not significantly prevent access to relevant information for the evaluation.
- Secondly, the poor condition of dirt roads to access some of the reforestation sites as well as the large number and remoteness of these sites did not allow the evaluator to visit them all. Nonetheless, this does not affect the assessment that the terminal evaluation can make of reforestation activities, since the three project sites (with several sub-sites at each site) were visited and specific M&E information on reforestation was readily available in the form of activity reports.
- Thirdly, some reports were not available for the evaluator to consult. These included the 2019 Project Performance Report, the 2018 and 2019 audit reports[5], some activity reports, Project Review Committee minutes as well as some PSC minutes. Missing documents are indicated in the body of the report, when relevant.

2.6 Ethics and human rights

63. As indicated above, discussions with women-only groups were conducted to allow women to express their perspective on various aspects of the project.

64. Anonymity and confidentiality of the material collected during interviews was preserved so that interviewees felt encouraged to express themselves freely. In particular, some sensitive matters (e.g. capacity of the PCU members) were discussed privately to avoid biasing responses or hurting people's pride.

[5] *The 2019 PPR and the 2018 and 2019 audits were not yet completed at the time of the TE.*

3 The project

3.1 Context

65. The rice sector is the most important sector in Madagascar's economy, employing approx. 10 million people along its value chain, and generating 41% of households' income[6]. Approximately 47% of the country's arable lands are dedicated to rice cultivation. Despite this importance, domestic production does not cover the national demand, and the country needs to import 10% of its consumption.

66. The project document (prodoc) identifies that, despite the existence of adequate best practices for rice cultivation in Madagascar, productivity in the rice sector remains low. This is because of the limited dissemination and uptake of best practices, leading in turn to the implementation of extensive agricultural practices that have detrimental landscape conservation consequences. Typically, areas are deforested to extend agricultural land, in an attempt to make up for the lack of intensification of production in existing plots. This leads to widespread erosion from run-off, resulting in a loss of top-soil, depletion of soil nutrients, landslides and heavy siltation of lowlands and waterways.

67. These root causes are exacerbated by a series of existing and anticipated climate changes, including a modification of rainfall patterns and a rise of temperatures. The main consequence for the rice sector is anticipated to be a reduction in water availability, leading to the stagnation or even decrease of rice yields.

68. The main barriers to the dissemination and uptake of the adequate agricultural practices that would increase rice yields are:

- limited access to adequate agricultural inputs and technologies (such as fertilisers, management practices and calendars);
- local producers' constrained access to knowledge and technical information on production;
- limited capacity of agricultural extension services to bring this information to farmers;
- the degradation of irrigation infrastructure and, in some areas, the absence of water conservation structures or practices;
- a lack of climate-related guidance for the rice sector and the limited mainstreaming of climate change into existing norms, standards and practices, including the deployment of extension and research services; and
- deforestation and land degradation induced by a growing demand for fuelwood, that adds to agriculture-induced land clearing.

[6] *Sources: Prodoc and World Bank. 2016. Madagascar Economic Update*

3.2 Objectives and components

69. In this context, the project's overall objective was to **"demonstrate pathways towards the transformation of the rice sub-sector to make it more resilient to current climate variability as well as expected climate change and associated hazards, through implementation of pilot investments in the Alaotra-Mangoro region that have the potential for being upscaled at national level"**.

70. The project addressed the above-mentioned challenges through three components:

- Component 1: Scientific and technical capacity
- Component 2: Adapted and resilient rice production cycle
  - 2.a: input management
  - 2.b: production management
  - 2.c: harvest management
- Component 3: Leveraging policy change

71. Three sites across the Lake Alaotra-Mangoro region were targeted. This region was identified as being amongst the highest rice-producing regions in the country, but also the most vulnerable to climate variability and climate change. The three target sites were:

- Ambatondrazaka district, Manakambahiny commune;
- Andilamena district, Bemaitso commune; and
- Amparafaravola, Ambohijanahary commune.

72. Planned project outputs and expected outcomes are presented in Table 1 below.

Table 1. Planned project outputs and expected outcomes.

Planned outputs	Expected outcomes
Component 1: Scientific and technical capacity	
Output 1.1.1. Best Available Technologies and Integrated Resilient Rice Model (MIRR) selected and publicized	1.1. Knowledge base on best practices for climate resilience in rice, based on existing local knowledge and international research
Output 1.2.1. Crop models are available for rice vulnerability mapping Output 1.2.2. Updated, dynamic agricultural calendars and climate early warnings taking into account current and projected variability disseminated to local population Output 1.2.3. Agricultural extension staff trained on climate risk management in an agro–ecosystem context	1.2. Malagasy government, research institutions and local communities have the tools and methods to assess, monitor, and understand climate change impacts on rice
Component 2: Adapted and resilient rice production cycle	
2.1.1 Climate resilient rice varieties selected through participatory field testing	2.1 Sustainable increase in rice yields (using MIRR)

Planned outputs	Expected outcomes
2.1.2 An operational multiplication and dissemination scheme for adapted seed varieties 2.1.3 Updated fertilisation guidelines according to best available standards and taking climate conditions into consideration 2.1.4 Integrated pest management is implemented 2.1.5 Water efficiency, management and conservation technologies and infrastructures are implemented	
2.2.1 Best available land preparation, production and harvesting techniques disseminated to reduce deforestation, maintain soil fertility and integrity, and to provide adequate growing conditions 2.2.2 Watershed rehabilitation in productive landscapes introduced, including through reforestation and adaptation of agroforestry practices 2.2.3 Soil conservation and livestock management techniques adapted to topography and landscape in light of future climate conditions 2.2.4 Revitalization of producer's cooperatives and water user associations for collaborative natural resources allocations (e.g. land and water) and management	2.2 Ecosystem services maintained
2.3.1 Increased utilization of rice by-product especially rice straw 2.3.2 Post-harvest storage facilities with phytosanitary control, serving as trading points and markets	2.3 Post Harvest losses reduced
Component 3: Leveraging policy change	
3.1.1 Gaps and possible maladaptations in the current rice policy are identified and recommendations on rice policy reform are made	3.1 Technical norms and standards in rice cultivation reviewed and where necessary modified to take climate change into account
3.2.1 A report on best practices and lessons learned for rice adaptation in Madagascar	3.2 Conditions in place for a full adaptation of the rice sub-sector

Source: Project Document

3.3 Stakeholders

73. Numerous organisations were either involved or affected by the project. The ones that are more closely involved in implementing the project or its components are identified as "Main partners", and typically have both high power and high interest in the project. The organisations identified below simply as "partners" are organisations that may not be directly managing the project (low power) but whose collaboration was required for specific activities and for whom

the project presents a strategic interest. Other organisations were affected by or participated in the project but do not have important stakes with it.

Note: the initial stakeholder analysis matrix that was developed during the Inception phase of this evaluation was refined after the in-country mission.

Table 2. Project stakeholders.

Organisation	Type	Role in the project	Level of power	Level of interest
UNEP	International organisation	Multilateral Implementing Entity	High	High
MEDD / BNCCCC-REDD+	Government	Executing Entity	High	High
MEDD / Direction of finances	Government	Financial services for the EE	High	High
Ministry of Agriculture, Livestock and Fisheries (MAEP)	Government	Main partner	High	High
Ministry of Water, Energy and Hydrocarbons (MWEH)	Government	Main partner	High	High
Agence Nationale de Contrôle Officiel des Semences et plants	Government	Partner	Low	High
National Institute of Geography and Hydrography	Government	Beneficiary	Low	Low
National Institute of Statistics	Government	Beneficiary	Low	Low
National Office for Risks' and Catastrophes' Management (Bureau National de Gestion des Risques et Catastrophes, BNGRC)	Government	Involved in some activities	High	Low
PAZC[7] staff and staff of other baseline or related projects (e.g. PAPRIZ[8], PRODAIRE[9], PURSAPS[10])	Community	Implementing baseline /related projects	Low	Low

[7] *Adapting Coastal Zone Management To Climate Change In Madagascar Considering Ecosystem And Livelihood Improvement*

[8] *Project to Improve the Productivity of Rice Cultivation in Central Highlands*

[9] *Project for the Development of an Integrated Approach to promote Environmental Restoration and Rural Development in Mararano Chrome*

[10] *Emergency Project for Food Security and Social Protection*

Organisation	Type	Role in the project	Level of power	Level of interest
FOFIFA	Research institution	Main partner	High	High
CALA (regional center for FOFIFA)	Research institution	Main partner	High	High
International Rice Research Institute (IRRI)	Research institution (international)	Involved in some activities	High	High
General Directorate for Meteorology (DGM)	Government	Involved in some activities	High	High
Prefecture of Alaotra-Mangoro	Local government	Local oversight	High	High
Regional Directorate for Agriculture, Livestock and Fisheries	Local government	Involved in some activities	High	High
Regional Directorate for Environment and Sustainable Development	Local government	Involved in some activities	High	High
Regional Directorate for Water, Energy and Hydrocarbons	Local government	Involved in some activities	High	High
National Silo for Forest Seeds (Silo National des Graines Forestières, SNGF)	Private sector	Supplier	Low	High
Mayors of target communes	Local government	Local partner	High	High
Development Agents in each commune	Community	Beneficiary / local facilitators	Low	Low
Traditional authorities of target communities	Community	Local partner	High	High
Farmers	Community	Beneficiaries	Low	High
Water users' associations (WUA)	Community	Beneficiaries	Low	High
NGOs in charge of reforestation (one per commune)	Local organisation	Service providers	Low	High

3.4 Project implementation structure and partners

74. UNEP, the Multilateral Implementing Entity (MIE), appointed a TM from UNEP's Climate Change Adaptation Unit to oversee project implementation and provide technical assistance.

The MEDD was the Executing Entity (EE) in partnership with the MAEP, which is consistent with its responsibilities related to the management and protection of Madagascar's environment. The MEDD executed its mandate through the BNCCC-REDD+, which is responsible for the coordination and implementation of climate mitigation and adaptation-related projects in Madagascar. The National Director of the Project was the Director of the BNCCC-REDD+. As indicated in the project document, the MEDD hired a PCU to ensure day-to-day management of the project. The PCU was composed of a PC, a Financial Manager, an administrative officer and a Monitoring & Evaluation (M&E) officer.

75. The PC updated the TM and an international CTA regularly on project progress and difficulties[11].

76. A PSC was to supervise the project implementation, with participation from all major stakeholders. Any problems encountered were to be discussed during regular meetings (theoretically every six months, with additional meetings when necessary). The PSC was to approve annual work plans, budgets and procurement plans, and review periodic project reports. Technical Partners and other projects were also to be included in the PSC, namely: World Bank, UNDP[12], IFAD[13], JICA[14], FAO[15], IRRI[16], World Vegetable Center, Plateforme du Riz, Observatoire du Riz.

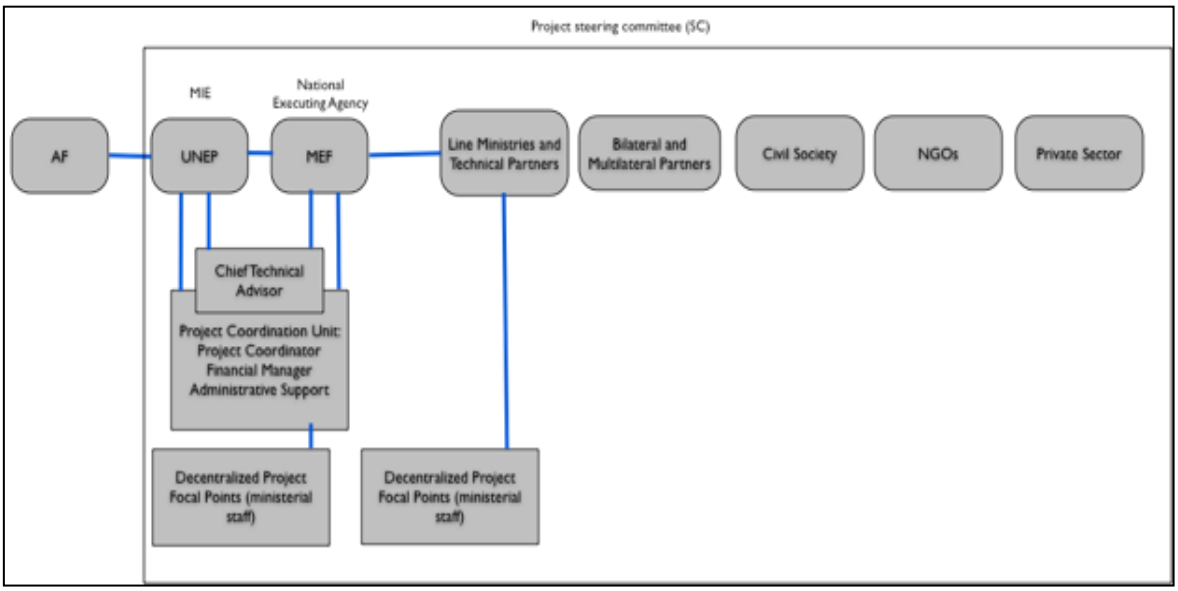
77. According to the latest PSC minutes made available to the evaluator (August 2015 and January 2016), institutions actually represented at PSC meetings included: MEDD (central and regional representatives), MAEP (central and regional representatives), MWEH (central and regional representatives), Ministry of Devolution and Region of Alaotra-Mangoro.

78. Figure 1 below illustrates the project management structure as described in the ToRs for the present evaluation.

[11] The international CTA was a home-based consultant and conducted in-country missions on an ad-hoc basis. The CTA was contracted by the MEDD. In particular, CTA missions have been bi-annual in 2017, 2018 and 2019 (one in 2019 as it finished in June).

[12] *United Nations Development Programme*
[13] *International Fund for Agricultural Development*
[14] *Japan International Cooperation Agency*
[15] *Food & Agriculture Organisation*
[16] *International Rice Research Institute*

Figure 1. Project management structure (source: TE ToRs)[17].



3.5 Changes in design during implementation

79. Indicators and targets described in the prodoc were extensively revised as per suggestions from the Baseline Study Interim Report submitted in April 2013. In particular, the original Results-based Framework (RBF) from the prodoc did not include outcome-level indicators. This April 2013 revised RBF was used throughout the project (including for the MTR) to monitor progress. Changes in the RBF are presented in Table 3 below.

[17] *Blues lines refer to communication lines rather than formal reporting lines.*

Table 3. Planned project outputs and expected outcomes with associated indicators and targets.

Original outcome/output	Original indicator from the prodoc	Original target from the prodoc	Revised indicator	Revised target
Component 1: Scientific and Technical Capacity				
Outcome 1.1. Knowledge base on best practices for climate resilience in rice, based on existing local knowledge and international research	N/A	N/A	Outcome Indicator 1.1. Percentage of farmers with access to selected and publicized MIRR	Based on existing ameliorated techniques, and based on new research, 1 Resilient Rice Model is selected and published. At least 90% of farmers targeted by the project has received technical support and has been trained to implement the technique according to technical guidelines.
Output 1.1.1 Best Available Technologies and Integrated Resilient Rice Model (MIRR) selected and publicized	# of resilient rice model developed	1 recommended resilient rice model for the region	Output Indicator 1.1.1. Number and type of technical guidelines for MIRR developed and publicized based on best available technologies and techniques	1 Recommended Integrated Resilient Rice Model developed and published, including a series of at least 1 technical guidelines with the following key stages/techniques: • seeding • planting • harvest • post-harvest • fertilisation • integrated pest management • water management
Outcome 1.2. Malagasy government, research institutions and local communities have the tools and methods to assess, monitor, and understand climate change impacts on rice	N/A	N/A	Outcome Indicator 1.2. Level of use of the tools and methods made available to Malagasy government, research institutions and local communities to assess, monitor, and	All regional extension services, research institutions including CALA, and at least 90% of targeted farmers are aware of climate change trends and impacts through awareness raising and information sessions, have access to regular climate forecasts through local communication channels (radio,

Original outcome/output	Original indicator from the prodoc	Original target from the prodoc	Revised indicator	Revised target
			understand climate change impacts on rice production	newspapers), and have been trained and implement MIRR and its technical guidelines, including vulnerability maps.
Output 1.2.1 Crop models are available for rice vulnerability mapping	# of vulnerability maps of future rice production # of hydrological models	4 rice models/maps by end of project 1 hydrological model available at mid-term	Output Indicator 1.2.1 Number of rice cropping system models based on expected climate change scenarios, including vulnerability maps of future rice production, and hydrological models developed	Detailed available downscaled data on expected climate change risks and impacts on rice sector at the local level compiled; identified gaps on available data are filled in; and all data are disseminated to relevant stakeholders at the regional and local levels. 4 rice cropping system models with vulnerability maps developed according to 4 different expected climate change scenarios (driest, low dry, low humid, and most humid scenarios) and 1 hydrological model developed based on available downscaled data on expected climate change risks and impacts.
Output 1.2.2 Updated, dynamic agricultural calendars and climate early warnings taking into account current and projected variability disseminated to local population	timely availability of climate information, including flood early warnings	updated agricultural information is available at the start of the season and reaches 80% of agricultural producers	Output Indicator 1.2.2 Frequency of dissemination of updated dynamic agricultural calendars and climate information including flood early warnings in the three project sites (Municipalities of Manakambahiny, Ambohijanahary and Bemaitso)	Climate information and 3- 4 day forecasts, including flood early warnings, made available to farmers through local communication systems. Dynamic agricultural calendars updated and disseminated to at least 80% of targeted farmers.

Original outcome/output	Original indicator from the prodoc	Original target from the prodoc	Revised indicator	Revised target
Output 1.2.3 Agricultural extension staff trained on climate risk management in an agro–ecosystem context	number of people trained (gender disaggregated)	100 staff persons trained	Output Indicator 1.2.3 Number of agricultural extension staff in the three districts trained on climate risk management in agro–ecosystem context (gender disaggregated)	100 % of staff trained on climate change aspects and how to disseminate new knowledge to farmers, including women.
Component 2: Adapted and resilient rice production cycle				
Outcome 2.1. Sustainable increase in rice yields (using MIRR)	N/A	N/A	Outcome indicator 2.1. – Percentage of change in rice yields in all three project sites	Individual rice yields for targeted producers increase by 25% in relation to current averages in each project area.
Output 2.1.1 Climate resilient rice varieties selected through participatory field testing	availability of information on climate resilient rice varieties	at least 5 rice varieties tested and proven resilient in laboratory and field testing Procure inputs and materials (seeds, tools) conditions	Output Indicator 2.1.1 Number and types of climate resilient rice varieties tested and selected within the three project sites (Municipalities of Manakambahiny, Ambohijanahary and Bemaitso)	CALA facilities and capacities are strengthened to develop at least 5 varieties that are tested and proven resilient in both laboratory and field settings in the three project sites.
Output 2.1.2 An operational multiplication and dissemination scheme for adapted seed varieties	availability of seeds from resistant varieties	100 Kgs of resilient certified seeds produced and disseminated to 10 multipliers	Output Indicator 2.1.2 Annual quantity and quality of adapted certified seeds produced and distributed in each of the project sites	At least 5 tons total of seeds for all 5 varieties that were tested and proven resilient are produced annually and distributed in the 3 project sites.
Output 2.1.3 Updated fertilisation guidelines	change in use of	50% increase in	Output Indicator 2.1.3 Number of farmers who	90% of targeted farmers have been trained and/or received technical support

Original outcome/output	Original indicator from the prodoc	Original target from the prodoc	Revised indicator	Revised target
according to best available standards and taking climate conditions into consideration	organic fertilisers and sustainable bio-organic fertilisers	sustainable fertilisers	apply updated fertilisation guidelines in all three project sites (Municipalities of Manakambahiny, Ambohijanahary and Bemaitso)	and apply fertilisation guidelines updated as part of the development of the MIRR.
Output 2.1.4 Integrated pest management is implemented	# of people trained in IPM (gender disaggregated)	400 farmers trained in IPM (50% women)	Output Indicator 2.1.4 Number of farmers trained in integrated pest management in all three project sites (gender and age disaggregated)	400 farmers trained in integrated pest management, gender and age disaggregated (and among them 50% women and young)
Output 2.1.5 Water efficiency, management and conservation technologies and infrastructures are implemented	Km of rehabilitated irrigation canals Number of reservoirs dredged % increase in water availability in all seasons % increase in water use efficiency	200 Km of irrigation canals cured, dredged and maintained 3 main reservoirs and water retention structures drained 35% increase in water availability in all seasons 20% increase in WUE	Output Indicator 2.1.5.a Number of Km of rehabilitated irrigation canals and number of reservoirs dredged in all three project sites Output Indicator 2.1.5.b Percentage of change in water availability and in water use efficiency in all seasons to water users' associations in all three project sites	Output Indicator 2.1.5.a: Manakambahiny: 35 km of primary canals cured, dredged, and maintained with norms that take expected climate change impacts into account (future precipitation regimes, drainage and run-off); 4 water intake points along the Ilakana River rehabilitated, strengthened and made more resilient to expected climate change impacts. Bemaitso: The dam is drained and dredged; 14 km of primary canals and 21 km of secondary canals are cured, dredged, and maintained all with norms that take expected climate change impacts into account. Ambohijanahary: The dam at Anony is rehabilitated, primary water control valves

Original outcome/output	Original indicator from the prodoc	Original target from the prodoc	Revised indicator	Revised target
				are repaired; 13 km of primary canal are drained, dredged, and repaired; and primary canal is extended to irrigate 600 ha of additional rice fields all with norms that take expected climate change impacts into account. Output Indicator 2.1.5.b: 35 % increase in water availability in all seasons in all 3 districts. Water loss estimation decrease from 50% to 25%.
Outcome 2.2. Ecosystem services maintained	N/A	N/A	Outcome indicator 2.2 Percentage change in land covered by biomass and in overall productivity (rice, vegetables and livestock) of project sites environment	Change in overall land area covered by forests (i.e. net reforestation) of at least 50km2 across the combined 3 municipalities. Data on vegetables and livestock productivity/yields collected by extension services, and increase in overall productivity of rice, vegetables and livestock of 5 % throughout the life of the project and across the project sites.
Output 2.2.1 Best available land preparation, production and harvesting techniques disseminated to reduce deforestation, maintain soil fertility and integrity, and to provide	% application of resilient rice model (gender disaggregated) change in rice productivity	75% of targeted producers use resilient rice model (gender disaggregated) 1 to 2 T/ha average increase	Output Indicator 2.2.1 Percentage application of resilient rice model, including rice–vegetables rotation systems, in all three project sites (gender disaggregated)	At least 75% of targeted farmers practice rice/vegetable crop rotation on an area larger than 0.1 ha and for commercial purposes (and among them at least 50% of women and young).

Original outcome/output	Original indicator from the prodoc	Original target from the prodoc	Revised indicator	Revised target
adequate growing conditions				
Output 2.2.2 Watershed rehabilitation in productive landscapes introduced, including through reforestation and adaptation of agro forestry practices	# of ha reforested # of people trained (gender disaggregated)	8500 ha reforested around project sites 300 farmers and land/forest users trained (50% women)	Output Indicator 2.2.2.a Number of ha reforested in all three project sites Output Indicator 2.2.2.b Number of farmers and land/forest users trained on sustainable agro forestry and land management in all three project sites (gender and age disaggregated)	Output Indicator 2.2.2.a: In total, at least 50km2 of area distributed in the 3 districts are reforested (5,000 ha). Output Indicator 2.2.2.b: At least 400 farmers trained in sustainable agro forestry and land management (and among them 50% of women and young).
Output 2.2.3 Soil conservation and livestock management techniques adapted to topography and landscape in light of future climate conditions	reduction in erosion rate	50-75% reduction in erosion rates	Output Indicator 2.2.3 % change in erosion rate	50 % reduction in erosion rates.
Output 2.2.4 Revitalization of producer's cooperatives and water user associations for collaborative natural resources allocations	# of operational water user associations	75% of associations are operational	Output Indicator 2.2.4 Number of members of farmer's cooperatives and water user associations trained on water management and administrative	75 % of the members of water user cooperatives in the project area have been trained on water management and administrative management.

Original outcome/output	Original indicator from the prodoc	Original target from the prodoc	Revised indicator	Revised target
(e.g. land and water) and management			management within the three project sites	
Output 2.2.5 Water quality assessments Numbering changed - old 2.3.1. (outcome 2.3 merged with 2.2 for logical consistency)	% change in water quality (e.g. reduction in turbidity, pollutant content, microbial content)	15% increase in water quality by end of project	Output Indicator 2.2.5 Percentage change in water quality (e.g. reduction in turbidity, pollutant content, microbial content, sediment content) in all three project sites	Water quality assessment is conducted in all 3 project sites by the DIREAU with technical support provided by the project if needed. Water quality increase by 10% from the date of the first analysis
Outcome 2.3. Post-Harvest losses reduced	N/A	N/A	Outcomes indicator 2.3 Percentage change in post-harvest losses	Post-harvest losses are reduced to less than 4%.
Output 2.3.1 Increased utilization of rice by–product especially rice straw (2.4.1. in original prodoc)	% use of rice straws in feed and for briquetting	50% of producers use or commercialize rice straws	Output Indicator 2.3.1 Percentage change in use of rice straws in animal feeding and for briquetting	75% of farmers use or commercialize rice straws.
Output 2.3.2 Post–harvest storage facilities with phytosanitary control, serving as trading points and markets (2.4.2. in original prodoc)	# of operational storage facilities	75% of existing facilities are operational	Output Indicator 2.3.2 Number of renovated storage facilities in all three project sites	75% of existing facilities have been renovated.
Component 3: Leveraging policy change				
Outcome 3.1 Technical norms and standards in	N/A	N/A	Outcome indicator 3.1 Number and types of	At least one national strategy on rice cultivation and at least one technical

Original outcome/output	Original indicator from the prodoc	Original target from the prodoc	Revised indicator	Revised target
rice cultivation reviewed and where necessary modified to take climate change into account			technical norms and standards in rice cultivation reviewed and modified at the national level to take climate change into account	guideline for the following rice cultivation stages/techniques are revised and updated at the national level: • seeding • planting • harvest • post-harvest • fertilisation • integrated pest management • water management
Output 3.1.1 Gaps and possible maladaptations in the current rice policy are identified and recommendations on rice policy reform are made	# of operational intersectoral mechanisms for rice policy making # of replication strategies # of recommendations on rice resilience	1 broad national platform exists and is functional 1 replication strategy and action plan for Alaotra region 1 white paper on rice	Output Indicator 3.1.1.a Number and types of activities identified and implemented for up scaling and replication from MIRR application in broader Alaotra basin and in other regions Output Indicator 3.1.1.b Number and types of recommendations on rice policy reforms made	Output Indicator 3.1.1.a: 1 replication strategy and action plan developed, including at least 5 to 10 operational activities for up scaling and replication of MIRR practices in the broader Alaotra basin and beyond. Output Indicator 3.1.1.b: The SNDR is revised with measures to increase climate change resilience of rice production, and then the strategy is published and disseminated.
Outcome 3.2 Conditions in place for a full adaptation of the rice sub–sector	N/A	N/A	Outcome indicator 3.2 and output Indicator 3.2.1 Number and type of stakeholders to which the report on best practices and lessons learned is distributed	1 report at end of project.

Original outcome/output	Original indicator from the prodoc	Original target from the prodoc	Revised indicator	Revised target
Output 3.2.1 A report on best practices and lessons learned for rice adaptation in Madagascar	# of lessons learned reports	1 report at end of project	Outcome indicator 3.2 and output Indicator 3.2.1 Number and type of stakeholders to which the report on best practices and lessons learned is distributed	1 report at end of project.

80. The only difference between the outcome/output structure adopted in April 2013 (and reported against in the PPRs) and the original one in the prodoc is the mainstreaming of Output 2.2.5 "Water Quality Assessments" under Outcome 2.2 "Ecosystem Services Maintained". In the prodoc, this output used to be under a single-output Outcome 2.3 "Health improved and new disease spread prevented". This change is welcome, as it streamlines the output/outcome structure.

81. A second revision of the RBF was prepared in August 2017. This revised RBF was submitted to the Adaptation Fund Board secretariat, but, due to revised AF procedures, it was required to go through Board for approval. In consultation with the Adaptation Fund Board secretariat, it was decided that it was too late in the project implementation stage to undergo this likely lengthy process. Instead, a column was added in the 2017 and 2018 PPRs to indicate "notes on targets" and capture the key information from these proposed revisions. but was never submitted to the Adaptation Fund. In this proposal, 13 indicators and/or targets were identified for a revision and an output was to be added. According to the justifications presented to support this proposal, these revisions fell into three categories:

- targets revised downward to account for project delays and hence set targets that could more realistically be achieved by the project's termination: 2.2, 2.2.2;
- indicators and/or targets revised for technical M&E reasons (difficulty to measure, no baseline established): 2.1.5 b, 2.2.3, 2.2.5; and
- indicators and/or targets revised for technical implementation reasons: 1.2.2, 2.1.1, 2.1.2, 2.1.5 a, 2.3.2, 3.1, 3.1.1 b.

82. The suggested addition is for an Output 3.2.2: "A strategy for communicating information on adaptation techniques to farmers is implemented", with:

- associated indicators: number and type of communication initiatives; and
- associated targets: "At least one documentary on MIRR practices developed and broadcasted on national TV and radio talks broadcasted on local and national radio stations. Field visits and training for at least 2 representatives of 4 farmers associations throughout Alaotra-Mangoro to the project sites. 1 field visit and training for Regional Agriculture Delegation and other relevant groups (e.g. Associations Paysannes Régionales, Vulgarisateurs Agricoles, Fédération des AUEs...) of other selected regions."

83. Even though the latter proposed revision and associated justifications from August 2017 inform the TE as a document reflecting potential changes in the Theory of Change (ToC) of the project, this TE bases itself on the RBF officially validated, namely the April 2013 RBF presented above.

84. The other key change that took place during project implementation was the two no-cost extensions that were granted to make up for initial delays and provide additional time to deliver the project outputs.

3.6 Project financing

85. Project financing is described in Table 4 below. Note that the AF does not request to formally mobilise or report against co-financing sources.

Table 4. Project budget (at design and latest revision) and actual expenditures.

	Planned budget (prodoc)	Revised budget (as per March 2018 revision)	Expenditures (as of March 2020)
Component 1	803,000	414,581	459,185
Component 2	3,310,000	3,197,163	2,948,640
Component 3	200,000	252,219	279,423
M&E	132,000	480,659	356,122
PMC	260,000	360,378	252,378
Total	**4,705,000**	**4,705,000**	**4,295,748**

Notes: budget per component from the March 2018 budget revision has been recomputed by the evaluator, as some calculation errors appeared in the original spreadsheet. In addition, the allocation of some of the latest expenditures across components had to be inferred by the evaluator when budget lines were originally spread between more than one component, since the expenditure report does not allocate these lines specifically.

4 Theory of Change at evaluation

86. The prodoc did not include a ToC *per se*, even though the intervention rationale was convincingly laid out. A ToC at Design was prepared during the inception phase of the terminal evaluation, in consultation with the TM, CTA and PC. Few changes were brought to this ToC at Design in the process of consolidating the ToC at Evaluation, as this version largely coincided with the reality of the project interventions[18]. Impact 1 was nevertheless reformulated, and two important assumptions were added (cf. Figure 2).

87. Changes between the revised prodoc (as per the Baseline study) and the reconstructed ToC at Evaluation are described in Table 5.

88. Major causal pathways underlying the reconstructed ToC are described below.

4.1 Causal pathways from outputs to outcomes

89. Outputs 1.1.1-1.2.3, when delivered, will give relevant Malagasy stakeholders – namely governmental bodies, research institutions and local communities – the knowledge base on the best practices for climate resilience in rice (Outcome 1.1), as well as the tools to identify climate impacts on the rice sub-sector (Outcome 1.2). This will be thanks to a phased approach, with: i) the identification and preparation of technical solutions (selection of best available technologies and MIRR under Output 1.1.1, selection of crop models under Output 1.2.1, and updating of agricultural calendars and preparation of climate early warnings under Output 1.2.2); and ii) the dissemination of these technical solutions through publicization (Outputs 1.1.1 and 1.2.2) and training of agricultural extension staff (Output 1.2.3), who will then relay these solutions to farmers in local communities.

90. The main assumption supporting this causal relation under Component 1 is the pre-existence of information and technical best practices that can then be used, or implemented and upscaled. Indeed, the time scale of the project does not allow to develop a new MIRR or new rice species "from scratch". Likewise, the climate information to base climate early warning upon needs to be readily available to be disseminated and inform agricultural calendars, as the project does not include a component on the production of climate information.

91. Outputs 2.1.1-2.3.2 will build on the outputs under Component 1 to effect on-the-ground improvements to the resilience of the rice sub-sector. To achieve this, a comprehensive approach is followed that focuses not only on the various stages of rice production *per se* (i.e. seed selection and testing under Outputs 2.1.1 and 2.1.2, fertilisation under Output 2.1.3, pest management under Output 2.1.4 and land preparation and harvesting under Output 2.2.1, leading together to Outcome 2.1), but also on providing supporting ecosystem services and generally an enabling production environment for rice production (rehabilitation of watersheds

[18] *Note: the evaluation questions raised by the reconstruction of the ToC at Design and presented in the Evaluation Inception Report are addressed in the relevant sections of this report.*

under Output 2.2.2, water management practices and infrastructure under Output 2.1.5, water quality testing under Output 2.2.5, leading to Outcome 2.2) and post-production (use of rice by-products under Output 2.3.1, post-harvest storage facilities under Output 2.3.2, leading to Outcome 2.3). These technical changes will be facilitated by improvements in the local governance of cooperatives and water user's associations (Outputs 2.2.4 and 2.2.5).

92. Two drivers to this causal pathway can be identified. Firstly, the viability of the approach relies on the capacity of key project partners to mobilise technical solutions and implement them. This includes FOFIFA / CALA for the selection and dissemination of rice varieties, agricultural extension staff to advise farmers on the daily implementation of best agricultural practices, SNGF, local NGOs and communities to carry out watershed rehabilitation through reforestation and construction contractors for the building / rehabilitation of water infrastructures and post-harvest storage facilities. This driver can be influenced positively by the project through thorough monitoring, staff training and careful procurement of contractors. Secondly, community buy-in is a key driver to any initiative that entails ecosystem restoration and changes in traditional practices (such as new rice varieties or agricultural traditions). Community involvement can be influenced by the project through the mobilisation of local authorities (traditional chiefs, mayors) and involvement of local NGOs that are already well-implanted in the target communities. In addition, community buy-in can be fostered through consultations and the demonstration / explanation of expected benefits from the project's intervention.

93. One key assumption underlies the causal pathway between Output 2.2.2 and Outcome 2.2, which is that the degradation of ecosystems has not reached a no-return point, for example in terms of erosion, nutrient content of the soil and depletion of water resources.

94. Outputs 3.1.1-3.2.1 aim to document best practices for adaptation in the rice sector and then use these lessons learned to modify relevant policies and strategies (Outputs 3.1.1 and 3.2.1 leading to Outcome 3.1) and disseminate best practices to farmers (Output 3.2.1 leading to Outcome 3.2). The main assumption pertains to the causal pathway leading to changes in technical norms: there needs to be a demand for such changes and updating, from the government as well as from other actors in the sector, namely professional organisations, seed producers, farmers and consumers (who might not wish to consume different rice species from what they are used to).

4.2 Causal pathways from outcomes to intermediate states

95. Combined together, the enhanced knowledge base on best practices for climate resilience in the rice sub-sector (Outcome 1.1) and the ownership by Malagasy stakeholders of tools and methods to assess, monitor and understand climate change impacts on rice (Outcome 1.2) will lead to Intermediate State 1 (IS 1), namely strengthened technical capacities of Malagasy authorities to understand, analyse and manage climate risks to the rice sub-sector, as well as to determine further adaptation options for the sector. This change is based on: i) the existence of the knowledge base (Outcome 1.1); and ii) the ability to apply this knowledge through the mastery of relevant tools (Outcome 1.2). IS 1 is thus a longer-term expected result

of the project, as it implies the capacity to manage climate risks and identify adaptation solutions beyond the scope and timeline of this project.

96. As such, this causal pathway relies on a key assumption, namely that knowledge and technical capacity to use relevant tools will be retained by key stakeholders (agricultural extension officers, local communities), and not lost through turn-over.

97. Outcomes 2.1-2.3 will lead to IS 2, namely the demonstrated efficacy of pilot, through concrete changes to rice production practices, from input to harvest management, including measures designed to restore and maintain ecological services around rice ecosystems. This IS is the direct result of the three outcomes under Component 2, which, when combined, will provide a proof of the efficacy of an integrated approach to strengthen the resilience of the rice sub-sector. This approach not only focuses on agricultural inputs and practices, but places rice production in a broader ecosystem and human context, which both need to adapt to the impact of climate changes so as to enable sustainable improvements in the resilience of the rice sub-sector.

98. A key assumption underlying the contribution of Outcomes 2.1 and 2.2 to IS 2 is that adverse extreme climate impacts – such as prolonged dry spells or intense floods – do not impede the demonstration of the efficacy of the integrated approach. This assumption is beyond the project's control for the most part, as the adaptation approach is only intended to mitigate the risks linked to average climate changes, and less so to extreme climate events.

99. An assumption conditioning how Outcome 2.2 will lead to IS 2 is that the causes of ecosystem degradation are addressed, so that restored ecosystems are not threatened again immediately after project termination. Awareness raising and community mobilisation are the main avenues for the project to influence this driver – together with the promotion of rice by-products (such as rice straws) as substitutes to fuelwood, a major cause of deforestation. The promotion of the use of rice by-products is supported under Output 2.3.1.

100. Outcomes 3.1 and 3.2 will lead to IS 3, namely that key policy barriers, gaps or maladaptations are identified and addressed in order to create the conditions for upscaling adaptation in the rice sub-sector.

101. The key assumption for this causal pathway to materialise is that – in addition to an actual demand for the updating of policies and strategies – there should be effective governmental procedures to validate policy changes. This can be through decrees, regulations or parliamentary processes, as relevant, and is beyond the project's influence. Key actors for this assumption are the MEDD, MAEP and potentially Parliament.

102. The strengthened scientific and technical capacities (IS 1) will provide enabling conditions to address key policy barriers, gaps and maladaptations (IS 3), insofar as the science-policy interface functions well, i.e. that policy-makers are inclined to consult with technical authorities to inform their action. This driver can be influenced to some extent by the project, by promoting dialogue between technical and political stakeholders, both at the national and regional levels, throughout project implementation.

4.3 Causal pathways from intermediate states to impacts

103. Impact 1 will be the demonstrated improvement in the resilience of the rice sub-sector in the Alaotra-Mangoro region. It will be the longer-term result of IS 2, provided that national ownership of the project is sufficient to foster the sustainability of its results. This driver will depend on how pro-active regional authorities (including agricultural extension officers) and local communities (through cooperatives, water users' associations, traditional authorities, mayors) are to perpetuate the use of best practices for rice agriculture, maintain water and post-harvest storage infrastructures and monitor the rehabilitation of watersheds. These conditions will have been influenced by several of the project's outputs, with a view to secure the sustainability of the project's results. A key assumption in this respect is that users' associations of post-harvest storage units and water infrastructures, as well as GPS (Seed Producer Groups) function after the project termination to ensure the maintenance of facilities and supply enough improved rice seeds to sustain demand.

104. Impact 2 will be the initiated upscaling of demonstrated best adaptation practices for the rice sub-sector across Madagascar. It will be based on: i) the demonstrated efficacy of the pilot approach implemented by the project in Alaotra-Mangoro (IS 2); ii) an enabling policy and strategic environment (IS 3); and iii) the availability of scientific and technical expertise and knowledge within national institutions (IS 1).

105. Once IS 1-3 are secured, the main assumption for the materialisation of Impact 2 is the availability of funding to effect the upscaling of best adaptation practices for the rice sub-sector across Madagascar. Funding can be sourced from the government's own budget, from specific cooperation initiatives or from a mix of the two. Provided that national ownership of the project's results is strong enough especially at the national level (MEDD, MAEP), it will be up to the government to undertake the appropriate steps to secure funding and continue the upscaling. In addition, the realisation of Impact 2 relies on the assumption that increased technical capacity (IS 1) translates into effective action for adaptation planning and implementation.

Figure 2. Theory of Change at Evaluation.

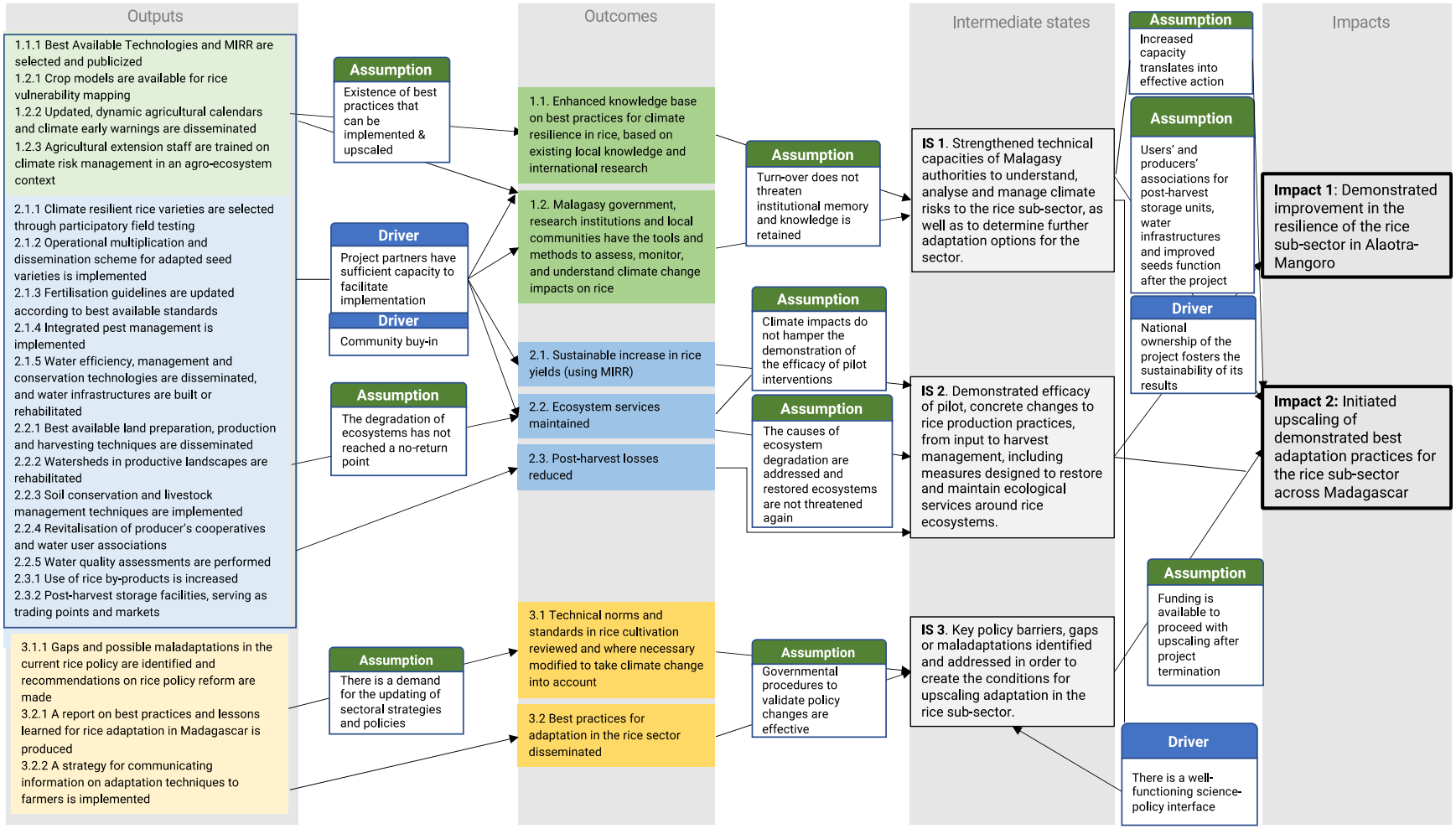


Table 5. Changes between the revised prodoc (as per Baseline study) and the reconstructed ToC at Evaluation.

Revised Project Document (as per Baseline study)		Reconstructed ToC at Evaluation		Justification for reconstruction
		Impact **(Long term)**	**Impact 1**: Demonstrated improvement in the resilience of the rice sub-sector in Alaotra-Mangoro **Impact 2:** Initiated upscaling of demonstrated best adaptation practices for the rice sub-sector across Madagascar	While the pilot approach of the project is reflected in IS 2, Impact 1 reflects a more ambitious, long-term goal, namely increasing the resilience of the rice sub-sector in Alaotra-Mangoro. Similarly, Impact 2 emphasises the importance of the upscaling process, which was rightfully supported towards the end of the implementation period. This will be a medium to long-term process upon which food safety in Madagascar will partly rely – in a context of climate change. Note: in comparison with the ToC at Design, Impact 1 has been amended to better reflect the fact that, even though upscaling of the MIRR was initiated in communes of Alaotra-Mangoro other than the three pilot sites, the scale of the project interventions is still insufficient to evoke an improvement of the resilience

Revised Project Document (as per Baseline study)		Reconstructed ToC at Evaluation		Justification for reconstruction
				of the rice sub-sector at the scale of the whole region.
Overall Project Objective	To demonstrate pathways towards the transformation of the rice sub-sector to make it more resilient to current climate variability as well as expected climate change and associated hazard, through implementation of pilot investments in the Alaotra-Mangoro region that have the potential for being upscaled at national level.	**Intermediate States (IS)** **(Medium-term)**	**IS 1**. Strengthened scientific and technical capacities of Malagasy authorities to understand, analyse and manage climate risks to the rice sub-sector, as well as to determine further adaptation options for the sector. **IS 2**. Demonstrated efficacy of pilot, concrete changes to rice production practices, from input to harvest management, including measures designed to restore and maintain ecological services around rice ecosystems. **IS 3**. Key policy barriers, gaps or maladaptations identified and addressed in order to create the conditions for upscaling adaptation in the rice subsector.	The original Project Secondary Objectives are reflected in the Intermediate States. The overall Project Objective from the Prodoc focused on the piloting aspect of the project's intervention, which is reflected in IS 2.
Project Secondary Objectives	1. Strengthening the scientific and technical capacities of Malagasy authorities to understand, analyse and manage climate risks to the rice sub-sector, as well as to determine further adaptation options for the sector. 2. Implementing and disseminating a series of concrete changes to the rice production practices, from input to harvest management, including measures designed to restore and maintain ecological services around rice ecosystems. 3. Identifying and addressing the key policy barriers, gaps or maladaptations			

Revised Project Document (as per Baseline study)		Reconstructed ToC at Evaluation		Justification for reconstruction
	in order to create the conditions for upscaling adaptation in the rice subsector.			
Outcomes	**1.1** Knowledge base on best practices for climate resilience in rice, based on existing local knowledge and international research **1.2** Malagasy government, research institutions and local communities have the tools and methods to assess, monitor, and understand climate change impacts on rice **2.1** Sustainable increase in rice yields (using MIRR) **2.2** Ecosystem services maintained **2.3** Post-harvest losses reduced **3.1** Technical norms and standards in rice cultivation reviewed and where necessary modified to take climate change into account **3.2** Conditions in place for a full adaptation of the rice sub–sector	**Outcomes**	**1.1** Enhanced knowledge base on best practices for climate resilience in rice, based on existing local knowledge and international research **1.2** Malagasy government, research institutions and local communities have the tools and methods to assess, monitor, and understand climate change impacts on rice **2.1** Sustainable increase in rice yields (using MIRR) **2.2** Ecosystem services maintained **2.3** Post-harvest losses reduced **3.1** Technical norms and standards in rice cultivation reviewed and where necessary modified to take climate change into account **3.2** Best practices for adaptation in the rice sector disseminated	Six outcomes were defined in the log frame revised as per the Baseline study. In the reconstructed ToC, these outcomes have been slightly reworded for consistency. In addition, Outcome 3.2 was changed to better align with the definition of an outcome (namely, "the use (i.e., uptake, adoption, application) of an output by intended beneficiaries, observed as a change in institutions or behaviours, attitudes or conditions"), as the original outcome was more of an intermediate state.
Outputs	**1.1.1** Best Available Technologies and Integrated Resilient Rice Model (MIRR) selected and publicized	**Outputs**	**1.1.1** Best Available Technologies and Integrated Resilient Rice Model (MIRR) are selected and publicized	Outputs validated in the Baseline Study were generally adequate. Changes

Revised Project Document (as per Baseline study)		Reconstructed ToC at Evaluation		Justification for reconstruction
	1.2.1 Crop models are available for rice vulnerability mapping **1.2.2** Updated, dynamic agricultural calendars and climate early warnings taking into account current and projected variability disseminated to local population **1.2.3** Agricultural extension staff trained on climate risk management in an agro–ecosystem context **2.1.1** Climate resilient rice varieties selected through participatory field testing **2.1.2** An operational multiplication and dissemination scheme for adapted seed varieties **2.1.3** Updated fertilisation guidelines according to best available standards and taking climate conditions into consideration **2.1.4** Integrated pest management is implemented **2.1.5** Water efficiency, management and conservation technologies and infrastructures are implemented **2.2.1** Best available land preparation, production and harvesting techniques disseminated to reduce deforestation,		**1.2.1** Crop models are available for rice vulnerability mapping **1.2.2** Updated, dynamic agricultural calendars and climate early warnings taking into account current and projected variability are disseminated to local population **1.2.3** Agricultural extension staff are trained on climate risk management in an agro-ecosystem context **2.1.1** Climate resilient rice varieties are selected through participatory field testing **2.1.2** An operational multiplication and dissemination scheme for adapted seed varieties is designed and implemented **2.1.3** Fertilisation guidelines are updated according to best available standards and taking climate conditions into consideration **2.1.4** Integrated pest management is implemented **2.1.5** Water efficiency, management and conservation technologies are disseminated, and water infrastructures are built or rehabilitated **2.2.1** Best available land preparation, production and harvesting techniques	made in the reconstructed ToC are: • slight rewording of some outputs to harmonise formulation and improve grammatical coherence (e.g. Output 2.1.5); • addition of the term “and rehabilitated” or “and refurbished” in Outputs 2.1.5 and 2.3.2 to account for the possibility to work on already-existing infrastructure, as opposed to only building new infrastructure; and • addition of Output 3.2.2, as recommended in the proposed revision from August 2017.

Revised Project Document (as per Baseline study)		Reconstructed ToC at Evaluation		Justification for reconstruction
	maintain soil fertility and integrity, and to provide adequate growing conditions **2.2.2** Watershed rehabilitation in productive landscapes introduced, including through reforestation and adaptation of agro forestry practices **2.2.3** Soil conservation and livestock management techniques adapted to topography and landscape in light of future climate conditions **2.2.4** Revitalization of producer's cooperatives and water user associations for collaborative natural resources allocations (e.g. land and water) and management **2.2.5** Water quality assessments **2.3.1** Increased utilization of rice by–product especially rice straw **2.3.2** Post–harvest storage facilities with phytosanitary control, serving as trading points and markets **3.1.1** Gaps and possible maladaptations in the current rice policy are identified and recommendations on rice policy reform are made **3.2.1** A report on best practices and lessons learned for rice adaptation in Madagascar		are disseminated to reduce deforestation, maintain soil fertility and integrity, and to provide adequate growing conditions **2.2.2** Watersheds in productive landscapes are rehabilitated, including through reforestation and adaptation of agro-forestry practices **2.2.3** Soil conservation and livestock management techniques adapted to topography and landscape in light of future climate conditions are implemented **2.2.4** Producer's cooperatives and water user associations for collaborative natural resources allocations (e.g. land and water) and management are revitalised **2.2.5** Water quality assessments are performed **2.3.1** Increased utilization of rice by–products – especially rice straw – is promoted **2.3.2** Post–harvest storage facilities with phytosanitary control are built or refurbished, and serve as trading points and markets **3.1.1** Gaps and possible maladaptations in the current rice policy are identified and recommendations on rice policy reform are made	

Revised Project Document (as per Baseline study)		Reconstructed ToC at Evaluation		Justification for reconstruction
			3.2.1 A report on best practices and lessons learned for rice adaptation in Madagascar is produced and disseminated **3.2.2** A strategy for communicating information on adaptation techniques to farmers is implemented	

5 Evaluation findings

5.1 Strategic relevance

106. The project is fully aligned with UNEP's Medium-Term Strategy (MTS) and Programme of Work (PoW) – even though this alignment is not explicitly formulated in the prodoc. One of the objectives set forth in UNEP's MTS 2018-2021 is that by 2030, countries should be more resilient to the adverse impacts of climate change. In addition, the MTS calls for the adoption of integrated, ecosystem-based approaches to adaptation issues. The project also contributes to several outputs of the climate change and resilience to disasters and conflicts sub-programmes in UNEP's 2020-2021 PoW, namely:

- "Technical support provided to countries to develop tools, methods, scientific evidenceandknowledge networks and promote South-South cooperation to advance near-term and long-term national plans that integrate ecosystem-based adaptation";
- "Outreach and communication for adaptation";
- "Training and technical assistance on institutional and legal frameworks provided to countries to improve national and local preparedness to mitigate environmental risks from disasters and conflicts"; and
- "Outreach to raise awareness of the environmental causes and consequences of crises and to promote the sound management of natural resources as a tool for crisis prevention and recovery in vulnerable countries".

107. Compatibility between the project's objectives and the Adaptation Fund's strategic objectives is fully described in Annex 8 of the prodoc. This annex shows how the project's results framework aligns in particular with Outcome 4 as well as Outputs 4, 5, 6 and 7 of the Adaptation Fund.

108. The project is extremely relevant to the national context of Madagascar, regional context of Alaotra-Mangoro and local contexts of the three target communes.

109. As described in the prodoc, Madagascar is dependent on a single crop that constitutes its staple food, and which is particularly vulnerable to the impacts of climate change: i) rice is a rain-fed crop for which yields are extremely dependent on the amount and timing of rainfall; ii) rice cultivation is vulnerable to the quality of water and is therefore affected by excess sediment load in irrigation water; and iii) the complex irrigation systems that characterise rice culture in Madagascar are fragile and threatened by floods during the rainy season. In addition, and despite the importance of rice for both its economy and food security, Madagascar needs to import 10% of its domestic consumption (see Section 3.A). This is because of limited yields of domestic rice culture – yields that are at risk of decreasing further because of the above-mentioned impacts of climate change. This has led the rice sector to be ranked among the top adaptation priorities of the country in Madagascar's National Adaptation Programme of Action (NAPA). Overall, the project responds to the top five priorities identified in the NAPA:

- rehabilitation of dikes and dams (Priority 1);
- support to Water Users' Associations (Priority 2);
- intensification of agricultural productivity (Priority 3);
- implementation of erosion control and soil conservation practices (Priority 4); and
- strengthening of the meteorological network (Priority 5).

110. Rice production in Madagascar followed a slightly downward trend between 2012 and 2017, while 2018 saw an increase in production because of favourable weather conditions in the main producing regions of Alaotra-Mangoro, Itasy and Boeny[19]. However, rice production in 2018 remained below the five-year average. As a result, 84% of domestic needs were covered by national production, excess demand being covered by imports. Rice imports are highly fluctuating between years (from 720 tonnes in 2017 to approx. 530 tonnes in 2018), revealing the dependence of the country on imports as an adjustment variable to make up for low yields. Importantly, imported rice is usually cheaper than local rice in Madagascar, even though the difference varies from one period to another and across locations[20]. This brief overview of the evaluation of the rice market in Madagascar since the start of the project highlights the fact that the need to increase both rice yields and the resilience of rice production remains absolutely relevant more than five years after the project was designed, thus justifying the urge to upscale the MIRR at the national level.

111. Furthermore, the project is fully aligned with various policy components under Madagascar's Agricultural Sector Policy, including: i) the Letter of Development Policy; ii) the Rural Policy Brief for Agriculture, Livestock, Fisheries Sector; iii) the Sector-Based Program on Agriculture, Livestock and Fisheries; iv) the Letter of Development Policy for Watershed and Irrigated Perimeters; v) the National Strategy for Rice Development; vi) the National Fertiliser Strategy; and vi) the National Strategy for Agricultural and Rural Training.

112. Alaotra-Mangoro is Madagascar's first rice-producing region and was thus legitimately selected to pilot the project's interventions. A thorough and convincing selection process led to choose the three target communes within the Alaotra-Mangoro region. Selection criteria included climatic, socio-economic, agricultural, environmental and institutional factors, as well feasibility considerations. The full analysis is presented in Annex 3 of the prodoc. Overall, the number and scale of intervention areas are proportionate with the project resources, and, despite a sometimes difficult access to intervention sites during the rainy season, this did not significantly hamper project implementation.

113. Finally, the project complements other relevant initiatives (in particular JICA-funded projects PAPRIZ[21] and Bassins Versants Lac Alaotra – BV-LAC) that also focus on rice productivity, climate resilience and erosion control in other areas of the Alaotra-Mangoro region.

[19] *Source: Famine Early Warning Systems Network. March 2019. Madagascar Supply and Market Outlook.*

[20] *Source: Observatoire du Riz*

[21] *Projet d'Amélioration de la Productivité Rizicole sur les Hautes Terres Centrales (Project for the Improvement of Rice Productivity in Central Highlands)*

Alignment to MTS and POW: Highly satisfactory

Alignment to UNEP and AF strategic priorities: Highly satisfactory

Relevance to regional, sub-regional and national issues and needs: Highly satisfactory

Complementarity with existing interventions: Highly satisfactory

Overall rating[22] for strategic relevance: Highly satisfactory

5.2 Quality of project design

114. Overall, the project design is based on a solid and comprehensive presentation of the baseline situation, root causes and barriers. The problem analysis is substantiated by thorough data analysis on rice yields and climate projections. The choice of the Lake Alaotra Region and the three target sites within the region to carry out on-the-ground interventions is based on convincing evidence and analysis. A set of social, economic, environmental, and institutional criteria was used to select these sites, and is presented in detail in the prodoc.

115. The intervention logic is sound and, although no theory of change is explicitly presented in the prodoc (in particular, assumptions and drivers were not clearly expressed), the logical sequencing of outputs, outcomes and objectives is convincingly articulated.

116. The two-tiered upscaling strategy envisioned at the project design phase (i.e. first in other communes of Alaotra-Mangoro and then in at least two other regions of Madagascar) was appropriate, and was implemented as planned.

117. Another strong aspect of the project design was to build on existing scientific capacities and facilities to develop the MIRR, select climate-resilient rice varieties and disseminate best practices. Working with FOFIFA[23] (including its regional branch CALA[24]) in particular appeared as a sound option.

118. The project design shows three main weaknesses:

- the risk analysis does not identify strong enough mitigation options:
  - in particular, although the risk of political change was clearly identified in the prodoc, the proposed mitigation measures to ensure the continuity of the project's interventions (namely: i) working with multiple partners; ii) having

[22] *Note that all compound ratings are consolidated based on weightings provided by UNEP, and reflected in the Conclusion.*

[23] *Centre National de la Recherche Appliquée au Développement Rural, in Malagasy: **Fo**ibem-pirenena momba ny **Fi**karohana ampiharina amin'ny **Fa**mpandrosoana ny eny Ambanivohitra*

[24] *Centre Régional de Recherches du Moyen-Est (regional FOFIFA)*

partners produce reports to foster institutional memory in case of turn-over; and iii) relying on local and community-based organisations) did not prove sufficient to ward off the detrimental impact of political change on project implementation;

- the monitoring framework was not completely adequate:
  - no budget was initially allocated for the recruitment of an M&E specialist; and
  - indicators and targets had to be largely revamped in the Baseline Study: as there were no outcome indicators in the prodoc, several output-level indicators were not SMART[25] enough and end-of-project targets had to be redefined; and
- the project document lacked a proper assessment of stakeholders' capacity to implement the project's activities. This did not prove particularly detrimental to the implementation of the project, as the main consequence was the removal of original budget for capacity-building of CALA, which turned out to be unnecessary. Other issues faced during implementation with partners and contractors could likely not have been better mitigated with a dedicated assessment of stakeholder's capacity. In hindsight, however, some specific implementation issues can be highlighted (see Sections 5.5 & 5.6) and will need to be taken into account for future initiatives when selecting project partners.

119. In addition, some budget lines had to be significantly revised upon inception of the project. This is neither unusual nor problematic *per se*, as some of these changes reflect the need to better align with budget management rules (e.g. separating travel costs from consultancy fees in consultant budget lines) or taking into account the evolving context (e.g. changes in exchange rates). However, some budget modifications reflect changes in the intervention strategy that could have been anticipated during the design phase. For example, it was agreed that two synoptic weather stations would be enough to complement existing stations and provide accurate bulletins across the Alaotra-Mangoro region. This is instead of the five stations that were initially planned for. Likewise, the initial budget line for water infrastructure was USD 475,000; however, actual expenses were approx. USD 700,000 for a reduced scope of work – this activity proved to be largely under-budgeted. Finally, it is not clear what budget lines were initially planned to develop and implement the upscaling strategy.

120. The preliminary overall rating of the project design from the Inception Report was 4.84 out of 6.00 (i.e. "satisfactory")[26]. This rating is confirmed at the main evaluation phase.

Rating: Satisfactory

5.3 Nature of the external context

121. The project was implemented in generally unfavourable climatic and institutional contexts. In terms of climate conditions, the planting season 2016-2017 was characterised by

[25] *Specific, Measurable, Assignable, Realistic, Time-bound*

[26] *One caveat (reported in the table) is that Project Review Committee comments were not available to the evaluator for the preparation of the present report.*

unusually low rainfall, which affected the survival rate of seedlings. Dry seasons were also marked by the occurrence of bushfires in all three sites, damaging some of the reforestation sites. Finally, some water infrastructures were damaged by the intense rainfall and severe floods in February 2020 (see Section 5.4 & Annex XI).

122. Politically, the implementation period was characterised by a high turn-over rate within the managing team of the MEDD. The Minister, Secretary General, Administrative & Financial Director and Director of BNCCC-REDD+ were replaced three or four times each, affecting the continuity of the project implementation, despite some mitigation measures put in place by the project team. The main manifestations of this high staff turn-over were the repeated delays in the signature and payment of contracts (see Section 5.5).

123. In addition, the safety situation in the Alaotra-Mangoro region has been deteriorated since at least 2017. Even though adequate risk mitigation measures were successfully implemented for the project execution itself (e.g. travel by day only), this has affected some of the project activities on the beneficiaries' side. For example, cattle theft has increased the rarity of cow dung, making compost production more expensive. As a result, trained farmers are not producing as much compost as they would like to.

Rating: Unfavourable

5.4 Effectiveness

5.4.1 Delivery of outputs

124. Table 6 up to Table 9 overleaf summarise project results towards each output.

Table 6. Output results achieved under Component 1.

Component 1 Outputs	Indicator	Target	Results achieved[27]
1.1.1 Best Available Technologies and Integrated Resilient Rice Model (MIRR) are selected and publicised	Number and type of technical guidelines for MIRR developed and publicized based on best available technologies and techniques	1 Recommended Integrated Resilient Rice Model developed and published, including a series of at least 1 technical guidelines with the following key stages/techniques: • seeding	MIRR guidelines have been produced in Malagasy and French by CALA. Three types of guidelines have been developed for different conditions: i) rice cultivation under poor water management conditions; ii) rice cultivation under good water management conditions; and iii) rain-fed rice cultivation on hill sides. Each of these guidelines include the following key techniques: seeding, field

[27] *Green: target met; yellow: significant progress towards the target; red: significant shortcomings.*

Component 1 Outputs	Indicator	Target	Results achieved[27]
		• planting • harvest • post-harvest • fertilisation • integrated pest management • water management	preparation, fertilisation, weeding, phytosanitary maintenance and harvest. The document builds on the baseline analysis produced in 2014. It provides a comprehensive and practical overview of the design and implementation of the MIRR, and details the results obtained during the project. The guidelines target a technical audience, including MAEP, MWEH and MEDD staff, and will be of particular use when trying to replicate the MIRR. As such, it will also be beneficial to development agencies, NGOs, consultants and all rural cooperation actors. The level of technicality will most likely prevent small-scale farmers from using this document; however, large agricultural companies may be able to benefit from it. The MIRR guidelines for Alaotra-Mangoro, Itasy and Vakinankaratra were finalised in April 2019, and, once translated in Malagasy, will be further disseminated (across the 23 regions of the country – so far, they have only been shared with the target regions) before financial closure of the project. **Target achieved**
1.2.1 Crop models are available for rice vulnerability mapping	Number of rice cropping system models based on expected climate change scenarios, including vulnerability maps of future rice production, and hydrological models developed	4 rice cropping system models with vulnerability maps developed according to 4 different expected climate change scenarios (driest, low dry, low humid, and most humid scenarios) and 1 hydrological model developed based on available downscaled data on expected climate	A climate-based hydrological model was developed in 2014. The national consultant appointed to build this model first compiled detailed downscaled data on water availability under the climate change scenario, climate risks including those impacting rice cultivation, and pest risk induced by climate change. According to the training report, training was provided on Oryza and DSSAT models to 15 people (six national and regional staff of MEEMF, two staff from MADR, two from FOFIFA, two from the National Institute of Geography and Hydrography, and three from National

Component 1 Outputs	Indicator	Target	Results achieved[27]
		change risks and impacts.	Institute of Statistics). A consultant was appointed to collect the required data to build the models. However, several technical problems with the use of DSSAT and Oryza have reportedly been met, and it was decided to replace these software by a multivariate spatial model to produce vulnerability maps. Four vulnerability maps were produced (November 2018) to guide rice cultivation planning. Training on how to use the multivariate model developed by the consultant was provided to the relevant staff within government institutions in February and March 2018. Ten people attended the ten-day training in Ambatondrazaka, mostly regional staff from the prefecture, DREDD and FOFIFA/CALA. According to the training report, the quality of the training was positively evaluated by the participants, who welcomed the scope and format of the session[28] (an evaluation sheet was filled but the detailed results were not included in the training report). **Target achieved**
1.2.2 Updated, dynamic agricultural calendars and climate early warnings taking into account current and projected variability are disseminated to local population	Frequency of dissemination of updated dynamic agricultural calendars and climate information including flood early warnings in the three project sites (Municipalities of	Climate information and 3- 4 day forecasts, including flood early warnings, made available to farmers through local communication systems. Dynamic agricultural calendars updated and disseminated to at least 80% of targeted farmers.	A contract was signed with local radios to disseminate climate forecasts over seven days, early warnings for floods and seasonal forecast information. As reported by the project team and confirmed based on interviews during the evaluation, the local radios have been disseminating climate forecasts twice a day since October 2017. The production of these forecasts was supported by the installation of two weather stations under the project (see also Section 5.7.2). This will only continue after the project if the DRAEP

[28] *Source: training report, March 2018.*

Component 1 Outputs	Indicator	Target	Results achieved[27]
	Manakambahiny, Ambohijanahary and Bemaitso)		can secure budget lines to extend the contract with local radios. At the evaluation stage, there was no evidence that this would be ensured. Agricultural calendars have been updated and training on their use was provided in December 2015 to 305 farmers and extension staff. The calendars were finalised (March 2018) to increase the emphasis on the use of the 7-day climate forecasts to plan all agricultural activities. These calendars were reportedly printed and advertised in city walls and fokontany[29] offices, especially on market days. According to the project team, a coordination meeting between DRAEP and target communes to continue this practice after the project was held. **Target partially achieved:** according the DGM, the duration of the process of data collection, transfer, analysis and climate forecast does not enable the distribution of climate forecasts every 3 or 4 days. They can only be distributed every 7 days.

[29] A fokontany is an administrative sub-division which, in rural areas, corresponds to a group of villages or settlements.

Component 1 Outputs	Indicator	Target	Results achieved[27]
1.2.3 Agricultural extension staff trained on climate risk management in an agro–ecosystem context	Number of agricultural extension staff in the three districts trained on climate risk management in agro–ecosystem context (gender disaggregated)	100 % of staff trained on climate change aspects and how to disseminate new knowledge to farmers, including women.	A first training session was organised in April 2016 for 20 people, including staff of extension services and local authority representatives. Training needs for a second training session to extend the number of people trained to the totality of agriculture extension staff were identified. Several meetings with the National Office for Risk and Disaster Management (BNGRC) were undertaken and the BNGRC identified relevant training modules specific to agriculture and rice cultivation. A two-day training workshop[30] was organised in early 2019. Simple tools were showcased, such as "rapid reaction matrixes", which facilitate decision making in the context of flooding and drought risks. These matrixes were differentiated at the region and district levels, to better fit respective mandates and be immediately operational. These tools will be a useful and practical resource for all trained staff in the future. 50 people were trained at the regional level and 35 at the district level. This corresponds to the totality of relevant agricultural staff across the three project sites. The level of knowledge of participants was assessed before and after the training sessions to identify any progress. Both at the region and district level, and across all five themes of evaluation, the average level of participants was very significantly improved through the training sessions. **Target achieved**

[30] *NB: the report for this workshop was not shared with the evaluator.*

Table 7. Output results achieved under Component 2.

Component 2	Indicator	Target	Results achieved
2.1.1 Climate resilient rice varieties are selected through participatory field testing	Number and types of climate resilient rice varieties tested and selected within the three project sites (Municipalities of Manakambahiny, Ambohijanahary and Bemaitso)	CALA facilities and capacities are strengthened to develop at least 5 varieties that are tested and proven resilient in both laboratory and field settings in the three project sites	The climate-resilient rice varieties created and tested by CALA in the laboratory were presented to the farmers during a workshop in September 2014. Among the varieties presented, the farmers selected three varieties (SEBOTA 231, X265 and Madikatra). These varieties were thereafter tested in the field. **Target partially achieved:** - the farmers selected only three varieties among the 15 varieties pre-selected by CALA - Based on consultation of CALA, no activities to strengthen their facilities and capacities were deemed necessary. CALA facilities and capacities are sufficient to develop the required varieties.
2.1.2 An operational multiplication and dissemination scheme for adapted seed varieties is designed and implemented	Annual quantity and quality of adapted certified seeds produced and distributed in each of the project sites	At least 5 tons total of seeds for all 5 varieties that were tested and proven resilient are produced annually and distributed in the 3 project sites.	According to the project reports, 439 kg of seeds were distributed for the season 2014-2015 for the three sites, 5,650 kg for the season 2015-2016, and 5,679 kg for the season 2016-2017. 40 kg of seeds were distributed as part of the upscaling strategy for the season 2018-2019 to implement farmers field schools. As of February 2020, out of approx. 30 Seed Producer Groups (GPS) trained, three are certified to produce and sell improved rice varieties. One of these GPSs is particularly efficient, and even supplies seeds to FAO – as was reported to the evaluator by the CALA focal point. The other two need further financial and business training to convert their technical capacity into sustainable production. Overall, reported improved seeds (rice only) produced by the GPSs are: - 2015-2016: 7,000 kg

Component 2	Indicator	Target	Results achieved
			- 2017-2018: 19,000 kg[31]. **Target partially achieved:** - During the first years of the project, it was difficult to identify farmers willing to specialise in the production of MIRR seeds. - Most GPSs are still strongly dependent upon support provided by CALA.
2.1.3 Fertilisation guidelines are updated according to best available standards and taking climate conditions into consideration	Number of farmers who apply updated fertilisation guidelines in all three project sites (Municipalities of Manakambahiny, Ambohijanahary and Bemaitso)	90% of targeted farmers have been trained and/or received technical support and apply fertilisation guidelines updated as part of the development of the MIRR.	According to the project reports, a total of 2,438 farmers (569 in Manakambahiny, 904 in Ambohijanahary, 965 in Bemaitso) have received theoretical and practical training on the production and use of organic compost. This figure corresponds to the number of people targeted by the project as well as some from the surrounding communities interested in the training. Training has not been limited to the target population. Among the farmers who received training, 89% are applying the fertilisation guidelines provided. This figure was reported by the project team, and interviews conducted in the field by the evaluator confirmed the interest of most trained farmers. The farmers have been trained by the private company STOI Agri and now produce their compost independently from the project. This shows that farmers recognise the value of compost use and have taken ownership of compost production activities promoted by the project.

[31] *Figures are only reported for these two seasons. Source: June 2019. Récapitulatif résultats AF Rice.*

Component 2	Indicator	Target	Results achieved
			Based on an interview with local farmers, one Compost Producing Association in Ambohijanahary has received a commercial order of 250 tonnes of compost from farmers of the Alaotra-Mangoro region, which the local DRAEP technician is helping them prepare for. **Target achieved**
2.1.4 Integrated pest management is implemented	Number of farmers trained in integrated pest management (IPM) in all three project sites (gender and age disaggregated)	400 farmers trained in integrated pest management, gender and age disaggregated (and among them 50% women and young)	A national IPM expert provided training to 432 farmers including 128 women on integrated pest management during the second quarter of 2017. The corresponding guidelines were finalised and published as part of the MIRR package. A training-of-trainers approach was followed, with eight trainers initially trained, and who then organised the training sessions in all three sites. The training sessions were tailored to the local contexts, and were based on a participatory assessment of the baseline knowledge and practices of farmers in the target sites. Overall, women represented 30% of trainees. Throughout the training sessions, questions and reactions from the audience were extensively recorded. This provides a good overview of the level of awareness of farmers on integrated pest management before and after the sessions, which were reported as very useful by the participants themselves. Training leaflets – with illustrations to facilitate the identification of pests and associated management measures – were handed over to the participants. **Target achieved**

Component 2	Indicator	Target	Results achieved
2.1.5 Water efficiency, management and conservation technologies are disseminated, and water infrastructures are built or rehabilitated	Number of Km of rehabilitated irrigation canals and number of reservoirs dredged in all three project sites	Manakambahiny: 35 km of primary canals cured, dredged, and maintained with norms that take expected climate change impacts into account (future precipitation regimes, drainage and run-off); 4 water intake points along the Ilakana River rehabilitated, strengthened and made more resilient to expected climate change impacts. Bemaitso: The dam is drained and dredged; 14 km of primary canals and 21 km of secondary canals are cured, dredged, and maintained all with norms that take expected climate change impacts into account.	The procurement process was finalised in September 2017, and the rehabilitation interventions were initiated in October 2017 in all sites, and finished in September 2018. Final acceptance of all infrastructures is still pending payment of final contract tranches (see Section 5.5). According to the project reports, the following interventions were undertaken: - Manakambahiny: 4.1 km of primary canals were cured, dredged and 16 culverts were constructed or rehabilitated, the canal and drain were strengthened using a structure of concrete on a length of 835m, 2 water diverters and regulator were rehabilitated, 2 paths were built/strengthened to enable crossing of the canal by people and livestock, 61 secondary water intakes were built or rehabilitated, 1 main water intake point was rehabilitated and strengthened along the Ilakana River, the road going over the canal was strengthened, and a segment of 800 m of dike along the river Ilakana was strengthened to prevent flooding of the rice field during intense rains. - Bemaitso: 5.3 km of drain and 3.1 km of canals were cured and dredged. The spillway of the dam was strengthened. - Ambohijanahary: 13.5 km of primary canal were drained, dredged and repaired; 5 km of protection dike were strengthened to prevent flooding of the rice fields during intense rains. **Target partially achieved**:

Component 2	Indicator	Target	Results achieved
		Ambohijanahary: The dam at Anony is rehabilitated, primary water control valves are repaired; 13 km of primary canal are drained, dredged, and repaired; and primary canal is extended to irrigate 600 ha of additional rice fields all with norms that take expected climate change impacts into account.	- The financial proposal corresponding to the expected rehabilitation targets for the water infrastructures in Ambohijanahary was twice higher than the available budget. A second prioritisation of the interventions was therefore undertaken with the beneficiaries to align with the budget available. - Manakambahiny: according to the beneficiaries interviewed during the evaluation, 1 water intake point was sufficient to meet the needs in the site. The main canal is only 4.1 km long. No dredging was planned in the secondary canal because each portion is private and belongs to one farmer. However, some infrastructure that directs the water from the primary to the secondary canals were rehabilitated. The evaluation mission discovered that the main intake was damaged[32] as of February 2020. - Bemaitso: the farmers developed a management plan for the water infrastructures. They identified problems and presented them to project expert. According to interviews, the project addresses the priorities they have identified. The spillway of the dam was strengthened but suffered damages[33] after heavy rainfall in February 2020. No dredging of the dam was needed.

[32] *See Annex XI for further details.*
[33] *Ibid.*

Component 2	Indicator	Target	Results achieved
			- Ambohijanahary: the DRAEP asked for AF Rice interventions to be clearly differentiated from the interventions of a PHRD[34] project, which also focused on improving irrigation systems. The farmers were therefore asked to prioritise and they chose the canal dredging and the dike as the priorities to be covered by AF Rice. The rehabilitation of the protection dike replaced the rehabilitation of the dam in the activities. Extending the primary canal to irrigate 600 additional hectares was reportedly not prioritised by the farmers in the site; it was therefore not selected.
	Percentage of change in water availability and in water use efficiency in all seasons to water users' associations in all three project sites	35 % increase in water availability in all seasons in all 3 districts. Water loss estimation decrease from 50% to 25%.	Water losses and availability were assessed in September 2017 and February 2019. Results described below are based on project reports. **Target partially achieved**: <u>Water availability</u>: - Manakambahiny: no change in water availability - Ambohijanahary: reduction in water availability by 26% because of interventions by the PHRD project upstream of the project sites, that decreased the inflow of irrigation water towards the left bank of the dam (where the project site is located) - Bemaitso: increase in water availability between 28% and 55% at the dam <u>Water losses:</u> - Manakambahiny: no reduction in water losses at main intake; limited reduction elsewhere except in the main canal

[34] *Policy on Human Resources Development*

Component 2	Indicator	Target	Results achieved
			- Ambohijanahary: no reduction in water losses in main canal; water losses divided by three in secondary canals - Bemaitso: reduction in water losses between 28% and 55% at the dam, depending on water level; no reduction in water losses in main canals; likely but unmeasured reduction in water losses in Soa Iombonana area
2.2.1 Best available land preparation, production and harvesting techniques are disseminated to reduce deforestation, maintain soil fertility and integrity, and to provide adequate growing conditions	Percentage application of resilient rice model, including rice–vegetables rotation systems, in all three project sites (gender disaggregated)	At least 75% of targeted farmers practice rice/vegetable crop rotation on an area larger than 0.1 ha and for commercial purposes (and among them at least 50% of women and young).	**Target partially achieved:** CALA provided training on rice-vegetable crop rotation in 2015 and 2016. According to project reports: - In 2015, 65 farmers (13%) cultivated non-rice crops (i.e. carrots, onions, beans, potatoes, cabbage, tomatoes) on an average of 0.06 hectare each. - In 2016, 903 farmers (75%) cultivated non-rice crops (i.e. cabbage, courgettes, cucumber, beetroot, cauliflower, pepper, pe-tsai, vetch, carrots, onions, beans, potatoes, tomatoes) on an average of 0.17 hectare each. - In 2017, 479 farmers (40%) cultivated non-rice crops (i.e. cabbage, courgettes, cucumber, beetroot, cauliflower, pepper, pe-tsai, vetch, carrots, onions, beans, potatoes, tomatoes) on an average of 0.16 hectare each. The number of practitioners reduced in 2017 because of the severe drought faced that year. Approximately 80% of this production was for commercial purposes. - no information was available for year 2018 - 2019

Component 2	Indicator	Target	Results achieved
2.2.2 Watersheds in productive landscapes are rehabilitated, including through reforestation and adaptation of agro-forestry practices	Number of ha reforested in all three project sites	In total, at least 50km2 of area distributed in the 3 districts are reforested (5,000 ha).	**Target partially achieved**: In total and based on project reports, 1,132 hectares of land have been reforested by the project: - Manakambahiny: 349 ha - Bemaitso: 481 ha - Ambohijanahary: 302 ha NB: a detailed table is provided in Annex X. According to the project team and the MTR, and as discussed during the evaluation, there have been significant delays in achieving this output, mostly owing to the difficulties encountered by the service provider initially appointed, the SNGF. A plan to catch up on the delays was developed (including the creation of a specific bank account for the project funds to facilitate project-related disbursement), and signed by SNGF. However, the second planting season was not successful either. 68 hectares out of 900 were reforested during the first season. 278 out of 1,200 were reforested during the second planting season. A high mortality rate (>50%) was recorded among these 346 hectares (20% complete). According to the MTR, this is because of delayed planting operations that did not allow to capitalise on rainfall, extended length of stay of the seedlings in pots before planting and smallness of planting holes. All these factors could have been avoided, should the capacity of SNGF been assessed prior to contracting. As a result, the contract with SNGF was cancelled in December 2016.

Component 2	Indicator	Target	Results achieved
			For the season 2016-2017, one NGO per site was appointed to restore 65 hectares per site. A contract was also signed with each commune to restore 65 additional hectares. However, the procurement and contracting processes were delayed by the cancellation process for SNGF contract. The planting work could only start in March 2017 which corresponded with the end of the rainy season. Based on interviews conducted during the evaluation, it was then too late to plant in nurseries (except for Bemaitso), saplings were therefore bought in nearby nurseries and planted directly on site. A high mortality rate was encountered for this 2016-2017 planting for several reasons, including insufficient rainfall. According to project reports, the results of this 2016-2017 planting season are as follows: In Ambohijanahary: - Commune contract: 15 ha reforested with a mortality rate of ~80% - NGO contract: 68 ha reforested with a mortality rate of ~27% In Bemaitso: - Commune contract: 65 ha reforested with a mortality rate of ~50% - NGO contract: 63,5 ha reforested with a mortality rate of ~25% In Manakambahiny: - Commune contract: 65 ha reforested. - NGO contract: 52 ha reforested. Each of these institutions were committed to meet at least a 65 ha reforestation target, and replace all the dead plants. However, the contracts with Commune of Ambohijanahary and NGO Manakambahiny were cancelled due to the non-compliance of the contract.

Component 2	Indicator	Target	Results achieved
			Based on the poor results of the first seasons and the fact that successful interventions have been implemented independently by landowners in each site, the new approach selected for the last planting season (2017-2018) was totally community-based. Local communities were asked to propose land to be restored by the project. Nursery managers trained by the project during the first planting seasons were responsible for the production of the saplings. Support was provided to dig the planting holes and to undertake the planting activities where needed, but there was no remuneration of landowners in order to ensure that only the most motivated community members would benefit from the activities. A total of 608 hectares were reportedly proposed by local communities for the implementation of the restoration interventions during the 2017-2018 season, out of which 463 hectares were eventually reforested. The assessment of survival rate by the Regional Directorate of Environment, Ecology and Forest for Alaotra-Mangoro yields the following results: - Manakambahiny: 75% - Bemaitso: 45% - Ambohijanahary: 82.7% The high mortality rate at Bemaitso is due to the lack of rainfall.
	Number of farmers and land/forest users trained on sustainable agro forestry and land management in all three project sites (gender and age disaggregated)	At least 400 farmers trained in sustainable agro forestry and land management (and among them 50% of women and young).	According to project reports, 530 farmers were trained on agroforestry: - 257 farmers and extension workers (75 women) were trained on agroforestry in the project sites during the 2016-2017 season. This included the production of 20 posters and 50 pamphlets, and 28 training sessions. Local communities were supported by the project for a total of 31,6 ha equivalent to 12,650 agroforestry species.

Component 2	Indicator	Target	Results achieved
			- 273 new farmers (incl. 72 women) were trained on agroforestry in the project sites during the 2017-2018 season. The NGO in charge of providing training on land management for upland and lowland communities was appointed in July 2017. The company provided training to 454 farmers including 181 women on land management for upland and lowland communities during the 2017-2018 season. **Target partially achieved**: The overall target of people trained was met, but the proportion of women (29%) is significantly lower than expected. Training sessions combined both theoretical and practical modules, which facilitated the transmission of best practices. The illustrated flyers provided user-friendly guidance for basic agroforestry operations (landscaping, use of compost, planting). In addition, the identification of "agroforestry focal points" (two per site), who received more advanced training on pest management, pruning and fertilisation, should increase the sustainable impact of this output. A follow-up mission was conducted in October 2018 to assess the results of agroforestry activities in the three sites. This is a welcome initiative, as it not only allowed to evaluate the success rate of agroforestry activities (according to the consultants' report, an average survival rate of 76% was recorded across the three sites), but also to discuss challenges faced by the participants (including pests and cattle pressure). Recommendations were formulated in the report, but it is not clear whether these were actually implemented, as no second follow-up was included in the terms of reference.

Component 2	Indicator	Target	Results achieved
2.2.3 Soil conservation and livestock management techniques adapted to topography and landscape in light of future climate conditions are implemented	% change in erosion rate	50 % reduction in erosion rates.	Progress was not measured. Because of the unsuccessful reforestation efforts during the first two seasons, it was not possible to measure significant improvement in erosion rate at the end of the project. Given the lack of baseline assessment and the inadequacy of the timeline for the monitoring of this indicator, progress could not have been measured regardless of the initial challenges faced with reforestation. **Target not achieved**
2.2.4 Producer's cooperatives and water user associations for collaborative natural resources allocations (e.g. land and water) and management are revitalised	Number of members of farmer's cooperatives and water user associations trained on water management and administrative management within the three project sites	75 % of the members of water user cooperatives in the project area have been trained on water management and administrative management.	An analysis of the situation regarding water users' associations (WUA) was conducted in 2016 and recommendations were made on means to strengthen the WUAs. Thereafter, training was provided to 84 WUA members on water management (based on project reports). Furthermore, additional training for WUAs on administrative and financial management, as well as water management, was initiated in 2017. 72% of WUA members received training through several methodological approaches such as training sessions, posters, pamphlets, and radio broadcast. Interviews conducted during the evaluation confirmed the interest and participation of WUA members to these training sessions. **Target achieved**

Component 2	Indicator	Target	Results achieved
2.2.5 Water quality assessments are performed	Percentage change in water quality (e.g. reduction in turbidity, pollutant content, microbial content, sediment content) in all three project sites	Water quality assessment is conducted in all 3 project sites by the DIREAU with technical support provided by the project if needed. Water quality increase by 10% from the date of the first analysis	Water quality was analysed in June 2017, October 2017 and October 2018. A national expert developed the sampling methodology and collected the samples that were thereafter analysed by the National Center for Environmental Research. One technical staff per site was trained on the sampling techniques. Three main parameters were studied upstream of, within and downstream of rice fields: - micro-biological pollution: decreased by more than 10% - physicochemical pollution[35]: decreased[36] by more than 10% - turbidity: decreased in Manakambahiny by more than 10% and increased in the other two sites by more than 10% **Target achieved** Even though mixed results were achieved in terms of turbidity, the overall quality of water increased significantly across the three sites with respect to other relevant parameters (micro-biological and physicochemical pollution). According to the expert who conducted the water analysis, these improvements are likely due to the rehabilitation work conducted under the project. However, methodological caveats in the analyses[37] as well as varied climatic conditions at the time of the three measurement campaigns prevent from ascribing with certainty the evolution of all perimeters to the effect of the rehabilitation work.

[35] *Namely conductivity, sulphate, nitrate and nitrite.*

[36] *Except for nitrite, which increased in all sites.*

[37] *Measurement campaigns could not be systematically conducted at the right time because of procurement and administrative delays.*

Component 2	Indicator	Target	Results achieved
2.3.1 Increased utilization of rice by–products – especially rice straw – is promoted	Percentage change in use of rice straws in animal feeding and for briquetting	75% of farmers use or commercialize rice straws.	The use of rice straw in the project sites was analysed through the survey of 40 families conducted by the project team. Thereafter, 350 farmers were trained on the use and commercialisation of rice straw as a source of energy and other uses. Based on the study undertaken on the effect of these training sessions, 77% of farmers now use rice straws in improved stoves, compost, charcoal, livestock feeding and some also commercialise rice straws. This survey was confirmed through individual interviews conducted during the evaluation: several farmers confirmed using rice straws, mostly for domestic use and livestock feeding of their own animals. The evaluator did not meet with farmers who commercialised rice straws. **Target achieved**

Component 2	Indicator	Target	Results achieved
2.3.2 Post–harvest storage facilities with phytosanitary control are built or refurbished, and serve as trading points and markets	Number of renovated storage facilities in all three project sites	75% of existing facilities have been renovated.	A comprehensive feasibility study was completed and recommendations were made on the rehabilitation and construction of upgraded resilient storage facilities. The construction of three climate-resilient storage facilities was initiated in July 2016. However, according to the project team, the construction did not follow the technical specifications of the call for tender. The contracts were cancelled, and three new companies were contracted in October 2017 to build new storage facilities. The construction of the three climate-resilient storage facilities was completed in September 2018 for the Manakambahiny site and in October 2018 for the Bemaitso and Ambohijanahary sites. Training on the management of the storage facilities and on the conservation of the products was provided in July 2017, May 2018 and July 2018 – some of the training sessions were organised before the completion of facilities. Final acceptance for the facilities in Bemaitso and Ambohijanahary is still pending final payments. **Target achieved**

Table 8. Output results achieved under Component 3.

Component 3	Indicator	Target	Results achieved
Output 3.1.1 Gaps and possible maladaptations in the current rice policy are identified and recommendations on rice policy reform are made	Number and types of activities identified and implemented for up scaling and replication from MIRR application in broader Alaotra basin and in other regions	1 replication strategy and action plan developed, including at least 5 to 10 operational activities for upscaling and replication of MIRR practices in the	A workshop between the Ministry of Agriculture, FOFIFA, CALA and other relevant partners was organised to discuss the results of the MIRR, and the development of a replication and upscaling strategy. A replication and upscaling strategy was developed in December/January 2018 by FOFIFA/CALA and was implemented – for its agricultural components – in

Component 3	Indicator	Target	Results achieved
		broader Alaotra basin and beyond.	Alaotra-Mangoro, Itasy and Vakinankaratra regions. **Target achieved**
	Number and types of recommendations on rice policy reforms made	The National Strategy for Rice Development (Stratégie Nationale de Développement Rizicole; SNDR) is revised with measures to increase climate change resilience of rice production, and then the strategy is published and disseminated.	The MIRR principles were integrated by FOFIFA in the National Strategy for Rice Development. No additional needs for integration of MIRR principles in other strategies or plans have reportedly been identified by the project stakeholders. However, a session on policy was organised at the National Workshop in April 2019 to discuss opportunities to integrate the MIRR in the policy documents of the agricultural and environmental sectors. Local Development Plans (PCDs) have been updated and validated in the three intervention sites to integrate the MIRR approach. **Target achieved**
Output 3.2.1 A report on best practices and lessons learned for rice adaptation in Madagascar is produced and disseminated	Number and type of stakeholders to which the report on best practices and lessons learned is distributed	1 report at end of project.	A report on best practices and lessons learned was prepared in June 2019 and shared with relevant stakeholders. **Target achieved**

125. Another output indicator was suggested in the 2017 revision of the Result-Based Framework, and was subsequently reported against in PPRs. It is presented here for information, even though it is not part of the approved RBF in the project document.

Table 9. Additional output result under Component 3.

Output 3.2.2 A strategy for communicating information on adaptation	1 Number and type of stakeholders to which the report on best practices	At least one documentary on MIRR practices developed and broadcasted on	A rural communication strategy was developed. During the first stage of its implementation, radio talks on MIRR practices were broadcasted locally and pamphlets were developed and

techniques to farmers is implemented	and lessons learned is distributed	national TV and radio talks broadcasted on local and national radio stations. Field visits and training for at least 2 representatives of 4 farmers associations throughout Alaotra-Mangoro to the project sites. 1 field visit and training for Regional Agriculture Delegation and other relevant groups (e.g. Associations Paysannes Régionales, Vulgarisateurs Agricoles, Fédération des AUEs...) of other selected regions.	distributed. However, because of insufficient performance, the contract with the communication expert was cancelled. A new communication consultant was appointed to develop radio talks, newspaper articles, a web page, a TV documentary, and awareness-raising days in each site. However, according to the project team, this consultant did not perform either. It was therefore decided to sign a contract with a local radio to broadcast radio talks three times monthly starting in October 2018. According to project reports, nine national TV documentaries and nine national radio documentaries were produced. These documentaries have been broadcasted 4 times on National TV channels, 65 times on radio Alaotra Mangoro and 65 times on Amomix radio. 18 Field visits were organised between December 2017 and October 2018 for 9 representatives of DRAEP, 491 representatives of Water Directorate, Farmers associations, and 10 members of WUA Federation. **Target achieved**

126. Out of 18 initially planned outputs, 11 were totally achieved (61%), six (33%) were partially achieved and one (6%) was not achieved. The outputs most critical to the achievement of higher-level outcomes were at least partially achieved. The MIRR model was successfully developed (1.1.1, 1.2.1, 2.1.1, 2.1.3) and disseminated (1.2.2, 1.2.3, 3.1.1, 3.2.1). Its implementation was most successful for its agricultural components (2.1.2, 2.1.4, 2.3.1, 2.3.2), but reforestation (2.2.2) and, to a lesser extent, water management outputs (2.1.5) were not delivered fully. This is largely because of implementation challenges that resulted in quantitative (number of hectares replanted) and qualitative (some water infrastructures are already damaged) issues with these outputs. A negative consequence is that this prevented to provide an overall pilot testing and evaluation of the MIRR in its fully integrated dimension. As a result, a key parameter such as erosion could not be monitored (2.2.3) – although it was not realistic to anticipate significant results in the timeframe of the project in the first place. The positive results of agricultural support activities as well as income diversification activities were both reported by beneficiaries and observed by the evaluator. Most of these activities show a satisfying level of

ownership; however, the production of improved seeds will not be ensured by cooperatives, and farmers will remain dependent upon FOFIFA/CALA for their supply of such seeds to a large extent. Finally, upscaling of the MIRR was initiated relatively late, with only some of the MIRR components being implemented in Itasy, Vakinankaratra and other areas of Alaotra-Mangoro.

Rating: Moderately satisfactory

5.4.2 Achievement of direct outcomes

127. **Expected Outcome 1.1: Enhanced knowledge base on best practices for climate resilience in rice, based on existing local knowledge and international research**

Indicator: Percentage of farmers with access to selected and publicised MIRR

End-of-project targets:

- Based on existing ameliorated techniques, and based on new research, 1 Resilient Rice Model is selected and published.
- At least 90% of farmers targeted by the project have received technical support and have been trained to implement the technique according to technical guidelines.

128. The MIRR was developed and tested locally during three seasons (2014-2015, 2015-2016 and 2016-2017). The results from the pilot sites were analysed and guidelines on the application of the MIRR were finalised. A workshop was held with all stakeholders to discuss and validate technical findings in September 2017. To enable the upscaling of the MIRR beyond the intervention sites, MIRR techniques were tested by CALA/FOFIFA in other sites in the Alaotra-Mangoro region, and in two other rice cultivation regions: Itasy and Vakinankaratra. The MIRR guidelines – with specific guidance for the three regions – were published and disseminated during a national workshop in April 2019.

129. The number of targeted farmers was not defined at the inception stage, and the target of 90% of farmers trained on the MIRR was suggested in the Baseline study. Based on the number of rice farmers at each site, the target would thus be 1,890 farmers trained. According to project reports, 1,495 farmers (336 in Manakambahiny, 754 in Ambohijanahary and 405 in Bemaitso) were trained in the three project sites during the project, i.e. 71,2% of the target population. However, additional farmers received training on the MIRR as part of the upscaling strategy: at least 356 farmers received training in the Alaotra-Mangoro region, 285 in Vakinankaratra and 213 in Itasy[38]. Overall, at least 2,349 farmers were trained on the MIRR.

[38] *Note that this is likely an underestimation. Indeed, several training sessions were organised in each region. Since the reports do not identify every individual farmer, one farmer could attend two different sessions but should not be counted twice towards the target. For this reason, the evaluation made a conservative estimate based on these reports, to avoid the risk of double-counting.*

130. Overall, this target was not strictly met, but the additional farmers trained as part of the upscaling activities can be considered as contributing towards the same outcome.

131. **Expected Outcome 2.1: Sustainable increase in rice yields (using MIRR)**

Indicator: Percentage of change in rice yields in all three project sites

End-of-project target: Individual rice yields for targeted producers increase by 25% in relation to current averages in each project area.

132. According to project reports, the average rice production among the targeted farmers was 2,15 T/ha in season 2013-2014. As a result of the adoption of improved varieties and other MIRR practices, average rice production increased to 4,75 T/ha in season 2014-2015, 6,25 T/ha in season 2015-2016 and 5,85 T/ha in 2016-2017. This represents increases of 121%, 191% and 172% as compared with the baseline for the three agricultural campaigns, respectively.

133. The number of people adopting the MIRR practices has significantly increased from one cultivation season to the next. Given the limited impact of soil erosion techniques (reforestation), most of the increase in rice yields can be traced to the use of improved seed varieties and adapted agricultural practices. The main barrier to the widespread adoption of these improved seeds – besides tradition on the demand side – may be the availability on the supply side. Given the limited success of the GPS approach (with only one GPS selling certified seeds as of February 2020), the main source of seeds base will thus be CALA.

134. This target can be considered as achieved.

135. Expected Outcome 2.2: Ecosystem services maintained

Indicator: Percentage change in land covered by biomass and in overall productivity (rice, vegetables and livestock) of project sites environment

End-of-project targets:

- Change in overall land area covered by forests (i.e. net reforestation) of at least 50km^2 (5,000 ha) across the combined 3 municipalities.
- Data on vegetables and livestock productivity/yields collected by extension services, and increase in overall productivity of rice, vegetables and livestock of 5 % throughout the life of the project and across the project sites.

136. Details on reforestation activities are reported in Table 7. Output results achieved under Component 2. According to project reports, approximately 1,132 ha were reforested across the

three sites. No data on deforested areas is available, but this can be considered negligible. Therefore, net reforestation can be deemed at approx. 1,132 ha, i.e. 22.7 % of the original target[39].

137. Vegetable production has increased from 0.15 tons in 2013 to 01 ton in 2017 following the training provided on off-season cultivation since 2014. Rice production has increased from 2.15 tons in 2013 to 5.85 tons in 2017 following the training on MIRR techniques. No data on livestock productivity was collected; however, livestock production was a minor aspect of the project and this target is therefore not really relevant.

138. This target cannot be considered as achieved, even though the sub-target related to the productivity of rice and vegetables was met.

139. Expected Outcome 2.3: Post-harvest losses reduced

Indicator: Percentage change in post-harvest losses

End-of-project target: Post-harvest losses are reduced to less than 4%

140. Detail on the storage units is provided in Table 7. At the time of the evaluation, two of three of the post-harvest storage facilities had not yet been accepted by the project from the contractors (as final payments were pending). These facilities could therefore not be used by the farmers, and no data is thus available to assess reductions in post-harvest losses. The third unit – in Manakambahiny – was only used for one season by 30 farmers, who reported minimal losses compared to what farmers experience with traditional storage. This is because the facility meets best standards in terms of storage design, as opposed to traditional storage places that fail to maintain adequate hygrometry and temperature, are not properly ventilated and do not offer appropriate protection against rodents. In all three sites, user's associations were set up, a subscription system was designed and associations are raising awareness among farmers to convince them to store their product in the units.

141. This target was thus not met as of February 2020, but is likely to be met once final acceptance has occurred and farmers are able to store their products in storage units.

142. Expected Outcome 3.1: Technical norms and standards in rice cultivation reviewed and where necessary modified to take climate change into account

Indicator: Number and types of technical norms and standards in rice cultivation reviewed and modified at the national level to take climate change into account

[39] Note: according to the Baseline study, a total of approx. 3,190 km² is deforested across the three sites. However, it is possible that there could be a mistake with the units used, as the Baseline study reports a total of 3,140 km² for potential reforestation in Bemaitso alone, which appears like a lot when compared to the potential in Manakambahiny (50 km²). It could be that square kilometers were confused with hectares; the total would then be 8,280 ha.

End-of-project target: At least one national strategy on rice cultivation and at least one technical guideline for the following rice cultivation stages/techniques are revised and updated at the national level:

- seeding
- planting
- harvest
- post-harvest
- fertilisation
- integrated pest management

143. The MIRR guidelines were developed in Malagasy and French, and were validated at the local and national levels. They include all the dimensions mentioned in the target. In addition, technical sheets on the MIRR with regional specificities were presented and disseminated at a national workshop in April 2019.

144. The MIRR principles are integrated in the National Strategy for Rice Development which was approved on 19 December 2016. This strategy forms the basis for rice-related initiatives undertaken by the Government of Madagascar. No additional national level documents were identified as relevant strategies for mainstreaming of the MIRR. However, a session on policy was organised at the April 2019 national workshop to discuss opportunities to integrate the MIRR in the policy documents of the agricultural and environmental sectors.

145. This target was met.

146. Expected Outcome 3.2: Best practices for adaptation in the rice sector disseminated

Indicator: Number and type of stakeholders to which the report on best practices and lessons learned is distributed

End-of-project target: 1 report at end of project

147. A report on lessons learned and best practices was prepared and published in June 2019. It was shared with over 600 people from the following organisations: MEDD, Ministry of the Interior and Decentralisation, MAEP, Ministry of Communication and Relations with Institutions, Ministry of Water, Sanitation and Hygiene, Ministry of Transport, Tourism and Meteorology, National Geographic and Hydrographic Institute, National Committee of Climate Change, Cell of Prevention and Emergency Management, National Office of Risk and Disaster Management, FOFIFA/CALA, deconcentrated technical services, ministerial departments at regional levels, Ecole Supérieure des Sciences Agronomiques, national television and national radio.

148. This target was met.

Rating: Moderately satisfactory

5.4.3 Likelihood of impact

149. The project does not feature objective- or impact-level indicators. The likelihood of impact is thus assessed depending on whether the most important direct outcomes were achieved, intermediate states materialised, assumptions on the causal links between direct outcomes, intermediate states and impacts hold, and drivers are in place.

150. As discussed in the TOC (see Section 4.3), **Impact 1** will be the **demonstrated improvement in the resilience of the rice sub-sector in the Alaotra-Mangoro region**, provided that national ownership of the project is sufficient to foster the sustainability of its results. **Impact 2** will be the initiated **upscaling of demonstrated best adaptation practices for the rice sub-sector across Madagascar**, based on the efficacy of the pilot approach implemented in Alaotra-Mangoro, enabling policy and strategic environment, and availability of scientific and technical expertise and knowledge within national institutions.

151. The main direct outcome that was not completely realised during project implementation is Outcome 2.2 (Ecosystem services maintained). Other direct outcomes were at least partially achieved. The realisation of Outcomes 1.1 and 1.2, combined with the assumption that "turn-over does not threaten institutional memory and knowledge is retained" entails that IS 1 ("Strengthened scientific and technical capacities of Malagasy authorities to understand, analyse and manage climate risks to the rice sub-sector, as well as to determine further adaptation options for the sector") is achieved. Likewise, the realisation of Outcomes 3.1 and 3.2, combined with the validation of the assumption that "governmental procedures to validate policy changes are effective", lead to the achievement of IS 3 ("Key policy barriers, gaps or maladaptations identified and addressed in order to create the conditions for upscaling adaptation in the rice sub-sector").

152. However, Outcome 2.2 was not fully achieved. In addition, the assumption that "climate impacts do not hamper the demonstration of the efficacy of pilot interventions" did not hold fully, as the survival rate of seedlings was affected by the lack of rainfall during several seasons. Finally, a key identified driver in the reconstructed Theory of Change – namely that "restored ecosystems are not threatened again" – did not materialise fully: not only is it too soon to assess whether awareness-raising activities to prevent environmental degradation were efficient, but some evidence of recent environmental degradation were observed during the evaluation mission (e.g. cattle intrusion and intentional forest fires). As a result, IS 2 ("Demonstrated efficacy of pilot, concrete changes to rice production practices, from input to harvest management, including measures designed to restore and maintain ecological services around rice ecosystems") was not totally achieved.

153. The two identified drivers between intermediate states and impacts – namely "national ownership of the project to foster the sustainability of the results" and "functioning science-policy interface" – are in place. Likewise, one of the two assumptions – namely the "availability of funding to proceed with upscaling after the project termination" – holds for the most part, even though funding is not readily available from the Government of Madagascar, but will likely need to be sourced from international donors. For example, the GCF country programme

currently being developed in the Readiness Framework is one opportunity to fast-track funding of MIRR upscaling. With regards to Impact 1, however, it is difficult to assess the validity of the assumption that users' and producers' associations for post-harvest storage units, water infrastructures and improved seeds will continue to function after the project. Indeed, there is limited hindsight to assess the sustainability of these associations. While WUAs existed prior to the project and showed their ability to take responsibility for the maintenance of water infrastructures, user's associations for post-harvest storage units have not had the opportunity to test their procedures yet. As for the GPSs (seed producer groups), only three are currently certified by the National Agency for the Official Control of Seeds and Seedlings (Agence Nationale de Contrôle Officiel des Semences et plants; ANCOS) to produce improved seeds – out of 30 initially trained – and only one successfully sells these seeds commercially.

154. While the AF Rice project was under the technical supervision of the MEDD, it would be more appropriate for the future upscaling of MIRR to be effected through a joint execution by the MEDD and the MAEP. Indeed, the core of the MIRR is to sustain rice-based agricultural systems in a context of climate change, through an integrated approach that includes the restoration of watersheds. In retrospect, it seems that the long-term impacts as well as the intervention strategy of the AF Rice project are thus more closely aligned with the mandate of the MAEP than the actual implication of this ministry into the implementation of AF Rice could suggest. A joint execution of future MIRR-related initiatives – where the MAEP would be in charge of agricultural activities and the MEDD in charge of ecosystem-related activities – could be envisaged. Opportunities to mainstream the MIRR into large-scale agricultural programmes such as DEFIS[40] (International Fund for Agricultural Development, IFAD) and PrAda[41] (Gesellschaft für Internationale Zusammenarbeit, GIZ) were evoked during the evaluation mission. The main contact point between AF Rice and the MAEP has been the Office of Climate Change and Environment of the MAEP. This Office would need to disseminate training materials to other departments of the MAEP (beyond regular meetings of the Thematic Group on Climate Change - Groupement Thématique sur le Changement Climatique within the MAEP) and to potential partner programmes, so that relevant information can be disseminated as widely as possible within relevant governmental institutions and all relevant actors in Madagascar.

155. No unintended negative effects are visible nor can be foreseen in the future.

156. While IS 1 and IS 3 are achieved and some of the assumptions and drivers leading from the intermediate states to Impacts hold (namely "national ownership of the project fosters the sustainability of its results"; "funding is available to proceed with upscaling after project termination"; "there is a well-functioning science-policy interface"), not all conditions are met for Impacts 1 and 2 to be deemed "likely" to be achieved.

[40] *Development of Integrated Agricultural Value Chains (Développement des Filières Agricoles Inclusives). DEFIS (2018-2028, USD 250m) is active in the following regions: Androy, Anosy, Ihorombe, Haute Matsiatra, Amoron'i, Vatovavy-Fitovinany, Atsimo Atsinanana and Atsimo Andrefana.*

[41] *Adaptation of Agricultural Value Chains to Climate Change (Adaptation des Chaînes de Valeur Agricoles au Changement Climatique). This project (2017-2022; EUR 17.5m) intervenes in the southern regions of Anôsy, Androy and Atsimo-Atsinanana.*

157. Firstly, IS 2 is not fully realised, mostly because, as described above, crucial Outcome 2.2 was not achieved completely. Secondly, it is too early to assess the validity of a key assumption linking intermediate states to impacts, namely that "increased capacity translates into effective action". Finally, the assumption that "users' and producers' associations for improved seeds function after the project" does not hold for the most part. Therefore, according to the "Criterion rating description matrix" used by the UNEP EO to evaluate projects, the likelihood of impacts can only be deemed "moderately likely".

Rating: Moderately likely

Overall effectiveness rating: Moderately satisfactory

5.5 Financial management

158. Actual expenditures are compared with the planned budget in Table 10 below. Note that budget lines have not been explicitly represented per outputs, neither in the original budget nor in subsequent expenditure reports or budget revisions. Therefore, this table could only be reconstructed at the component level. However, Table 11 presents detailed information per output when ex-post reconstruction was feasible, i.e. when budget lines were sufficiently unequivocal.

Table 10. Project budget (at design and latest revision) and actual expenditures.

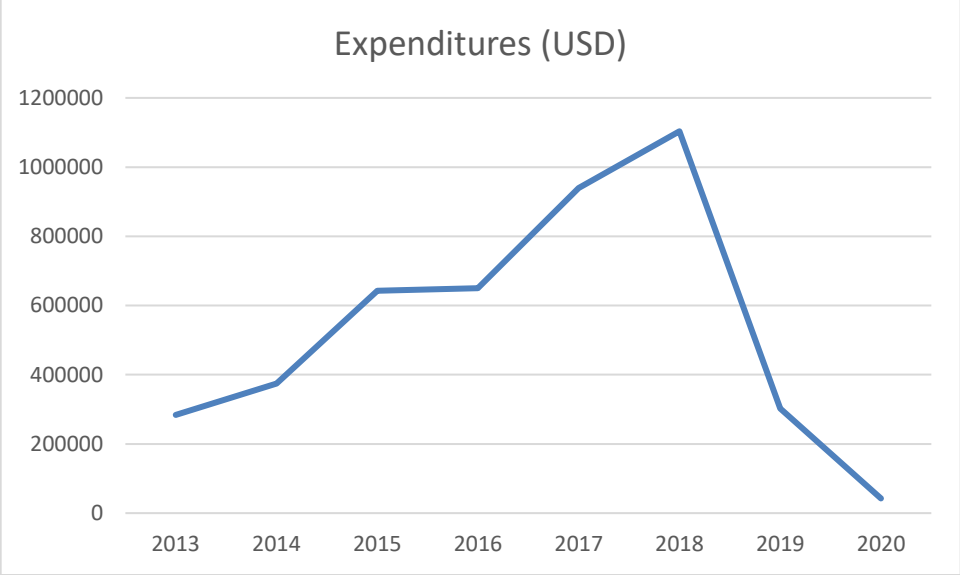
	Planned budget (USD, prodoc)	Revised budget (USD, as per March 2018 revision)	Expenditures (USD, as of March 2020)
Component 1	803,000	414,581	458,185
Component 2	3,310,000	3,197,163	2,965,301
Component 3	200,000	252,219	282,253
M&E	132,000	480,659	356,122
PMC	260,000	360,378	277,804
Total	**4,705,000**	**4,705,000**	**4,339,665**

Table 11. Financial information for selected investments.

Investment	Planned budget (USD, prodoc)	Budget (USD, as per 2014 revision)	Budget (USD, as per March 2018 revision)	Expenditures (USD, as of March 2020)	Budget lines
Water infrastructure	655,000	760,000	775,000	698,372	2304, 2305, 2306

Synoptic weather stations	108,000	75,000	9,717	9,717	4202
Reforestation	460,000	201,500	379,682	323,327	Original budget: 2102 Revised budget & expenditures: 2102, 2104 to 2106, 2107 to 2109 and 2111
Storage facilities	N/A: this budget line was added afterwards.	N/A: this budget line was added afterwards.	150,000	161,988	2307 and 1231

Figure 3. Evolution of total expenditures during the implementation period (source: expenditure reports).



159. A list of pending payments before financial closure is compiled in Annex IX.

5.5.1 Completeness of financial information

160. The following elements were made available for the evaluation:

- high-level project budget (costs) for AF funds;
- disbursement (Funds Transfer) documents from funding source(s) to UNEP;

- project expenditure sheet (to date);
- partner legal agreements and documentation;
- budget revisions and re-approved project budget for project extension;
- disbursement (funds transfer) documents (cash statement) from UNEP to MEDD;
- cash advance requests;
- UNEP budget reconciliation document;
- audit reports; and
- management response to audit reports.

161. The reporting schedule for financial audits that was agreed upon between the MEDD and UNEP (i.e. that audits reports are due by 30 June of the following year) was not followed. At the time of the TE, available audits reports were:

- 2014 (dated January 2017);
- 2015 (dated February 2016);
- 2016 (dated November 2018); and
- 2017 (dated June 2019).

162. Audits for financial years 2018 and 2019 were being conducted at the time of the TE and therefore not available for the evaluator's review. The delay between reporting period and actual audit (up to two years) is often too large for audit recommendations to be taken up in the most efficient manner[42]. It is good practice to systematically schedule annual audits and have audit reports available within the first semester (at most) following the reporting period.

163. Audit recommendations mostly involved keeping a more rigorous record of expenses and budgets, as well as following procedures for the validation of expenses and payment of invoices.

164. Financial documents made available with the evaluator were generally complete, updated and clear. Additional elements were requested by the evaluator to update some of the financial information presented in Table 10 and Table 11, as well as Annexes VIII and IX. The project team was able to share this information diligently. Nine out of the twelve financial documents described in the "Criterion rating description matrix" provided by the UNEP Evaluation Office to rate projects were shared with the evaluator, leading to the rating below.

Rating: Moderately satisfactory

[42] *The reported reason for the delay with the 2018 and 2019 audits is the pending last payment of the auditor for the previous audit.*

5.5.2 Communication between finance and project management staff

165. Evidence shows that the operational project team (i.e. PC, Financial & Administrative Officer and M&E Officer), the CTA and UNEP TM are aware of the financial status of the project. However, major issues were faced throughout implementation in terms of communication on financial matters between the operational project team and the MEDD hierarchy, namely the Director of BNCCC-REDD+ (National Director of the project), Secretary General and Administrative & Financial Director. The procedures in place require that two signatures should be obtained for a contract to be signed or a disbursement to be approved. The first signatory is the Director of BNCCC-REDD+, and the second one has been either the Secretary General or the Administrative & Financial Director of the MEDD – this has changed several times during project implementation.

166. This double signature system has proven highly inefficient and caused many delays, leading to on-the-ground issues with the quality of some deliverables. The most significant example is the delayed acceptance of water infrastructures because of the last payment being withheld by the Secretary General. This is a major issue in the cases of Manakambahiny and Bemaitso, since the warranties (valid for a year after provisional acceptance) expired, and damages on these infrastructures noticed during the evaluation can no longer be repaired as part of the original contracts – despite these damages being likely due to the quality of the work. Another example is the monitoring of water quality and water availability, which should ideally have been informed by at least three measurement campaigns conducted during the rainy season. This timing could not be respected because of delays in contractual procedures with the water quality expert, and the ideal methodology could therefore not be followed.

167. The double signature system is intended to strengthen financial procedures against potential risks of corruption and favouritism when awarding contracts to external parties, by adding a second layer of verification upon validation of payments. However, this system did not prevent such risks, as pressure was reportedly exerted onto the project team to select some contractors instead of others for no valid reasons (e.g. for the construction of storage facility units). Regardless of who held the position of Secretary General during project implementation –several people held this position during this period – the fact that the second signatory was within the office of the Secretary General was highly inefficient, since the project team had to explain the context of each and every signature to senior officials, who could not be expected to be aware of the stakes of all projects executed by the MEDD for which they need to approve financial decisions. One option would be to grant the first signature to the office of the National Project Director who, despite being tasked with several projects to oversee, is closer to daily implementation than the office of the Secretary General, and is by definition expected to have some familiarity with technical aspects of the projects, and the second signature to the Financial and Administrative Director of the MEDD, who not only has the appropriate mandate to follow up on finances, but also has a whole dedicated team able to expedite financial matters. Another option would be to give signature rights to the PC and the National Project Director.

Rating: Moderately unsatisfactory

Overall rating for financial management: Moderately unsatisfactory

5.6 Efficiency

168. As mentioned, the main source of inefficiency during project implementation has been the cumbersome process to validate contracts and payments. The consequences of the ensuing delays have been described above, the most harmful of them being the expiration of the warranties of water infrastructures – while damages that should have been covered by these warranties were observed during the evaluation.

169. Another example of inefficiency is the reconstruction of storage facilities (for a loss of approx. USD 80,000) since the original ones did not meet best construction standards. In a welcome learning process, the project hired a dedicated consultant to oversee the reconstruction of storage units and ensure that technical specifications would be met.

170. The project team was also faced with inefficiencies that were eventually corrected through an adaptive management process. For example, reforestation activities were initially sub-contracted to SNGF, a Tananarive-based public agency which could not be present at the sites as often as required to maximise the chances of success of reforestation efforts. This – combined with reported technical mistakes from SNGF – resulted in low quality of the work and poor on-the-ground results. As a result, the project team decided to cancel the partnership with SNGF and opted to team up with local NGOs, who were already familiar with the local context and could more easily visit the sites. This solution, although technically sound, proved not to be cost-effective, since the NGOs charged a significant fee to cover their own organisational costs. A third solution was then implemented, namely community-led reforestation. Communal nurseries were set up and community members were hired through "HIMO"[43] interventions to carry out planting operations. Finally, the project took a fourth approach, namely supporting reforestation efforts by community members on their private land. This approach proved the most efficient, but it also fostered the sense of ownership of these interventions by the community members. This solution can thus be recommended for reforestation in similar contexts.

171. Some good practices in terms of efficiency are outlined below.

- Strong involvement of FOFIFA/CALA for the development and implementation of the MIRR. FOFIFA/CALA readily had the technical capacity and human resources to carry out MIRR-related activities, not to mention an established reputation both nationally and regionally as well as good relations with local farmers. This partnership was thus highly efficient for the project.
- The decision to not conduct erosion monitoring campaigns as initially planned, since there was little evidence that significant results in terms of erosion reduction could be observed given both the limited scale of reforestation interventions and the early

[43] *Interventions à Haute Intensité de Main d'Œuvre (Labour-Intensive interventions)*

stage of most plantations. In this context, it was decided that funds not allocated on erosion monitoring (the quote received was USD 26,000) would be better spent on other interventions.

- Relying on the DREDDs to monitor reforestation results, rather than hiring external consultants.
- Reducing the number of synoptic weather stations from five originally planned to two, after further discussions with the DGM concluding that this would be enough to complement existing stations and provide a solid basis to issue reliable weather bulletins.
- Adding the CTA as a member of the selection committee for service providers to maximise the transparency of the selection processes and prevent over-quoted bids from being selected.
- Increasing the frequency of PCU field missions (every six weeks) in the second half of the project.

172. In terms of timeliness, and beyond the major issues with internal financial procedures within the MEDD, other delays were faced in some interventions, e.g. the construction of storage units that had to be rebuilt. During the first two years in particular, delays were faced with a 20% progress rate assessed by the MTR, owing to: i) limited coordination between government institutions regarding the implementation of the project; ii) changes in local government representatives; and iii) some delays in the procurement processes including difficulties identifying and hiring appropriate consultants as well as consultants not delivering on time. Because of the delays in several activities – as well as unfavourable climatic conditions for reforestation campaigns in 2016 and 2017 – two no-cost extensions were requested. The no-cost extensions added to the several budget revisions, and led to an increase in planned PMC by 70% as compared with the PMC approved in 2013[44].

Rating: Moderately satisfactory

5.7 Monitoring and reporting

5.7.1 Monitoring design and budgeting

173. A fairly generic monitoring plan was outlined in the prodoc, with associated budget (USD 132,000 overall). This plan was refined in the Baseline study, which described in further details the methodology for the monitoring of the revised RBF. The responsibility of daily monitoring was assigned to the M&E officer within the PCU, with *ad hoc* support from the PC and the CTA. However, no M&E strategy specifying the frequency of data collection, the exact methodology to follow for each M&E activity nor the cost associated to these methodologies was developed.

[44] However, actual PMC expenditures reported as of March 2020 remained below the original planned budget for PMC of USD 260,000.

The MTR was thus the first exhaustive M&E effort in the project, with associated corrective actions. In addition to providing more transparent M&E guidelines for the daily monitoring of project results, the development of such a strategy would likely have made it apparent to the project team that some indicators were not adequate (e.g. erosion control measure) or that the monitoring of some indicators would require a careful planning (e.g. measure of water availability and quality to be performed during each rainy season).

174. Some of the indicators either mention women in the target audience (e.g. Output 1.2.3) or include targets disaggregated per gender or disadvantaged group, such as youths (e.g. Outputs 2.1.4, 2.2.2). However, although activity reports usually register gender-disaggregated attendance, this was not systematically reflected in PPRs. In addition, the attendance of youths was not registered in agro-forestry trainings, although this was included in the target. Finally, it seems that gender-disaggregated information on attendance to trainings or meetings was not used for any specific purpose (e.g. to adjust training content), but rather was just seen as a reporting requirement.

175. The original M&E budget was adequate. However, it was drastically revised upwards (up to USD 480,659) in the 2018 budget revision as the budget for the development and implementation of upscaling strategy for the MIRR in Alaotra-Mangoro, Itasy and Vakinankaratra regions was erroneously allocated under M&E[45].

Rating: Moderately satisfactory

5.7.2 Monitoring of project implementation

176. The MTR formulated five recommendations pertaining to M&E. Four of them were actually implemented, and the fifth one was partly followed – the fact that the mid-term reviewer took over the role of CTA in 2017 helped following through with these recommendations. The project thus followed an adaptive management approach in its M&E. The M&E officer within the PCU was also replaced in 2017 with a clearer mandate, and generally showed a thorough knowledge of the project progress during the terminal evaluation process.

177. Some weaknesses in project monitoring are listed below.

- It would have been interesting to work with the DREDD in charge of the monitoring of reforestation activities to produce land-use change maps in reforested areas. Likewise, bushfires could have been mapped to better assess the extent of damages and adapt mitigation plans accordingly.
- The methodology used by the DREDDs to monitor reforested surfaces consisted of counting the number of planted seedlings and then dividing by a theoretical planting density (namely between 1,600 and 2,000 seedlings per hectare). However, this methodology can be highly inaccurate if planting densities are not respected, for example if some seedling were planted sparsely to complement existing forest stands.

[45] *This will be corrected in the final budget revision.*

- The weather station in Bemaitso only transmitted data between its installation in 2015 and August 2017, when the laptop used to collect the data was stolen. Around the same period, rodents damaged some wires, which were not changed despite requiring a minor repair, and no data was communicated to DRAEP or DGM since then. These relatively minor issues could have been solved quickly to ensure that data could be transmitted adequately; on the contrary, the evaluator found that the PCU did not have a clear understanding of the status of this station and the frequency at which data was or was not actually transmitted.
- As mentioned earlier, the revised RBF developed in August 2017 that suggested a number of relevant changes to project indicators and targets was not taken through formal approval procedures with the Adaptation Fund Board – in agreement with the secretariat of the Adaptation Fund Board; instead, a column was added in the 2017 and 2018 PPRs to indicate "notes on targets" and capture the key information from these proposed revisions.

178. With regards to budget spending on M&E tasks, it is difficult to assess whether original budget lines – besides those added in 2018 to cover upscaling expenses – were adequately spent on M&E activities. This is because some of these budget lines served several purposes (e.g. travel for PC, which was not restricted to M&E but could also fall under PMC and technical components), and, conversely, budget for the M&E officer was allocated under the PMC category, and not M&E. However, specific budget lines such as Baseline study, MTR, terminal evaluation and audits were spent as planned for M&E purposes.

Rating: Moderately satisfactory

5.7.3 Project reporting

179. The main reporting documents for AF projects are the PPRs. According to the MTR, the PCU had a limited understanding of the structure of the PPR reports during the first half of the project, which did not provide favourable conditions for a strategic use of PPRs. Coordination with the former CTA on the drafting of PPRs was also not optimal, leading to delays in the submission of these reports. However, roles were subsequently clarified – with the CTA formalising information provided by the PCU – and the evaluator found that PPRs were generally complete and helpful documents to track project progress.

180. As often, the quality of reporting at the activity level varies across consultants; it is generally acceptable in the case of AF Rice. A good practice for the future would be to centralise all reports in a shared folder that can be readily accessed by any of the project team members – including evaluators. Such a folder was shared for the TE, but it was only partially complete.

181. Following the example of other donor-funded projects executed by the MEDD, AF Rice developed a manual of procedures to guide administrative and financial processes. This document was based on existing templates and revised to include lessons learned from other projects within the MEDD. While this document constitutes a guide that parties can refer to in case of procedural issues, it is not formally endorsed by either the Secretary General or the

Direction of Administration of Finances. Furthermore, it is 80 page-long, so relevant departments of the MEDD cannot be expected to go through it in detail before approval. Moving forward, it could be useful to develop a short "reader's digest" of this manual, augmented with case studies illustrating how typical procedures should happen. Examples could include the publication of call for tenders and the signature and payment of contracts.

Rating: Satisfactory

Overall rating for monitoring and reporting: Satisfactory

5.8 Sustainability

182. A Sustainability Action Plan was developed by the project and validated in January 2018. This document was produced through a participatory process with the three target communes. A weakness of this Sustainability Action Plan is that it only considers on-the-ground interventions, and ignores national-level outcomes such as policy mainstreaming. Numerous interventions are detailed for each commune, specifying responsible parties and the timelines. However, to the evaluator's knowledge, there has not been a dedicated monitoring of recommended tasks contained in the Sustainability Action Plan. The sections below provide a more general analysis of the sustainability of the project's outcomes, in socio-political, financial and institutional perspectives.

5.8.1 Socio-political sustainability

183. The sustainability of the MIRR in the three target sites will mostly depend on technical and financial factors. However, one socio-political element has proven important for the community uptake of improved rice varieties, namely the importance of tradition. Some farmers have been reluctant to use these varieties, since traditional ones remain associated with a strong farming culture inherited from ancestors. Although technical demonstrations did persuade some farmers to adopt these varieties, only the repeated demonstration of the superiority of these new varieties in terms of yields and resilience will eventually facilitate their widespread adoption. In this respect, the bad climatic conditions in 2018 provided a real-life demonstration of the benefits of improved varieties, and so will future agricultural seasons disrupted by unfavourable climate conditions. As a result, the sustainability of the MIRR system in the three target sites in terms of socio-political aspects can be deemed highly dependent but also completely "self-mitigating", as upcoming agricultural campaigns will continue to prove the edge of improved varieties over traditional ones.

184. The upscaling of the MIRR to other sites in the Alaotra-Mangoro region as well as in the two other regions will only be sustainable if there is enough political will at the regional level to

foster these initiatives. Indeed, communities that only benefitted from some demonstrations and distribution of improved seeds are less likely to durably adopt all best practices that form the MIRR. In this respect, AF Rice only initiated the upscaling, that will need to be taken over by future initiatives. AF Rice did raise political awareness on the MIRR in Itasy and Vakinankaratra towards the end of the implementation period, but it is difficult to assess whether this will enable the continuation of MIRR upscaling activities.

185. The sustainability of GPSs is unlikely, with only one certified GPS actively producing and selling seeds to date. This is mostly because of a lack of "entrepreneurial spirit" among GPS members, despite some financial training provided by the project. However, this is consistent with the fact that the timeframe to impart such an "entrepreneurial spirit" through project support has been shown to be typically around ten years – much more than the time available during the implementation of AF Rice. Beyond the self-production of improved seeds from farmers themselves (which can only last up to three cultural cycles), the sustainability of the supply of improved seeds thus largely relies on FOFIFA/CALA. This is not an issue per se, as FOFIFA/CALA has proven its ability to supply both inputs and technical advice, but shows the limits of an autonomous production approach without a strong enough business training support. In addition, regions where FOFIFA does not have extension services as efficient as CALA may face difficulties upscaling the MIRR if the supply of improved seeds largely relies upon them.

186. The socio-political sustainability of reforestation activities is highly dependent on local populations' awareness of the importance of such activities. Based on discussions with local community members, it is evident that there is a fairly good level of understanding of erosion control mechanisms, with some community leaders (e.g. the mayor of Manakambahiny) intending to continue reforestation efforts after the project termination. However, some traces of voluntary degradation can also be seen at some of the sites (esp. in Bemaitso), with some individuals intentionally burning down planted seedlings in response to interdictions to graze cattle in reforested plots. Mayors and community leaders are conscious that much remains to be done in terms of awareness raising to conserve these areas.

187. In terms of the production of organic compost, the sustainability will mostly rely on the availability of raw materials (esp. cow dung) as well as labour, as this is a labour-intensive process. Encouraging initiatives already exist, such as a compost producing group in Ambohijanahary that received a large order of compost from regional farmers, and a former consultant for the project who saw a potential in the compost sector and launched a private compost business in the region[46].

188. Water infrastructures are managed by water users' associations (WUA), which function generally well and have been trained by the project to optimise the management of strengthened infrastructures. Even though some conflicts over water use have arisen in Manakambahiny during the course of the project, WUAs were able to seek assistance and the project was able to

[46] *The environmental risks of compost production are minimal, since inputs are mostly residues, and the sustainable sourcing of these residues was part of the training provided by AF Rice.*

assist in solving the conflict. After the project termination, the DRAEP will need to play a mediator role when WUAs are unable to settle conflicts by themselves.

189. The sustainability of storage facilities from a socio-political standpoint will rely on how effective and efficient storage proves to be in the first seasons. In any case, loss rates in the storage facilities will likely be significantly lower than loss rates witnessed with traditional storage. This should convince reluctant farmers to actually sign up to the users' associations and store their product in the units. Mayors as well as leaders from the existing storage unit users' associations are conscious that more awareness-raising needs to be done at the local level – be it only to inform farmers of the possibility to store their products in the units and the conditions to do so.

190. Table 12 below summarises the extent to which social or political factors support the continuation and further development of project interventions and outputs. Dependency refers to how much the sustainability of a given outcome relies on socio-political settings; mitigation refers to the extent to which the project has taken measures to limit the sensitivity of a given outcome to these socio-political settings.

Table 12. Socio-political sustainability of key outputs and outcomes.

	Dependency	Mitigation[47]	Rating
MIRR in the three target sites	Moderate	100%	Highly likely
MIRR in upscaling regions	High	50-75%	Moderately unlikely
Reforestation	Moderate	50-75%	Moderately likely
Organic compost	Low	50-75%	Likely
Water infrastructure	Moderate	50-75%	Moderately likely
Storage units	Moderate	100%	Highly likely
Automatic Weather Stations (AWSs)	None		Highly likely

Rating: Likely

5.8.2 Financial sustainability

191. For the agricultural aspects, the financial sustainability of the MIRR in the three target sites will rely on the farmers' ability to save money to buy improved seeds every two or three cultural cycles. Farmers interviewed during the in-country evaluation mission were very aware of this, so any shortage in savings will unlikely be by lack of financial savviness, but rather

[47] *This scale refers to the Criterion ratings description matrix provided by the UNEP EO.*

because of income losses from bad yields. Likewise, the sustainability of compost production activities and reforestation efforts will not depend so much on financial factors.

192. However, continuing the upscaling of the MIRR beyond the target sites will very much depend on the availability of funds and the political will to earmark necessary funds for the upscaling process. While it is doubtful that the MAEP will have the funds readily available to proceed with the upscaling of the MIRR, the demonstrated results of improved seeds, crop rotation, improved agricultural practices and other relevant components of the MIRR do form a solid basis to build convincing project proposals and leverage donor funding. The financial sustainability of the upscaling approach is thus rather a question of political will in this respect.

193. The maintenance of water infrastructures and storage units is another aspect that is highly dependent on financial sustainability. While users' associations are well-structured in both cases and have the responsibility to perform minor maintenance interventions (e.g. canal dredging), more substantial operations such as repairing the Bemaitso spillway will be beyond the reach of users' associations. Regional directorates (namely for Water and Agriculture) will thus be in charge of procuring contractors to proceed with any sizable repair work. Some funds are available for such operations, but it is difficult to assess whether appropriate maintenance and repair operations are likely to be expedited when required. Another concern is that, with the increasing frequency and intensity of extreme weather events, more funds are likely to be spent on emergency measures in the coming years, which could be at the expense of longer-term maintenance. With regards to storage units, the fee systems set up by each user's associations were designed to account for the cost of regular maintenance of the storage units. The fee structures have been collectively agreed upon by the prospective members.

194. The sustainability of the use of AWSs will depend on the capacity of the newly-established regional office of the DGM to fulfil its mandate. At this point, it is difficult to assess whether the dedicated team will have all necessary resources to do so.

195. Table 13 below summarises the extent to which, once achieved project interventions and outputs require or do not require further financial inputs. Dependency refers to how much the sustainability of a given outcome relies on additional financial resources; mitigation refers to the extent to which future financial flows required to ensure the continuity of a given outcome have been secured.

Table 13. Financial sustainability of key outputs and outcomes.

	Dependency	Mitigation	Rating
MIRR in the three target sites	Low	50-75%	Likely
MIRR in upscaling regions	High	20-50%	Unlikely
Reforestation	Moderate	50-75%	Moderately likely
Organic compost	Low	50-75%	Likely
Water infrastructure	Moderate	50-75%	Moderately likely
Storage units	Moderate	75-100%	Likely

AWSs	High	75-100%	Moderately likely

Rating: Moderately likely

5.8.3 Sustainability of the institutional framework

196. At the national level, the mainstreaming of the MIRR into the National Strategy for Rice Development, the publication and dissemination of MIRR technical guidelines as well as the session on policy that was organised at the April 2019 national workshop should be sufficient to ensure that MIRR principles are referred to in future policymaking and project development. However, there is limited indication that institutional capacity-building and training in the Itasy and Vakinankaratra regions will be sufficient to support the upscaling process after the project termination – in spite of efforts to strengthen the capacity of Regional Rice Platforms in Alaotra Mangoro, Itasy and Vakinankaratra. Training was also provided at the regional level in Alaotra-Mangoro under Output 1.2.3 to strengthen extension workers' capacity to disseminate MIRR practices at the local level. In addition, the mainstreaming of MIRR in the three local development plans in Alaotra-Mangoro will enhance sustainability at local level.

197. As mentioned in Section 5.4.3, while the AF Rice project was under the technical supervision of the MEDD, it would be more appropriate for the future upscaling of MIRR to be effected through a joint execution by the MEDD and the MAEP. In retrospect, it seems that the long-term impacts as well as the intervention strategy of the AF Rice project are more closely aligned with the mandate of the MAEP than the actual implication of this ministry into the implementation of AF Rice could suggest, especially at the national level. Reasons that account for this insufficient involvement of the MAEP may include a lack of participation and consultation at the design phase, as well as strong turn-over within the MAEP that hampered ownership of the project. A joint execution of future MIRR-related initiatives – where the MAEP would be in charge of agricultural activities and the MEDD in charge of ecosystem-related activities – could be envisaged, and would add to the institutional sustainability of the project's impacts.

198. Some recommendations can be formulated to maximise the chances of retaining institutional memory after the project termination, such as:

- sharing all training material with the DREDDs, the DRAEPs and other relevant extension services in Alaotra-Mangoro, Itasy and Vakinankaratra; and
- centralising all communication material (including radio and TV broadcasts) and making it available within the MAEP and the MEDD so that this material can be re-employed in the future.

199. As described above, the newly-established regional office of the DGM will be in charge of maintaining and operating the AWSs. Discussions with the qualified regional meteorological officer during the evaluation showed a strong motivation to maintain the AWSs and collect and disseminate the data, and only the availability of resources will dictate the possibility to do so.

200. Finally, storage unit users' associations have not really started to exercise their mandate. However, all three associations have validated their status, elected their representatives and decided on the fee structure. In addition, the storage units themselves were built to the best quality standards.

201. Table 14 below summarises the extent to which the sustainability of project outcomes (especially those relating to policies and laws) is dependent on issues relating to institutional frameworks and governance. Dependency refers to how much the sustainability of a given outcome is sensitive to institutional support; mitigation refers to the extent to which institutional conditions have been created and/or strengthened to generate such institutional support.

Table 14. Institutional sustainability of key outputs and outcomes.

	Dependency	Mitigation	Rating
MIRR in the three target sites	Low	50-75%	Likely
MIRR in upscaling regions	High	50-75%	Moderately unlikely
Reforestation	None	N/A	Highly likely
Organic compost	None	N/A	Highly likely
Water infrastructures	High	100%	Highly likely
Storage units	High	100%	Highly likely
AWSs	High	100%	Highly likely

Rating: Highly likely

Overall sustainability rating: Moderately likely

5.9 Factors affecting performance

5.9.1 Preparation and readiness

202. The prodoc did not contain a proper stakeholder analysis. The capacity of key partners such as FOFIFA/CALA was not analysed. This was partially compensated for in the Baseline study, which indicated for example that "CALA's facilities are in need of renovation". However, the August 2017 suggested revision to the RBF indicated that "Based on consultation of CALA, no activities to strengthen their facilities and capacities were deemed necessary."

203. Other than that, the lack of a full capacity analysis was not detrimental to project implementation. However, the capacity of SNGF to carry out the reforestation activities with sufficient supervision could have been better assessed.

204. Initial staffing and regular readiness procedures[48] were expedited in a relatively timely manner, as ten months elapsed between approval of the project by the AF and actual start of implementation. An inception meeting was held and a quarterly workplan was developed. The Baseline study was finalised in August 2013 but its recommendations could not be validated at the first PSC meeting, which was held in July 2013. It is only at the second PSC meeting (December 2013) that the institutional structure was validated and the process to draft ToRs for the three regional technicians was initiated – that is, more than a year after the start of the project.

Rating: Moderately satisfactory

5.9.2 Quality of project management and supervision

205. Project management and supervision are described in Section 3.4. Generally, the PCU functioned well despite a challenging environment. Staff turnover within the core team (M&E officer, CTA, UNEP TM) did not impede implementation; however, the high turnover rate of the national project director as well as second signatory posed several problems throughout project implementation. Local technical staff – as local project representatives – were active and competent, and provided progress reports to the PCU on a monthly basis[49].

206. UNEP supervision was generally effective. Nevertheless, the absence of a UNEP country office did not help when specific engagement with the hierarchy of the MEDD was necessary to discuss financial and management issues. The UNEP TM, based in Washington DC, USA from 2017 onwards, could not visit as often as they wanted, and Skype discussions cannot replace personal interaction. In this context, the CTA had a decisive role both as technical advisor for on-the-ground interventions and as a liaison person to inform the UNEP TM of difficulties faced at the institutional and financial level. The CTA participated in the analysis and selection of the candidates to bids from January 2017, and UNEP has been fully informed of the procurement processes underway and their progress. However, full transparency has been difficult to achieve. This was particularly highlighted by the procurement process for the water infrastructure works, which experienced major delays due to the need to address and rectify lack of transparency in the process – which was helped by the participation of the CTA to the bid selection process.

207. The minutes of three meetings of the PSC were shared with the evaluator. The PSC met five times, alternatively in Antananarivo and in Alaotra-Mangoro to facilitate the attendance of all relevant representatives[50]. General guidance as well as specific recommendations were provided by PSC, for example on the need to arrange for permanent in-site supervision of reforestation activities, the necessity to protect the Bemaitso AWS, or the usefulness for

[48] *Including legal documents such as the Project Cooperation Agreement (September 2012) and the Agreement between the AF and UNEP (February 2012).*

[49] *A relatively minor point was noted by the evaluator: the project car seems to have been used frequently by the BNCCC-REDD+ management for general business. It is thus recommended to officially hand-over the project car to the BNCCC-REDD+ at project closure. This would limit the risk of future project vehicles (and their drivers) being used for general business instead of project-specific missions.*

[50] *This is a good practice that could be retained in future projects.*

consultants to systematically liaise with regional directions when going on mission in Alaotra-Mangoro.

Rating: Satisfactory

5.9.3 Stakeholders' participation and cooperation

208. Relevant stakeholders – including project partners and beneficiaries – engaged actively with the project from the onset. Three exceptions should be noted:

- MAEP: despite the MIRR falling directly under the MAEP's mandate, the MAEP was not sufficiently involved during the first years of the project. This is because of lack of communication efforts from the project preparation team as well as PCU, but also because of a high staff turnover rate within the MAEP. This was partly rectified during the second half of the project, with strong cooperation being achieved with the MAEP, especially at the regional level with the DRAEP, but will likely remain an institutional challenge for the upscaling of MIRR.
- DGM: collaboration with the national meteorological service was difficult, despite repeated attempts from the PCU to engage and involve the DGM with the management and handover of the AWSs. Communication with the DGM was not effective: the PCU only found out during interviews conducted during the evaluation mission that the Bemaitso station had not provided data for over two years. Future projects will need to actively engage with the DGM from the onset, and possibly delegate relevant activities to regional extension offices of the DGM where possible.
- There was limited cooperation between national and regional radio and television production teams, with national and regional teams working largely autonomously. Improved coordination could have generated economies of scale and facilitate the work of the teams, with potential sharing of material.

Rating: Satisfactory

5.9.4 Responsiveness to Human Rights and Gender Equity

209. Generally, the project aims to support the livelihood of low-income farmers but does not distinguish between income levels among beneficiary groups.

210. The prodoc does not include a gender analysis. However, the targets for three indicators are disaggregated by gender. It seems that women or other vulnerable groups are not particularly at risk from the problems tackled by the project, and that project interventions do not have specific effects on these groups. Nevertheless, this should have been systematically assessed during the project design phase and reflected in the prodoc. A side intervention of the project was to support a women's farming cooperative near Manakambahiny, but this welcome action was a personal initiative of the PC.

211. Several dimensions of the UN Common Understanding on the human rights-based approach are reflected in the project strategy, especially:

- people are recognised as key actors in their own development, rather than passive recipients of commodities and services;
- strategies are empowering, not disempowering;
- both outcomes and processes are monitored and evaluated;
- the development process is locally owned; and
- situation analysis is used to identify immediate, underlying and root causes of development problems.

212. It should be noted that several leading positions within the project team – at least at the time of evaluation – were held by women[51], which is in line with the empowerment vision presented in UNEP's Environment's Policy and Strategy for Gender Equality and the Environment.

213. Finally, although three indicators are gender-disaggregated, gender-targeted actions were not systematic. When gender-disaggregated participation to training sessions or other project activities was registered, this did not lead to any specific action, initiative or analysis that would reflect an active ownership of gender mainstreaming approaches. Although this was a weakness of the original project design, a gender action plan could have nevertheless been developed in the course of project implementation[52].

Note: no indigenous people were concerned by the project.

Rating: Moderately unsatisfactory

5.9.5 Country ownership and driven-ness

214. Ownership of the project interventions is generally stronger at the local and regional level than at the national level. This is because of high turnover within national institutions and limited awareness of the on-the-ground results of the project. Some institutions played a leading role in transforming outputs into outcomes and intermediate states (e.g. FOFIFA/CALA), but others could have played a more active role. For example, the MAEP could have been more active in securing funds to facilitate the continued upscaling of the MIRR across Madagascar. The fact that the project was executed by the MEDD, even though most of the project interventions are actually more relevant to the mandate of the MAEP, may have played a role in this respect. On a more general level however, interviews held with numerous stakeholders during the evaluation process have shown that the project was perceived as driven by the country and not as a UNEP or AF initiative[53]. A potential perverse impact of strong country

[51] *Including national project director, PC, CTA and UNEP TM.*

[52] *It should be noted that the Baseline study failed to make such a recommendation.*

[53] *The direct execution modality and the absence of UNEP country office in Madagascar probably helped in this respect.*

ownership could be that the transparency of procurement processes is not perceived as compelling a requirement as it would be if UNEP or the AF were more present in daily implementation.

Rating: Moderately satisfactory

5.9.6 Communication and public awareness

215. A communication strategy was prepared in 2017, describing several communication interventions undertaken by the project to both disseminate its results and support some of the project interventions. For example, AF Rice presented its interventions at two agricultural fairs in August and September 2017. A capitalisation and lessons learned document was also prepared and widely disseminated at the end of the implementation period. Besides traditional media such as posters presenting agricultural weather bulletins disseminated during market days at the local level, the most notable communication materials produced by the project were the radio and television broadcasts.

216. Nine films of approx. nine min each were produced and broadcasted on national television between April and June 2019, reaching a potential audience of 7 million people. The same number of radio programmes were also produced on national radio during the same period, with an estimated audience of 90% of the rural populations of Alaotra-Mangoro, Itasy and Vakinankaratra[54]. Both state-owned media therefore contributed to raise awareness for a wide audience on the impacts of climate change on rice culture, the MIRR and the AF Rice project. The journalists indicated that rural development and climate adaptation projects rarely resort to TV and radio broadcasts for the dissemination of knowledge and best agricultural practices in Madagascar, and that AF Rice was a good example in this respect. In addition, journalists found community members eager to share their experience with the MIRR and willing to engage.

217. Similar radio and television programmes[55] were produced at the regional level and broadcasted through four local radios. At the regional level however, broadcasting campaigns were sometimes interrupted because of delays in payments from the MEDD.

218. Two limits to the media activities can be identified. Firstly, no study was conducted to measure the impact of this campaign on target producers and communities, beyond informal feedback from some community members. It should be good practice to systematically include a results-based assessment of the efficacy of such campaigns in the M&E strategy[56]. Secondly, the rushed timing to prepare the radio and TV broadcasts at the national level did not allow to translate them into French or English, either in voice dubbing or with sub-titles. Although this did not hamper the impact of the media campaigns in Madagascar, it does prevent this material from being used to exchange knowledge in other rice-producing countries. Could resources be

[54] *Source: broadcasting report.*

[55] *14 radio and 14 television programmes lasting approx. 30 min*

[56] *The communication strategy was added in the second half of the implementation period in reaction to the low visibility of the project.*

leveraged to undertake the translations[57], this material could then be re-employed by UNEP and other international organisations.

Rating: Moderately satisfactory

Overall rating for factors affecting performance: Moderately satisfactory

[57] *A ten-minute segment would take approximately one day to be translated in voice-dubbing, and up to four days in sub-titling.*

6 Conclusions and recommendations

6.1 Conclusions

219. The AF Rice project was designed to demonstrate the feasibility and effectiveness of an integrated solution to a major development challenge in Madagascar, namely climate change-induced threats to the rice sector.

220. Among the main strengths of the project is its undeniable strategic relevance, as changing climate conditions create economic, social, environmental and cultural risks for a value chain upon which the livelihood of 41% of the country's households rely (Section 5.1). The choice of the Alaotra-Mangoro – the main rice producing region of Madagascar – to pilot the interventions was also legitimate.

221. A key achievement is the successful development of a holistic intervention strategy, encompassing the agricultural, environmental and institutional factors of climate resilience (Section 5.2). The MIRR incorporates the use of improved, short-cycle rice varieties which are more resilient to erratic rainfall and temperature conditions, and can be harvested up to three times during one season. AF Rice achieved strong results in this respect, with average yields multiplied by 2.5 to 3 among targeted farmers. The MIRR also entails the dissemination of improved agricultural practices – such as integrated pest management or crop rotation – that contribute to soil conservation, diversify income sources for agricultural households and mitigate economic risks in case of bad yields. Other livelihood options were also introduced, such as agroforestry and seed producing. Overall, strong results were achieved in the agricultural and income-generating components of the project (Section 5.4), proving the validity of the MIRR at a pilot scale.

222. To complement the implementation of the MIRR and erosion control efforts, two types of hard infrastructures were built or restored – in response to needs expressed by local communities. Firstly, storage facilities were installed in the three target sites, that will eventually contribute to reduce post-harvest losses. Secondly, water infrastructures for the irrigation and drainage of rice fields were refurbished, allowing to increase and stabilise irrigation across the three pilot sites.

223. The institutional achievements of the project were both at the national, policy level with the mainstreaming of MIRR guidelines into national agricultural policies, and at the local level with the strengthening of water users' associations as well as the creation of users' associations for storage facilities.

224. Despite the several achievements of AF Rice outlined above, some challenges were also faced.

225. The MIRR includes an ecosystem approach to secure the provision of ecosystem services that support resilient agriculture. In particular, erosion control is a key factor to improve rice productivity. Although the project did acknowledge this aspect in its design and initially planned to reforest 5,000 ha of land surrounding rice fields, a series of management and climate

issues impeded reforestation efforts, and only 1,132 ha were eventually planted (Sections 5.4 & 5.6). The project timeframe and the limited scale of reforestation activities thus made it impossible to assess any benefits in terms of erosion control by project closure.

226. The effectiveness of water infrastructures is somewhat difficult to assess: while local farmers report an increase in water availability and quality, expert measurements are more equivocal and do not conclude on a general increase in water availability. Furthermore, some of these infrastructures were already damaged by the time of the evaluation, probably because of the limited quality of the work and inadequate supervision (Sections 5.4 & 5.7).

227. Several difficulties met by the project were primarily due to inadequate financial and procurement procedures within the MEDD. In particular, these procedures are very sensitive to staff turnover at the senior level, which happened significantly during the project implementation, and resulted in procurement and payment delays, leading in turn to a lesser quality of some deliverables and frustration of several contractors and project staff (Section 5.5). Other difficulties faced were because of a limited preliminary assessment of partner's capacity (e.g. with the SNGF) and unfavourable climatic conditions (for reforestation; Section 5.3).

228. Finally, one shortcoming in the project design that was not compensated during the implementation phase is the absence of a gender analysis (Section 5.9.4). This impeded the capacity of the project to fully mainstream gender dimensions into the project intervention strategy. Even though some indicators were gender-disaggregated, reporting against these indicators did not lead to significant adjustments in the project's activities.

229. The paragraphs below respond to the five strategic questions that guided the evaluation process.

230. In terms of population buy-in, the project followed a community-centered approach, which allowed to build ownership of most project activities and maximise the chances of these activities continuing after project closure. This includes the use of improved rice varieties and agricultural practices, the production of compost as well as agroforestry practices. In addition, the project supported the establishment of users' associations for storage units, which will be tasked with the autonomous management and maintenance of these units, and strengthened water users' associations. Finally, awareness raising of local communities on erosion control techniques through reforestation was successfully conducted. This could make up for the limited impact of reforestation during the project, if local communities continue to stabilise vulnerable areas by planting seedlings. One caveat in terms of the autonomy of local communities is related to the production of improved seeds. Only one cooperative still produces these seeds, as the financial and entrepreneurial support provided by the project was not sufficient to guarantee the sustainability of the other cooperatives set up during the implementation period. This is largely because the project timeframe did not allow for a long enough support.

231. Related to the point above, the strongest feature of the project's sustainability strategy is the ownership by farmers of the effectiveness of the MIRR. The sustainable increase in rice yields is the best advocate for the MIRR, and all farmers interviewed during the evaluation

confirmed that they have no intention of returning to traditional varieties and practices. At the opposite, the main risk in terms of sustainability of the project's outcome is the poor quality of some of the water infrastructures, which were already severely damaged at the time of the evaluation (Section 5.8).

232. The upscaling strategy of the MIRR relied on the dissemination of technical guidelines and the implementation of the agricultural components of the MIRR beyond the pilot sites, namely in Itasy, Vakinankaratra and Alaotra-Mangoro. This happened mostly during the last year of the project to initiate the upscaling and replication of the MIRR. The continued upscaling will depend on whether the MAEP and the MEDD have the institutional and political will to promote the MIRR, potentially through other donor-funded projects. All supporting guidelines and training material are readily available, results in the pilot sites are duly documented, and generally all the conditions are met to facilitate such an upscaling.

233. The opportunity to promote the integration of gender considerations in the implementation of activities post-project is both difficult to assess and potentially quite large. Since no gender analysis or action plan were elaborated at the project design and implementation phases, missed opportunities to mainstream gender dimensions may be numerous. For example, some value-added activities such as agroforestry practices could have the potential to be particularly promoted with women. However, only a thorough gender assessment could identify specific angles for gender mainstreaming – this should be envisaged as the MAEP and MEDD proceed with the upscaling of the MIRR.

234. Overall, the project achieved significant results in strengthening the Malagasy scientific and technical capacities for the implementation of concrete and targeted changes in the rice sector to improve its resilience to climate change. This happened not so much through the creation or import of scientific knowledge – as FOFIFA / CALA, the main scientific partner of AF Rice did already have this capacity –, but more so through the dissemination of existing scientific knowledge to stakeholders tasked with concrete implementation of best agricultural practices. This includes national and regional staff of the MEDD and MAEP, but also local communities. In addition, valuable training was provided on the use of tools that will enable Malagasy stakeholders to increase the resilience of the rice sector (e.g. multivariate geographical analysis; quick decision matrixes).

235. Based on the analysis of the main evaluation themes, and weighted scores for the various evaluation criteria (see Annex XIII), the overall rating for the project is « Moderately satisfactory », as per **Error! Reference source not found.** below.

Table 15. Evaluation ratings table.

A. Strategic Relevance	**The strategic relevance of the project was very strong. The project aligned with priorities of the country, the Adaptation Fund and UNEP.**	**Highly satisfactory**
1. Alignment to MTS and POW	The project was fully aligned with UNEP's MTS and POW.	Highly satisfactory
2. Alignment to UNEP /Donor/AF strategic priorities	The project's results framework aligned in particular with Outcome 4 as well as Outputs 4, 5, 6 and 7 of the Adaptation Fund.	Highly satisfactory
3. Relevance to regional, sub-regional and national environmental priorities	The project was extremely relevant to the national context of Madagascar, regional context of Alaotra-Mangoro and local contexts of the three target communes. It aligned with NAPA priorities as well as national priorities described in several national strategies and policies.	Highly satisfactory
4. Complementarity with existing interventions	AF Rice complemented other relevant initiatives (in particular JICA-funded projects PAPRIZ and BV-LAC) that also focus on rice productivity, climate resilience and erosion control in other areas of the Alaotra-Mangoro region.	Highly satisfactory
B. Quality of Project Design	**The project design was based on a solid and comprehensive presentation of the baseline situation, root causes and barriers. The intervention logic was sound and the logical sequencing of outputs, outcomes and objectives was convincingly articulated. The main weaknesses of the project design were the risk analysis – which did not identify strong enough mitigation options –, the monitoring framework – which was not completely adequate – and the absence of a gender analysis.**	**Satisfactory**
C. Nature of External Context	**The project was implemented in generally unfavourable climatic and institutional contexts. The latter was marked by a high turn-over rate within the managing team of the MEDD, which created challenges for the implementation of the project.**	**Unfavourable**
D. Effectiveness	**Outputs and outcomes related to ecosystem restoration were only partially achieved (or not achieved if measured by the project's indicators). Despite a satisfactory implementation of other components of the project, this leads overall effectiveness to be rated as "moderately satisfactory".**	**Moderately satisfactory**

1. Delivery of outputs	Out of 18 initially planned outputs, 11 were totally achieved (61%), six (33%) were partially achieved and one (6%) was not achieved. The outputs most critical to the achievement of higher-level outcomes were at least partially achieved.	Moderately satisfactory
2. Achievement of direct outcomes	All direct outcomes – except one – were at least partially achieved, as measured by the project's outcome-level indicators. The targets for Outcome 2.2 ("Ecosystem services maintained") were not achieved, because of difficulties and delays in reforestation activities.	Moderately satisfactory
3. Likelihood of impact	The expected impacts of the project are moderately likely to materialise, given that Outcome 2.2 was not achieved, and that crucial assumptions are either not verified (e.g. "users' and producers' associations for improved seeds function after the project"), or cannot be assessed yet (e.g. "increased capacity translates into effective action").	Moderately likely
E. Financial Management	**Repeated difficulties in the communication and decision making related to financial management hampered the implementation of the project.**	**Moderately unsatisfactory**
1.Completeness of project financial information	Financial documents made available with the evaluator were generally complete, updated and clear.	Moderately satisfactory
2.Communication between finance and project management staff	Evidence shows that the operational project team (i.e. PC, Financial & Administrative Officer and M&E Officer), the CTA and UNEP TM were aware of the financial status of the project. However, major issues were faced throughout implementation in terms of communication on financial matters between the operational project team and the MEDD hierarchy.	Moderately unsatisfactory
F. Efficiency	**The project was implemented through an adaptive management approach, which helped reduce the risk of inefficiency. However, some inefficiencies remained (e.g. reconstruction of storage units, delays with financial procedures), which could have been prevented.**	**Moderately satisfactory**
G. Monitoring and Reporting	**Monitoring and reporting were generally adequate to track project results and adjust project implementation.**	**Satisfactory**
1. Monitoring design and budgeting	A fairly generic monitoring plan was outlined in the prodoc, with associated budget. This plan was refined in the Baseline study. However, no exact methodology for each M&E activity was	Moderately satisfactory

	developed, and the cost associated with these methodologies was not assessed.	
2. Monitoring of project implementation	The project followed an adaptive management approach in its M&E, and followed several recommendations on M&E formulated in the MTR. Some weaknesses in project monitoring remained nevertheless (e.g. no land-use change maps, no close monitoring of the functioning of weather stations, revised results-based framework was not validated).	Moderately satisfactory
3. Project reporting	The main reporting documents – namely Project Performance Reports – were generally complete and helpful documents to track project progress.	Satisfactory
H. Sustainability	**A Sustainability Action Plan was developed by the project and validated in January 2018. This document was produced through a participatory process with the three target communes. Sustainability categories are assessed below.**	**Moderately likely**
1. Socio-political sustainability	One socio-political element has proven important for the community uptake of improved rice varieties, namely the importance of tradition. Some farmers have been reluctant to use these varieties, since traditional ones remain associated with a strong farming culture inherited from ancestors. Although technical demonstrations did persuade some farmers to adopt these varieties, only the repeated demonstration of the superiority of these new varieties in terms of yields and resilience will eventually facilitate their widespread adoption.	Likely
2. Financial sustainability	For the agricultural aspects, the financial sustainability of the MIRR in the three target sites will rely on the farmers' ability to save money to buy improved seeds every two or three cultural cycles. Continuing the upscaling of the MIRR beyond the target sites will very much depend on the availability of funds and the political will to earmark necessary funds for the upscaling process.	Moderately likely
3. Institutional sustainability	At the national level, the mainstreaming of the MIRR into the National Strategy for Rice Development, the publication and dissemination of MIRR technical guidelines as well as the session on policy that was organised at the April 2019 national workshop should be sufficient to	Highly likely

	ensure that MIRR principles are referred to in future policymaking and project development.	
I. Factors Affecting Performance	**See below.**	**Moderately satisfactory**
1. Preparation and readiness	The main weakness was the lack of a proper stakeholder analysis in the prodoc. A good-quality Baseline study was conducted, which helped improve the results-based framework. Initial staffing and regular readiness procedures were expedited in a relatively timely manner.	Moderately satisfactory
2. Quality of project management and supervision	Generally, the PCU functioned well despite a challenging environment. UNEP supervision was generally effective.	Satisfactory
3. Stakeholders participation and cooperation	Relevant stakeholders – including project partners and beneficiaries – engaged actively with the project from the onset.	Satisfactory
4. Responsiveness to human rights and gender equity	Generally, the project aimed to support the livelihood of low-income farmers but does not distinguish between income levels among beneficiary groups. Although three indicators were gender-disaggregated, gender-targeted actions were not systematic.	Moderately unsatisfactory
5. Country ownership and driven-ness	Ownership of the project interventions was generally stronger at the local and regional level than at the national level. This is because of high turnover within national institutions and limited awareness of the on-the-ground results of the project.	Moderately satisfactory
6. Communication and public awareness	A communication strategy was prepared, describing several communication interventions undertaken by the project to both disseminate its results and support some of the project interventions. A capitalisation and lessons learned document was also widely disseminated at the end of the implementation period. Besides traditional media such as posters presenting agricultural weather bulletins disseminated during market days at the local level, the most notable communication materials produced by the project were the radio and television broadcasts.	Moderately satisfactory
Overall Project Rating		**Moderately satisfactory**

6.2 Lessons learned

236. Some of the lessons learned from the AF Rice project are presented below.

Table 16. Lessons learned from the evaluation of the AF Rice project.

Lesson learned #1:	Enough time and budget should be planned for the upscaling phase of a pilot approach for it to yield significant results. This should be accounted for adequately in project design.
Context/comment:	The demonstration phase of the AF Rice took three years; the timeframe and budget of AF Rice only allowed to initiate the upscaling of the MIRR. When it is foreseeable at the design phase that the available budget is unlikely to be sufficient to upscale project results, a phased approach is advisable, in which phase 1 would be about testing pilot options and phase 2 about upscaling them.

Lesson learned #2:	Reforestation by community members on their own private land can be more effective, efficient and sustainable than reforestation by external parties.
Context/comment:	This lesson learned emerged through the experience of several options for reforestation throughout the project – *via* a national agency, through local NGOs, on communal land and on private land by community members. When feasible, this last option – overseen by qualified contractors – has the added benefit of raising awareness about the benefits and technicalities of reforestation "on the job". This lesson learned is of course context-dependent, and should not be applied without a thorough analysis of the capacities of relevant actors as well as technical constraints.

Lesson learned #3:	When building infrastructures that need to meet precise specifications, *ad hoc* and third-party supervision (i.e. not by the construction contractor themselves) is required.
Context/comment:	Time and financial resources were wasted during the implementation of the project by not supervising adequately the construction of post-harvest storage units, which did not meet quality standards and eventually had to be reconstructed. The second time, the engineer who designed the plans was also in charge of monitoring the construction work, and the facilities were successfully completed.

Lesson learned #4:	A strong training programme on business skills, financial management and entrepreneurship is required when setting up cooperatives.
Context/comment:	Despite some training provided to cooperatives producing improved seeds, these groups were generally not autonomous enough to operate a viable production activity without project support. The project timeframe did not allow to provide support over a long enough period to

	maximise the chances of an “entrepreneurial spirit” to develop within these cooperatives.

Lesson learned #5:	It is unreasonable to expect being able to measure the benefits of reforestation in terms of erosion control within a project timeframe of six to seven years.
Context/comment:	Depending on the context, at least six or seven years after the completion of reforestation activities would be necessary to observe results in terms of erosion control.

Lesson learned #6:	Beyond legal instruments adopted at project inception, financial and procurement procedures need to be agreed upon at the operational level from the project onset.
Context/comment:	An 80-page long manual is unlikely to serve this purpose effectively; instead, a short document describing typical procedures in simple steps should be developed and collectively agreed upon (including by UNEP), and serve as a reference in case of turnover.

Lesson learned #7:	Compost production is a simple, replicable, environmentally-friendly and effective way to increase agricultural yields when raw materials are available. It can also be turned into a profitable business.
Context/comment:	This activity was relatively simple and inexpensive to implement and proved very successful. It also helped secure community buy-in with other project activities.

Lesson learned #8:	The rice varieties developed and tested under the project give good results in real-life conditions, and can be used in regions with similar toposequence as Alaotra-Mangoro.
Context/comment:	This is a key result for the upscaling of the MIRR in Madagascar – and potentially in other countries.

Lesson learned #9:	When a project includes meteorological activities, it cannot be assumed that the governmental institution in charge of meteorology will automatically cooperate; rather, efforts should be made from the project design phase through the implementation phase to engage with this institution – including with relevant extension offices – and prepare the handover.
Context/comment:	This lesson learned is based on the experience of engaging with the DGM throughout implementation of the project, which sometimes proved uneasy – especially at the time of handover – because no formal cooperation framework had been agreed upon from the onset.

Lesson learned #10:	Project implementation has been hampered by the limited capacity of some implementation partners. This risk should be mitigated in future projects by conducting capacity assessments either at the design or at the inception phase of the projects.
Context/comment:	This lesson learned is based on the difficulties experienced throughout implementation with a number of partners (e.g. SNGF, MAEP, DGM), for reasons ranging from limited technical capacity to high turn-over and lack of resources. It is highly likely that similar challenges will be faced by future projects; one way to mitigate this risk is to conduct capacity assessments prior to the confirmation of given institutions as implementing partners, so that appropriate choices can be made and/or adequate risk mitigation measures can be taken.

Lesson learned #11:	A dedicated budget for the recruitment of an M&E specialist should be included in the budget project from the onset.
Context/comment:	No such budget line was originally included in the project budget, which hampered the M&E of the project – up until the MTR recommended that an M&E specialist be recruited. This recruitment facilitated greatly M&E during the second half of the project.

Lesson learned #12:	A project aiming for behavioural changes must account for sufficient time to enable uptake of new practices by the farmers.
Context/comment:	In AF Rice, the demonstration phase required approximately three years, only then did farmers start to show real interest for the new practices. Although technical demonstrations did persuade some farmers to adopt these varieties, only the repeated demonstration of the superiority of these new varieties in terms of yields and resilience will eventually facilitate their widespread adoption.

6.3 Recommendations

237. Based on the evaluation findings, the recommendations presented in Table 17 below can be made. They include:

- recommendations relevant to **project closure** (1-6);
- recommendations pertaining to the **sustainability** of the project's results (7 & 8); and
- recommendations for **future projects** (9-16).

Table 17. Recommendations from the evaluation of the AF Rice project.

Recommendation #1:	Liaise with the DRAEPs and regional directorates of Water to repair the Bemaitso spillway and the main water intake at Manakambahiny.
Context/comment:	Both infrastructures are damaged and their warranties expired. The handover process should include a joint assessment of the damages and a workplan to repair them.
Priority level:	Critical recommendation.
Responsibility:	PCU to contact the DRAEPs and regional directorates of Water and jointly identify responsibilities for repair work.
Proposed implementation time-frame:	As soon as possible.

Recommendation #2:	Repair the meteorological station in Bemaitso and check its functioning.
Context/comment:	A cable needs to be changed so that the Bemaitso station can be tested before the handover with the DGM.
Priority level:	Important recommendation.
Responsibility:	PCU in coordination with DGM or DGM if handover is completed.
Proposed implementation time-frame:	As soon as possible (minor repair).

Recommendation #3:	Expedite the reception and payment of pending contracts.
Context/comment:	The list of pending payments is provided in Annex IX. These payments need to be approved by the second signatory within the MEDD to proceed with financial closure.
Priority level:	Important recommendation.
Responsibility:	MEDD
Proposed implementation time-frame:	As soon as possible.

Recommendation #4:	Share all relevant training material with the DREDDs and DRAEPs of Alaotra-Mangoro, Itasy and Vakinankaratra, and MEDD and MAEP at the national level.
Context/comment:	The DREDDs and DRAEPs currently do not have access to all the training material that was developed during the project, and that could be used again in the future.
Priority level:	Opportunity for improvement.

Responsibility:	PCU
Proposed implementation time-frame:	As soon as possible.

Recommendation #5:	Hand over the project car to the BNCCC-REDD+.
Context/comment:	This would limit the risk of future project vehicles (and their drivers) being used by the director of the BNCCC-REDD+ for general business instead of project-specific missions.
Priority level:	Opportunity for improvement.
Responsibility:	MEDD & UNEP
Proposed implementation time-frame:	Upon financial closure of the project.

Recommendation #6:	Expedite the translation and dissemination of the MIRR guidelines.
Context/comment:	So far, the MIRR guidelines are available in French and have been disseminated to the three target regions (Alaotra-Mangoro, Itasy and Vakinankaratra). Ultimately, the objective is to translate them into Malagasy and disseminate them across the 23 regions of the country. The target audience includes extension of the MEDD and MAEP at the regional level, as well as local technicians at the region, district and commune levels. It is also recommended to share these guidelines with relevant development partners (incl. FAO, UNDP and relevant NGOs), as well as publish them in both languages on adequate online platforms (e.g. website of the MEDD, Global Adaptation Network, Africa Adapt, Sustainable Rice Platform).
Priority level:	Important recommendation.
Responsibility:	MEDD, with support of UNEP as relevant.
Proposed implementation time-frame:	Before financial closure of the project.

Recommendation #7:	Follow up on the upscaling of the MIRR.
Context/comment:	A draft concept note for an upscaling project was prepared by the BNCCC-REDD+, but needs to be refined. On this basis, the responsibility to source funding and proceed with the upscaling of the MIRR should be assigned. The chances of the MIRR guidelines actually being implemented in other communes and regions of Madagascar will likely depend on whether some institutions take on a leading role in the coming months and develop an actionable fund sourcing and implementation roadmap. The integration of the MIRR approach in relevant national

	strategies, processes (e.g. the National Adaptation Planning process) and budgets should be promoted, building on the discussions held during the session on policy organised at the April 2019 national workshop. Any upcoming reviews of relevant policies should be targeted in this perspective, under the responsibility of the MEDD and MAEP. In addition, the MEDD and MAEP could facilitate the mainstreaming of the MIRR into large-scale agricultural programmes such as DEFIS (IFAD) and PrAda (GIZ)
Priority level:	Opportunity for improvement.
Responsibility:	MEDD, MAEP, UNEP (cf. also Recommendation #9)
Proposed implementation time-frame:	In the coming year, to capitalise on results from AF Rice and build on awareness of the MIRR within the Government of Madagascar.

Recommendation #8:	A specific case study should be prepared to document the success of the one Seed Producing Group in Alaotra-Mangoro.
Context/comment:	It is remarkable that, among the 30 GPSs trained, one group did succeed in sustainably producing certified, improved seeds and was able to sell seeds to external buyers (e.g. FAO). The reasons behind this success should be documented and specific lessons learned disseminated.
Priority level:	Opportunity for improvement.
Responsibility:	MEDD, potentially in coordination with UNEP to disseminate this case study internationally.
Proposed implementation time-frame:	In the coming semester.

Recommendation #9:	Systematically assess the best institutional anchoring for a project based on its focus. The institutional anchoring of a given project should not depend on whether the focal point for the donor fund is located within one ministry.
Context/comment:	In the case of AF Rice, the share of adaptation expenses that are directly relevant to environmental matters is about 9%. The main focus of the project being on the resilience of rice farming, the MAEP could have been more formally involved in the execution of the project, either as the executing entity of some components, or through a formal agreement with the MEDD / BNCCC-REDD+. In particular, this could have facilitated the upscaling of the MIRR across Madagascar.
Priority level:	Opportunity for improvement.
Responsibility:	National focal point for the donor fund, UNEP.
Proposed implementation time-frame:	In the design phase of each future donor-funded project.

Recommendation #10:	Systematically conduct a gender assessment and a gender action plan in the project design phase.
Context/comment:	Even if the gender assessment eventually shows that women are not particularly at risk from the specific challenges targeted by the project, it is best practice to document this. In addition, the baseline as well as measures allowing to promote the involvement of women and optimise the chances of women benefitting from the project activities need to be included in a gender action plan. Although three indicators are gender-disaggregated in AF Rice, gender-targeted actions were not systematic. When gender-disaggregated participation to training sessions or other project activities was registered, this did not lead to any specific action, initiative or analysis that would reflect an active ownership of gender mainstreaming approaches. Although this was a weakness of the original project design, a gender action plan could have nevertheless been developed in the course of project implementation[58].
Priority level:	Important recommendation.
Responsibility:	MEDD, UNEP, Adaptation Fund and all parties involved in the design and validation of projects.
Proposed implementation time-frame:	In the design phase of each future project.

Recommendation #11:	Plan ambitious awareness-raising activities to facilitate the adoption of endogenous species in reforestation interventions.
Context/comment:	The use of exotic species for reforestation activities was a key finding of the MTR. However, and despite strong efforts from the CTA in the second half of the project, it was difficult to accommodate best conservation practices (i.e. opt for endogenous species) and still pursue reforestation targets within a limited timeframe, in a context where exotic, fast-growing species are the default option for reforestation activities in Madagascar. In the future, all efforts should be made in UNEP-implemented and MEDD-executed projects to create favourable conditions for the promotion of endogenous species. This should entail ambitious awareness raising with communities, local authorities, extension offices and all relevant actors to show the benefits of using endogenous species.
Priority level:	Important recommendation.
Responsibility:	MEDD, UNEP

[58] *It should be noted that the baseline study failed to make such a recommendation.*

Proposed implementation time-frame:	In the design and implementation phase of future projects.

Recommendation #12:	Where feasible, opt for the establishment of fully automatic weather stations, with tele-transmission of data.
Context/comment:	Fully automatic weather stations are less dependent on maintenance and not dependent on the collection of data *in situ*. Where possible – i.e. when the phone network is stable enough – they facilitate the use of weather data, in particular in remote areas.
Priority level:	Opportunity for improvement.
Responsibility:	MEDD, UNEP, Adaptation Fund and all parties involved in the design and validation of projects.
Proposed implementation time-frame:	In the design and implementation phase of future projects.

Recommendation #13:	The prodoc, the MTR and the TE (including in its draft version) need to be translated in national languages.
Context/comment:	For all projects implemented in countries where English is not the national language, the main project documents should be readily available for national parties in their own language. A budget line for translations could be included in project budgets from the onset as a standard practice. This would enable to strengthen national ownership of the project, and facilitate participatory processes at the key project phases, including design, mid-term review and terminal evaluation.
Priority level:	Opportunity for improvement.
Responsibility:	UNEP, Adaptation Fund
Proposed implementation time-frame:	In the inception phase of future projects, as relevant.

Recommendation #14:	Systematise the development of a Baseline study across projects.
Context/comment:	A good-quality Baseline study is a unique opportunity to conduct an in-depth analysis of the result-based framework and general project intervention strategy in the inception phase. The Baseline study conducted for AF Rice helped in this perspective, and could have been even more useful by providing adequate budget estimates for some activities (the budget for water infrastructures proved insufficient) and discarding unrealistic indicators (e.g. rate of erosion).
Priority level:	Opportunity for improvement.
Responsibility:	UNEP, executing entity of future projects.

Proposed implementation time-frame:	In the inception phase of future projects.

Recommendation #15:	Establish UNEP National Focal Point in Madagascar.
Context/comment:	UNEP is involved in many projects in Madagascar, especially in collaboration with the MEDD. The presence of a permanent in-country focal point would facilitate daily cooperation, ease communication and provide more favourable conditions for the resolution of financial and procedural issues.
Priority level:	Opportunity for improvement.
Responsibility:	UNEP
Proposed implementation time-frame:	In the coming year, if feasible.

Recommendation #16:	UNEP to engage with the MEDD at a senior level to discuss ways to improve procedures that have impeded the implementation – e.g. the double signature procedure system, with the second signatory being a senior official within the MEDD – of AF Rice.
Context/comment:	Some procedures described in Sections 5.5 and 5.6 caused delayed in implementation of AF Rice, resulting in challenges on the ground (e.g. expiration of insurances covering the quality of water infrastructure). In addition, transparency needs to be ensured for all processes of contractor selection, so that the selection of bidders can be based on merits and not on political or personal motives. Such procedures also affect other UNEP-implemented projects (e.g. PAZC) that seem to be facing similar challenges – as evoked during an interview conducted with the PC of the PAZC project.
Priority level:	Important recommendation.
Responsibility:	UNEP
Proposed implementation time-frame:	After validation of the present evaluation.

Recommendation #17:	Strengthen risk mitigation plans by referring to the experience of and feedback from relevant projects.
Context/comment:	Risk mitigation plans rarely refer explicitly to experience accumulated in past or ongoing projects. As a result, some risk mitigation measures that can seem reasonable on paper may not be totally adequate in a given context. One option to strengthen such risk mitigation plans would be to quote explicitly from experiences with other projects (and associated

	M&E landmarks, such as MTRs and TEs), and show how the present risk mitigation incorporates this experience.
Priority level:	Opportunity for improvement.
Responsibility:	UNEP
Proposed implementation time-frame:	In the design phase of future projects.

Recommendation #18:	Include economic assessments of livelihood-supporting activities in the project intervention strategy.
Context/comment:	Ideally and if the timeframe of the project allows it, it would be useful to conduct socio-economic assessments of activities conducted by the project that aim at generating an economic impact on the beneficiaries. For example, it is difficult to assess the impact of the promotion of the use of rice straws other than qualitatively (from a reported satisfaction perspective) and from a means-based perspective if no economic assessment is carried out. The same would apply to compost production and support to agroforestry production.
Priority level:	Opportunity for improvement.
Responsibility:	UNEP
Proposed implementation time-frame:	In the design phase of future projects.

Recommendation #19:	In future projects, feature any Sustainability Action Plans with a costed M&E plan.
Context/comment:	The project adequately developed a Sustainability Action Plan, with specific tasks assigned to various stakeholders. However, there has not been a dedicated monitoring of these tasks, which makes corrective measures difficult to formulate.
Priority level:	Opportunity for improvement.
Responsibility:	UNEP, PCU of future projects
Proposed implementation time-frame:	In the design phase of sustainability action plans of future projects.

Recommendation #20:	In future projects, it would be interesting to work with the DREDD in charge of the monitoring of reforestation activities to produce land-use change maps in reforested areas. Likewise, bushfires could be mapped to better assess the extent of damages and adapt mitigation plans accordingly.

Context/comment:	The project adequately worked with the DREDD to monitor reforestation activities. However, no land-use maps were produced with the monitoring data gathered by the DREDD. If necessary, the DREDD could be supported to gain the capacity to produce such maps.
Priority level:	Opportunity for improvement.
Responsibility:	MEDD, UNEP
Proposed implementation time-frame:	In the design phase of future projects.

Annex I. Response to stakeholder comments received but not (fully) accepted by the evaluator

Response sheet to comments received from the UNEP Evaluation Office (11 and 15 May 2020), the PMU/CTA (23 June 2020) and UNEP Ecosystem Division (30 June 2020).

Location of comment	Comment from UNEP Evaluation Office	Response from evaluator
Table 6, line « Output 1.2.2 »	Additional information needed. The target on frequency of updated agricultural calendars is not clear. Frequency implies some quantitative measure of time; in this case, were these updates expected to occur at regular intervals?	I am not sure I understand your query. The target was to produce updated climate forecasts every three or four days (as described in the target column). This proved unrealistic, and forecasts were only updated every seven days.
§128	Consider using the term 'outcome-level' to maintain consistency with the TOC language	I am not sure what you mean here. The sentence specifically says that there are no objective- or impact-level indicators in the results-based framework.
§145	My feeling here is that you should tone down the language a bit, considering the sensitivity of this information, and the fact that this report will be circulated to a variety of stakeholders. One suggestion would be to avoid direct reference to the SG and shortcoming of his personal actions. My other suggestion is to keep the discussion focused on the **effects** of implementing a double signature system, while omitting reference to individuals' actions/reactions Agree with Pauline, it's important to be careful with the wording. Par 138 already highlights the double signature system as a factor affecting project efficiency, and therefore, successful	I do understand your point, and my intention is not to incriminate anybody personally. When I refer to the SG or any other position, I specifically mean the position and not the person holding it. It is a fact that SGs are too busy to take care of micro-decisions, whoever they may be. The same applies to the NPD. I have tried to soften the language and make the point that this analysis is not personal explicit to accommodate your concerns. This is a crucial point that has been a very strong obstacle throughout implementation, and will likely remain one for other projects if the procedures do not evolve.

Location of comment	Comment from UNEP Evaluation Office	Response from evaluator
	performance of some components. Also, unless you triangulated this statement with the SG or its staff, I would recommend revising substantially or preferably omitting it altogether.	
§146	Again, we need to avoid personalization of findings. Keep the discussion as objective as possible. My advise is to omit this statement *(individual personalities will vary greatly in spite of the designations they hold – for instance, not all SGs are unreachable and not all NPDs are 'more easily contacted'. It would seem that the particular individuals in this specific case are your basis for the recommendation)*	Please see proposed edits and response above.
Table 14	for sustainability, how can it be highly satisfactory if in par 172 you state that it is too early to analyse its sustainability?	This refers not only to the users' associations, but also to the buildings themselves, which were built to satisfying quality standards. I anticipate that the sustainability of the whole system is highly likely. I have amended para 174.
Recommendations	I find this goes beyond the scope of this evaluation, and the evidence collected for its purposes. Please omit. Pauline, if there's an evaluation that highlights the same issue for the PAZC project, Pierre could reference it (e.g. footnote). This would further substantiate the negative	I conducted an interview with the coordinator of the PAZC project specifically to have some understanding of the context, and see whether some difficulties were shared with other projects. I have added a mention to this here, and this interview is also reflected in Annex IV. To my knowledge, no public document is available that analyses this. If you feel

Location of comment	Comment from UNEP Evaluation Office	Response from evaluator
	effects the system has had on other projects.	like this is too sensitive, I can remove – but I think this is an important point.

Location of comment	Comment from UNEP Ecosystems Division	Response from evaluator
Project Identification table	$4,347,665, according to the expenditure reports received	From the expenditure report Q1 2020 that you share with me on 7 July, I find USD 4,399,665 – once the error with the formula in cell K21 is corrected. Kindly let know if you receive updated data.
Project Identification table	This should be higher by the time of the TE. Is this figure correct? Also, the figure is not aligned to total expenditure figure in Table 10. It's not clear to me what this figure is, and how it's meant to be different from the cell above. Pauline could you clarify?	I computed this figure by adding expenditures corresponding to the three components, i.e. excluding PMC and M&E. Pauline, can you advise if this is correct?
§19	There seems to be a lesson learned in here – can you bring it out. E.g. what difference would a gender assessment have made to the project effectiveness?	I believe that a potential response is given in the following sentence of the paragraph: "This would allow to identify any gender-specific adaptation and development challenges relevant to the project scope, and form a basis to formulate a gender-sensitive intervention strategy, thereby ensuring gender mainstreaming and equal access to project benefits to both women and men." I was not able to identify specific gaps in effectiveness that the lack of a gender assessment created – but

Location of comment	Comment from UNEP Ecosystems Division	Response from evaluator
		potential for improvements could have been revealed had such an assessment be conducted. This point is already reflected in the lessons learned.
§75	Agree, but figure 2 has this as a driver. A driver is a force that drives direction of movements. So for example, in this connective relationship between output and outcome, it could be that external funding for agricultural research is driving capacity development.	I am not sure I see the issue here, as Figure does list this as an assumption, not as a driver.
§84	This assumption seems more relevant for Impact 1, which is also where it's placed in the diagram.	Actually, this assumption is linked to both Impacts 1 and 2 on the diagram. Sorry, I know it is hard to read – a lot of information in a single diagram.
§97	Which are? What is the lesson learned?	These are listed in the relevant sections and in the conclusion. Reviewers from the UNEP EO requested that recommendations and lessons learned be directly listed in the ad hoc sections, and not so much in the body of the report.
Table 6, Output 1.2.3	The participant figures for this and the second training are much higher in the "project results" summary document (a note for Anna to check with project team regarding this)	Please do check if you have different figures.
§133	This paragraph seems out of place here. These are all very important recommendations – could they maybe be captured	I think this paragraph fits here to expand on the likelihood of upscaling. However, most elements here have been included in the institutional

Location of comment	Comment from UNEP Ecosystems Division	Response from evaluator
	under the section on institutional sustainability?	sustainability section as well. I have also added a mention to the mainstreaming of the MIRR into other large-scale agricultural programmes in the recommendations.
§134	This also seems out of place here.	This is a request from the UNEP EO template.
§161	Should this perhaps be a recommendation; to follow up on the implementation of these tasks before project financial closure?	I don't think this is realistic at this stage… However, I have added a recommendation to add a costed M&E plan to sustainability action plans in future projects.
§179	Can we build in a recommendation for use of remaining project funds to support this process? Or perhaps a recommendation to more broadly use remaining project funds to support key sustainability interventions (in the time remaining before financial closure)	Financial closure was planned for 30 June, so this may be too late.
Lesson learned #5	I can't see what the lesson learned in here is given that reforestation in this project did not materialize to any great extent. This could be a comment on the quality of the RF but seems misplaced here.	I think it is a lesson worth remembering when designing results frameworks for future projects.
Recommendation #19	Should this perhaps be a recommendation; to follow up on the implementation of these tasks before project financial closure?	I don't think this is realistic at this stage… However, I have added a recommendation to add a costed M&E plan to sustainability action plans in future projects.

Location of comment	Comment from PMU (CTA)	Response from evaluator
§56	Any explanation on why the other ones were not accessible? The last one I participated to was August 2017 and I believe minutes had to be submitted systematically (my notes are available in my mission report if useful).	Those are the minutes that were made available to me; I am happy to cite more recent ones if they are available.
Table 5	Just a suggestion, if it is long term, shouldn't Impact 2 by demonstrated best practices upscaled?	I think both options are valid: initiating the upscaling, i.e. starting with some regions, can already be a mid- to long-term goal.
Table 5	It is said above that there was no ToC at design.	There was no ToC in the prodoc, but I did reconstruct what the UNEP EO calls the ToC at Design in the Inception Report. I know this can be confusing.
§144	I am not sure I understand what is the idea being conveyed here.	I am not sure I understand your concern. The UNEP EO template requests to assess whether the project team is aware of the financial status of the project (hence the 1st sentence). The paragraph then turns to the issues with financial procedures that were faced during implementation.
§150	There are many more key ones such as hiring an M&E Officer, developing much more detailed ToRs for service providers, adding the CTA as a member in the selection committee for service providers (it enabled us to avoid one major non-transparent candidates selection process for one of the activities), doing much more frequent field mission during the second half of the	I have included some of these examples in the list. Agreeably, all the examples you mention are good practices and many of them are attributable to the positive influence of the new CTA , but some of them are not particularly remarkable (e.g. hiring an M&E officer) and others pertain more generally to effectiveness and adequate project management.

Location of comment	Comment from PMU (CTA)	Response from evaluator
	project (every 6 weeks…), allocating increased budget to communication activities to increase the visibility of the project and allocating any outstanding budget to upscaling to other regions during the last two years to make progress regarding upscaling….	
§156	Link with M&E? The team was aware that the station was not working but no measures were taken to address that so I don't think it is an M&E problem, the problem lies somewhere else, not sure if it is interesting to dig into it though.	It is monitoring in the sense of keeping track of the project progress and viability of the results: the station stopped working, and adequate measures should have been taken to address this.

Annex II. Evaluation TORs (excluding annexes)

Section 1: PROJECT BACKGROUND AND OVERVIEW

i) Project General Information

Table 1. Project summary

Adaptation Fund	AFB-5060-1111-2G49		
Implementing Agency:	United Nations Environment Programme	**Executing Agency:**	Ministry of Environment and Sustainable Development (MESD)
Sub-programme:	Climate Change	**Expected Accomplishment(s):**	
Trust Fund:	Adaptation Fund	**Project type:**	Full Size Project (FSP)
AF Board approval date:	December 2011	**UNEP approval date**	October 2011
***Expected* start date:**	February 2012	**Actual start date:**	October 2012
***Planned* completion date:**	October 2017	**Actual completion date:**	June 2019
AF grant allocation:	USD 4,705,000	**Actual total expenditures reported as of August 2019:**	
***Expected* Project co-financing:**	0	**Secured Project co-financing:**	0
First disbursement:	$123,785	**Date of financial closure:**	
No. of Steering Committee meetings:		**Date of last Steering Committee meeting:**	
Mid-term Review *(planned date):*		**Mid-term Review (actual date):**	February 2016
Terminal Evaluation *(planned date):*	September 2019	**Terminal Evaluation (actual date):**	September 2019
Coverage:	Madagascar	**Coverage - Region(s):**	Africa
Dates of previous project phases:		**Status of future project phases:**	

ii) Project rationale

Madagascar is renowned for its highly endemic biodiversity, rich forests and a wealth of natural resources. However, the country is also suffering from environmental degradation, low agricultural productivity and poverty. Vulnerable to climate variability and extreme weather events, Madagascar is at a risk of increased vulnerability and degradation from anticipated climate change.

Agriculture is among the main economic sectors of Madagascar, along with fisheries and livestock. According to the project document, agriculture provides 95% of food intake nationally and 75% of foreign

exchange. The rice supply chain represents the single most important economic activity in Madagascar, and the rice sector determines to a large extent the overall performance of the country's agricultural sector. More than 47% of the arable lands of Madagascar are allocated for rice and 1.7 Million farmers are involved in rice production. It has been calculated that nearly 70% of the population of Madagascar derive at least part of their income from the rice sub-sector. Rice is grown from the rainfed central highlands, to the irrigated and terraced lowlands and semi flooded coastal zones. However, most of Madagascar's rice is grown in the central highlands under rainfed conditions and is vulnerable to land degradation and climate hazards, mainly droughts.

Madagascar is subject to extreme weather events related to current climate variability, chief among them cyclones, flooding and droughts. These events have become more frequent and intense over the past decades, occurring almost on a yearly basis, and leading to important infrastructure damages, losses of life, decreases in agricultural productivity, degradation of natural resources, and coastal erosion, with negative and prolonged effects on food security, access to clean water, irrigation, and public health.

At the time of project preparation, rice production in Madagascar was found to suffer from climate variability and limited adaptive capacity. Climate constraints include variability in the onset of rains, delay in rainy seasons, as well as disruptions in the amount of rainfall during the rice-growing season. Droughts and floods were noted as common occurrences in rice producing districts. Cyclones were also noted to destroy crops, property and infrastructure. These climate variability constraints were noted to be compounded by erosion, leading to widespread siltation of paddies and irrigation infrastructure, limiting water and soil quality and availability. These impacts have placed the Malagasy population and their development in a constant and increasing situation of vulnerability and precariousness.

The Adaptation Fund (AF) is an international fund established in 2001 to finance concrete adaptation projects and programmes in developing country Parties to the Kyoto Protocol that are particularly vulnerable to the adverse effects of climate change. This AF project titled *"Promoting climate resilience in the rice sector through pilot investments in Alaotra-Mangoro region"*, with a total budget of **US$ 4,705,000**, sought to address the vulnerability of the rice sector in Madagascar in order to ensure continued agricultural growth and poverty reduction. The project, implemented from October 2012 to June 2019, responds to multiple impacts of climate change, and intends to strengthen scientific and technical capacity to develop a model for Integrated Resilient Rice Cultivation by working with experienced national partners in this field, and with regional and international centers of rice expertise, on the basis of existing knowledge, scientific advice and practical evidence.

The project was based on a number of adaptation and coping mechanisms already under implementation in Madagascar, such as traditional soil and water conservation practices, and more elaborate systems such as the System for Rice Intensification or Integrated Pest Management, which prescribe a set of cultivation methods applicable to the entire rice production chain in order to increase yields.

Despite these adaptations, there has been a lack of climate related guidance for the rice sector, and existing norms, standards and practices; also, the deployment of extension and research services did not take climate change into account. Other barriers preventing optimal yields and rice resilience have included for example: knowledge and technical information does not reach local producers and many resort to traditional and sometimes unsustainable cultivation methods (e.g. slash-and-burn) that provide short-term gains but deplete soil fertility and degrade the environment. In addition, erosion, water pollution and the destruction of buffer ecosystems such as mangroves and wetlands, have presented underlying constraints that are also exacerbating the projected climate change impacts, and which represent major barriers to adaptation and resilience in the rice sector.

The Initial and Second National Communications to the UNFCCC, as well as the National Adaptation Programme of Action (NAPA) for Madagascar, stress the urgent need of promoting adaptation in the rice sector, while achieving progress in productivity. The Alaotra-Mangoro region is considered among highest

rice producing regions in the country, but also the most vulnerable to climate variability and climate change. The project focussed on the sub-region of Alaotra-Mangoro, where it piloted a strengthened rice cultivation model that would help achieve sustainable yield increases under all climate scenarios. The pilot was to be deployed initially in three sites in the region, with a view to future upscaling and replicating to the rest of the country's rice production areas. The selected sites include: (i) Ambatondrazaka district, Manakambahiny commune; (ii) Andilamena district, Bemaintso commune; and (iii) Amparafaravola district, Ambohijanahary commune. Within these three municipalities, several different "fokontany" (villages) have been selected for project activities.

The project intended to adapt the existing technologies and approaches to develop integrated rice cultivation models that are resilient to anticipated climate change. It would deploy a participatory and integrated approach, involving paddy cultivators and other land users such as livestock herders and tanety (hillside) cultivators. This would be achieved by working with local groups, such as forest management associations, local NGOs, cooperatives, as well as the national policy-makers and regional partners. The project was to benefit equally both men and women, however, it was to pay particular attention to the strengthening of the capacities of female producers, taking into account that there are 20% of female-headed households in the targeted regions.

Project objectives and components

The approach selected for this project is inspired by the ecosystem-based adaptation (EBA) approach in that it seeks to create opportunities for generating co-benefits for vulnerable communities and ecosystems, thereby creating a mutually reinforcing dynamic of resilience. EBA is an approach to use biodiversity and ecosystem services as part of an overall strategy to help people adapt to the adverse effects of climate change.

The overall objective of the project is to demonstrate pathways towards the transformation of the rice sub-sector to make it more resilient to current climate variability as well as expected climate change and associated hazards, through implementation of pilot investments in the Alaotra-Mangoro region that have the potential of being upscaled at national level. The overall objective was to be achieved through pursuing the following secondary objectives:

(i) Strengthening the scientific and technical capacities of Malagasy authorities to understand, analyse and manage climate risks to the rice sub-sector, as well as to determine further adaptation options for the sector - to be achieved at regional level, working with central and decentralized government and technical services.

(ii) Implementing and disseminating a series of concrete changes to the rice production practices, from input to harvest management, including measures designed to restore and maintain ecological services around rice ecosystems - to be achieved through the demonstration of adaptation activities at local level in the Alaotra-Mangoro region.

(iii) Identifying and addressing the key policy barriers, gaps or maladaptations in order to create the conditions for upscaling adaptation in the rice sub-sector - targeted towards the identification of upscaling mechanisms at regional and national level and activities that will be deployed with regional and national partners.

Activities in this project respond to multiple priorities expressed by vulnerable populations in the National Adaptation Programme of Action (NAPA), including increasing rice yield, disaster management, water management and health. The project activities were organized under three main components. **Component 1** activities respond to climate variability and climate change by integrating climate information into agricultural decision-making tools and by enabling the selection of an Integrated Climate-Resilient Rice Model (MIRR), a set of best practices that will be implemented at local level through the other project components. **Component 2**, which comprises the bulk of the project, is based on the outputs of

Component 1 (MIRR), and on existing scientific and technical knowledge; this component aims to put in practice a set of changes to the rice cultivation cycle. **Component 3** will support the creation of mechanisms to capture lessons learned and to ensure that technical successes achieved in promoting resilience are replicable at the regional and national level. Table 2 below presents a summary of the planned Outputs and expected Outcomes under each component, as revised by the project Baseline study conducted in 2013.

Table 2. Summary of project components, outputs and outcomes

Planned Outputs	Expected Outcomes
Component 1: Scientific and technical capacity	
Output 1.1.1. Best Available Technologies and Integrated Resilient Rice Model (MIRR) selected and publicized	1.1. Knowledge base on best practices for climate resilience in rice, based on existing local knowledge and international research
Output 1.2.1. Crop models are available for rice vulnerability mapping Output 1.2.2. Updated, dynamic agricultural calendars and climate early warnings taking into account current and projected variability disseminated to local population Output 1.2.3. Agricultural extension staff trained on climate risk management in an agro–ecosystem context	1.2. Malagasy government, research institutions and local communities have the tools and methods to assess, monitor, and understand climate change impacts on rice.
Component 2: Adapted and resilient rice production cycle	
2.1.1 Climate resilient rice varieties selected through participatory field testing 2.1.2 An operational multiplication and dissemination scheme for adapted seed varieties 2.1.3 Updated fertilisation guidelines according to best available standards and taking climate conditions into consideration 2.1.4 Integrated pest management is implemented 2.1.5 Water efficiency, management and conservation technologies and infrastructures are implemented	2.1 Sustainable increase in rice yields (using MIRR)
2.2.1 Best available land preparation, production and harvesting techniques disseminated to reduce deforestation, maintain soil fertility and integrity, and to provide adequate growing conditions 2.2.2 Watershed rehabilitation in productive landscapes introduced, including through reforestation and adaptation of agroforestry practices 2.2.3 Soil conservation and livestock management techniques adapted to topography and landscape in light of future climate conditions	2.2 Ecosystem services maintained

Planned Outputs	Expected Outcomes
2.2.4 Revitalization of producer's cooperatives and water user associations for collaborative natural resources allocations (e.g. land and water) and management	
2.3.1 Increased utilization of rice by-product especially rice straw 2.3.2 Post-harvest storage facilities with phytosanitary control, serving as trading points and markets	2.3 Post Harvest losses reduced
Component 3: Leveraging policy change	
3.1.1 Gaps and possible maladaptations in the current rice policy are identified and recommendations on rice policy reform are made	3.1 Technical norms and standards in rice cultivation reviewed and where necessary modified to take climate change into account
3.2.1 A report on best practices and lessons learned for rice adaptation in Madagascar	3.2 Conditions in place for a full adaptation of the rice sub-sector

Executing Arrangements

This project is funded by the Adaptation Fund and is executed by the Ministry of Environment and Sustainable Development (MESD) in partnership with the Ministry of Agriculture, Livestock and Fisheries, and implemented by UNEP, in close cooperation with other stakeholders. The Adaptation Fund is supervised and managed by the Adaptation Fund Board (AFB) which consists of representatives of governments. The AF works with national, regional and multilateral Implementing Entities accredited by the AF Board to receive funds to develop and implement adaptation projects.

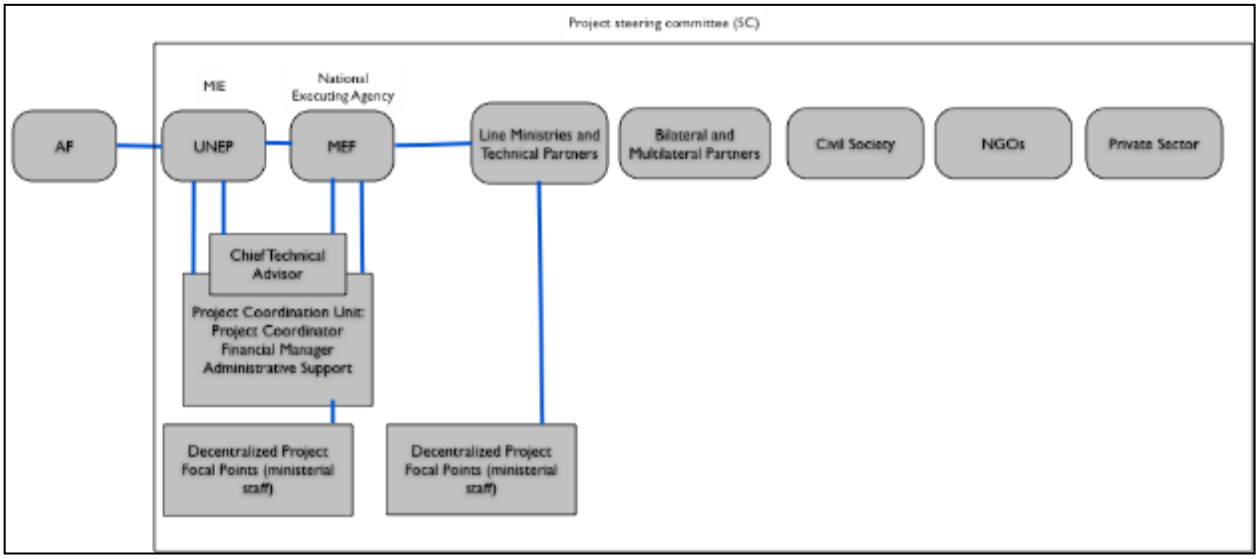
UN Environment is the **Multilateral Implementing Entity** (MIE) for the Madagascar AF project and was mandated with overseeing the project and providing technical backstopping, as well as taking overall legal and financial responsibility for ensuring project delivery and quality of outputs. More specifically, UNEP was responsible for i) overall coordination and management; ii) oversight and management of project development and project implementation, to ensure that the project meets its objectives and achieves expected outcomes in an efficient and effective manner; iii) financial management, including accounting, treasury, grant and trust fund; iv) information management and reporting on project progress to the AF Board secretariat; and v) quality assurance.

UN Environment was to enter into a contractual agreement with the lead **National Executing Partner**, the Malagasy Ministry of Environment and Sustainable Development (MESD) (at the time Ministry of Environment and Forests (MEF)). The National Office for Climate Change Coordination (BNCCC) at MESD supervises and coordinates all projects related to climate change adaptation. The BNCCC housed the **Project Coordination Unit** (PCU), which was to hold the responsibility for day to day administration of project operations, monitoring and coordination of the Steering Committee. The PCU was also responsible for financial management and disbursements, with accountability to the government and UNEP. The PCU was to consist of a Project Coordinator, a Financial Manager and an administrative officer. Specific project activities were to be delivered through sub-contracts with participating institutions.

A **Chief Technical Advisor** (CTA) was to provide technical guidance and support the PCU in the implementation of the project throughout the project duration. The CTA was accountable to UNEP and the MESD.

A **Project Steering Committee** (PSC) was to supervise the project implementation, with participation from all major stakeholders. Any problems encountered were to be discussed during regular meetings (every 6 months, with additional meetings when necessary). The PSC was to approve annual work plans, budgets and procurement plans, and review periodical project reports. Technical Partners and other projects were also to be included in the PSC, to include: World Bank, UNDP, IFAD, JICA, FAO, IRRI, World Vegetable Center, Plateforme du Riz, Observatoire du Riz.

Fig. 1. Project management chart



Project Cost and Financing

The project falls under the Full-size Project (FSP) category, with an overall budget of US$ 4,705,000 obtained from the Adaptation Fund. Table 3 below shows the estimated project budget and sources of funding as per the project design documentation.

Table 3. Planned project budget at design

Project Components	Amount (US$)
1. Scientific and Technical Capacity	803,000
2. Adapted and resilient rice production cycle 2.a - input management 2.b –production management 2.c– harvest management	3,310,000
3. Leveraging policy change	*200,000*
4. Monitoring and Evaluation (see the M&E table under part III.C)	132,000
5. Project/Programme Execution cost (see Execution costs under Part III.A)	260,000
Total Project/Programme Cost (Total of 1 to 5)	**4,705,000**

Implementation Issues

A mid-term review (MTR) was undertaken in 2015 (final report dated February 2016). According to its findings, the progress of the project during the first two years was mainly limited to the development of the Integrated Resilient Rice Model (MIRR) which resulted in low progress toward achievement of the targets (20%), and a similar percentage of the total budget spent after three years of implementation out of five. Factors affecting progress rate included: i) operational difficulties in the Project Coordination Team (PCT) in the first two years; ii) limited coordination between government institutions on project implementation; iii) frequent changes in local government representatives; and iv) delays in procurement processes including difficulties in recruiting appropriate/efficient consultants. To remedy the situation, several recommendations were proposed by the MTR; these mainly revolved around the following themes: i) increasing efficiency in project coordination and financial management; (ii) enhancing the implementation and sustainability of the MIRR interventions in the field; (iii) improving the implementation of long-term community-based management of the reforestation interventions; and (iv) prioritization and development of a sustainability plan.

The latest Project Progress Report (PPR October 2018) brings attention to significant difficulties that were encountered during project implementation. Among these was the sub-optimal technical capacity of some of the service providers, including government institutions, whose services were relied upon to deliver on programmed activities and planned project Outputs. In an effort to adapt to these difficulties, the PPR indicates that project management made changes in their delivery strategies and mechanisms on an ongoing basis. Activities were also added to promote the sustainability of the project, such as the development of a Communication Strategy, the certification of seed producers, a socio-economic analysis of the sustainability of project interventions, and awareness raising on bushfires to increase the sustainability of the reforestation interventions. Further changes were undertaken in 2018 with the development of a replication and upscaling strategy in two other major rice producing regions in Madagascar (Itasy and Vakinankaratra). A contract with a local radio was also signed to broadcast as many radio talks on the MIRR as possible until the end of the project.

With regard to gender equality and human rights, the project did not initially monitor these aspects systematically. Since 2017, gender considerations were integrated into the training and awareness raising interventions. The PPR 2018 reports that women's participation has been good and dynamic in each of the project interventions e.g. the identification of women as champions for the implementation of the farmer field schools under the upscaling strategy.

Section 2. OBJECTIVE AND SCOPE OF THE EVALUATION

iii) Key Evaluation Principles

Evaluation findings and judgements should be based on **sound evidence and analysis**, clearly documented in the evaluation report. Information will be triangulated (i.e. verified from different sources) as far as possible, and when verification is not possible, the single source will be mentioned (whilst anonymity is still protected). Analysis leading to evaluative judgements should always be clearly spelled out.

The "Why?" Question. As this is a terminal evaluation and similar interventions are envisaged for the future, particular attention should be given to learning from the experience. Therefore, the "*Why?*" question should be at the front of the consultant's mind all through the evaluation exercise and is supported by the use of a theory of change approach. This means that the consultant needs to go beyond the assessment of "*what*" the project performance was, and make a serious effort to provide a deeper understanding of "*why*" the performance was as it was. This should provide the basis for the lessons that can be drawn from the project.

Baselines and counterfactuals. In attempting to attribute any outcomes and impacts to the project intervention, the evaluator should consider the difference between *what has happened with, and what would have happened without the project*. This implies that there should be consideration of the baseline conditions, trends and counterfactuals in relation to the intended project outcomes and impacts. It also means that there should be plausible evidence to attribute such outcomes and impacts to the actions of the project. Sometimes, adequate information on baseline conditions, trends or counterfactuals is lacking. In such cases this should be clearly highlighted by the evaluator, along with any simplifying assumptions that were taken to enable the evaluator to make informed judgements about project performance.

Communicating evaluation results. A key aim of the evaluation is to encourage reflection and learning by UN Environment staff and key project stakeholders. The consultant should consider how reflection and learning can be promoted, both through the evaluation process and in the communication of evaluation findings and key lessons. Clear and concise writing is required on all evaluation deliverables. Draft and final versions of the main evaluation report will be shared with key stakeholders by the Evaluation Manager. There may, however, be several intended audiences, each with different interests and needs regarding the report. The Evaluation Manager will plan with the consultant which audiences to target and the easiest and clearest way to communicate the key evaluation findings and lessons to them. This may include some or all of the following; a webinar, conference calls with relevant stakeholders, the preparation of an evaluation brief or interactive presentation.

iv) Objective of the Evaluation

In line with the UN Environment Evaluation Policy[59] and the UN Environment Programme Manual[60], the Terminal Evaluation (TE) is undertaken at completion of the project to assess project performance (in terms of relevance, effectiveness and efficiency), and determine outcomes and impacts (actual and potential) stemming from the project, including their sustainability. The evaluation has two primary purposes: (i) to provide evidence of results to meet accountability requirements, and (ii) to promote operational improvement, learning and knowledge sharing through results and lessons learned among UN Environment and the main project partners (Malagasy Ministry of Environment and Sustainable Development (MESD), its National Office for Climate Change Coordination (BNCCC), Ministry of Agriculture, Livestock and Fisheries (MinAgri), participating government institutions, NGOs, research institutions (particularly CALA and FOFIFA), local organizations, and technical partners: World Bank, UNDP, IFAD, JICA, FAO, IRRI, World Vegetable Center, Plateforme du Riz, Observatoire du Riz) Therefore, the evaluation will identify lessons of operational relevance for future project formulation and implementation.

v) Key Strategic Questions

In addition to the evaluation criteria outlined in Section 10 below, the evaluation will address the **strategic questions** listed below. These are questions of interest to UN Environment and to which the project is believed to be able to make a substantive contribution:

To what degree of success has the project been able to increase population buy-in on project activities through efforts in supporting local groups to take full autonomy to enable them benefit from the interventions beyond the project lifespan?

Following an independent assessment, what does the evaluation find to be the most important aspects and possible gaps of the project's sustainability strategy?

[59] *http://www.unep.org/eou/StandardsPolicyandPractices/UNEPEvaluationPolicy/tabid/3050/language/en-US/Default.aspx*
[60] *http://www.unep.org/QAS/Documents/UNEP_Programme_Manual_May_2013.pdf . This manual is under revision.*

Following an independent assessment, what does the evaluation find to be the main strengths, weaknesses and/or risk factors in the upscaling and replication strategy that was adopted by the project for the uptake of the Integrated Resilient Rice Model (MIRR) as a sustainable approach to increasing rice yields in a changing climate?

What opportunities has the evaluation identified to further improve the integration of gender considerations in the implementation of activities post-project, and with what foreseeable benefit to the sustainability of results post-project?

Overall, to what extent has the project succeeded in strengthening the Malagasy scientific and technical capacities for the implementation of concrete and targeted changes in the rice sector to improve its resilience to climate change, based on best available technologies and practices?

vi) Evaluation Criteria

All evaluation criteria will be rated on a six-point scale. Sections A-I below outline the scope of the criteria and a link to a table for recording the ratings is provided in Annex 1. A weightings table will be provided in excel format (link provided in Annex 1) to support the determination of an overall project rating. The set of evaluation criteria are grouped in nine categories: (A) Strategic Relevance; (B) Quality of Project Design; (C) Nature of External Context; (D) Effectiveness, which comprises assessments of the delivery of outputs, achievement of outcomes and likelihood of impact; (E) Financial Management; (F) Efficiency; (G) Monitoring and Reporting; (H) Sustainability; and (I) Factors Affecting Project Performance. The evaluation consultant can propose other evaluation criteria as deemed appropriate.

A. Strategic Relevance

The evaluation will assess, in line with the OECD/DAC definition of relevance, *'the extent to which the activity is suited to the priorities and policies of the target group, recipient and donor'.* The evaluation will include an assessment of the project's relevance in relation to UN Environment's mandate and its alignment with UN Environment's policies and strategies at the time of project approval. Under strategic relevance an assessment of the complementarity of the project with other interventions addressing the needs of the same target groups will be made. This criterion comprises four elements:

i. *Alignment to the UN Environment Medium Term Strategy[61] (MTS) and Programme of Work (POW)*

The evaluation should assess the project's alignment with the MTS and POW under which the project was approved and include, in its narrative, reflections on the scale and scope of any contributions made to the planned results reflected in the relevant MTS and POW.

ii. *Alignment to UN Environment / Donor/Adaptation Fund Strategic Priorities*

Donor, including Adaptation Fund, strategic priorities will vary across interventions. UN Environment strategic priorities include the Bali Strategic Plan for Technology Support and Capacity Building62 (BSP) and South-South Cooperation (S-SC). The BSP relates to the capacity of governments to: comply with international agreements and obligations at the national level; promote, facilitate and finance environmentally sound technologies and to strengthen frameworks for developing coherent international environmental policies. S-SC is regarded as the exchange of resources, technology and knowledge between developing countries.

iii. *Relevance to Regional, Sub-regional and National Environmental Priorities*

[61] *UN Environment's Medium Term Strategy (MTS) is a document that guides UN Environment's programme planning over a four-year period. It identifies UN Environment's thematic priorities, known as Sub-programmes (SP), and sets out the desired outcomes, known as Expected Accomplishments (EAs), of the Sub-programmes.*

[62] http://www.unep.org/GC/GC23/documents/GC23-6-add-1.pdf

The evaluation will assess the extent to which the intervention is suited, or responding, to the stated environmental concerns and needs of the countries, sub-regions or regions where it is being implemented. Examples may include: national or sub-national development plans, poverty reduction strategies, Nationally Determined Contributions (NDCs) to the UNFCCC, climate change strategies, National Adaptation Programmes of Action (NAPAs), sectoral adaptation strategies, or regional agreements etc.

iv. *Complementarity with Existing Interventions*

An assessment will be made of how well the project, either at design stage or during the project mobilization, took account of ongoing and planned initiatives (under the same sub-programme, other UN Environment sub-programmes, or being implemented by other agencies) that address similar needs of the same target groups. The evaluation will consider if the project team, in collaboration with Regional Offices and Sub-Programme Coordinators, made efforts to ensure their own intervention was complementary to other interventions, optimized any synergies and avoided duplication of effort. Examples may include UN Development Assistance Frameworks or One UN programming. Linkages with other interventions should be described and instances where UN Environment's comparative advantage has been particularly well applied should be highlighted.

Factors affecting this criterion may include:

- Stakeholders' participation and cooperation
- Responsiveness to human rights and gender equity
- Country ownership and driven-ness

B. Quality of Project Design

The quality of project design is assessed using an agreed template during the evaluation inception phase, ratings are attributed to identified criteria and an overall Project Design Quality rating is established (www.unep.org/evaluation). This overall Project Design Quality rating is entered in the final evaluation ratings table as item B. In the Main Evaluation Report a summary of the project's strengths and weaknesses at design stage is included, while the complete Project Design Quality template is annexed in the Inception Report.

Factors affecting this criterion may include (at the design stage):

- Stakeholders participation and cooperation
- Responsiveness to human rights and gender equity

C. Nature of External Context

At evaluation inception stage a rating is established for the project's external operating context (considering the prevalence of conflict, natural disasters and political upheaval). This rating is entered in the final evaluation ratings table as item C. Where a project has been rated as facing either an Unfavourable or Highly Unfavourable external operating context, and/or a negative external event has occurred during project implementation, the ratings for Effectiveness, Efficiency and/or Sustainability may be increased at the discretion of the Evaluation Consultant and Evaluation Manager together. A justification for such an increase must be given.

D. Effectiveness

i. Delivery of Outputs

The evaluation will assess the project's success in producing the programmed outputs *(products, capital goods and services resulting from the intervention)* and achieving milestones as per the project design

document (ProDoc). Any *formal* modifications/revisions made during project implementation will be considered part of the project design. Where the project outputs are inappropriately or inaccurately stated in the ProDoc, reformulations may be necessary in the reconstruction of the TOC. In such cases a table should be provided showing the original and the reformulation of the outputs for transparency. The delivery of outputs will be assessed in terms of both quantity and quality, and the assessment will consider their ownership by, and usefulness to, intended beneficiaries and the timeliness of their delivery. The evaluation will briefly explain the reasons behind the success or shortcomings of the project in delivering its programmed outputs and meeting expected quality standards.

Factors affecting this criterion may include:

- Preparation and readiness
- Quality of project management and supervision[63]

ii. Achievement of Direct Outcomes

The achievement of direct outcomes (short and medium-term effects of the intervention's outputs; a change of behaviour resulting from the use/application of outputs, which is not under the direct control of the intervention's direct actors) is assessed as performance against the direct outcomes as defined in the reconstructed[64] Theory of Change. These are the first-level outcomes expected to be achieved as an immediate result of project outputs. As in (i), above, a table can be used where substantive amendments to the formulation of direct outcomes is necessary. The evaluation should report evidence of attribution between UN Environment's intervention and the direct outcomes. In cases of normative work or where several actors are collaborating to achieve common outcomes, evidence of the nature and magnitude of UN Environment's 'substantive contribution' should be included and/or 'credible association' established between project efforts and the direct outcomes realised.

Factors affecting this criterion may include:

- Quality of project management and supervision
- Stakeholders' participation and cooperation
- Responsiveness to human rights and gender equity
- Communication and public awareness

iii. Likelihood of Impact

Based on the articulation of longer term effects in the reconstructed TOC *(i.e. from direct outcomes, via intermediate states, to impact),* the evaluation will assess the likelihood of the intended, positive impacts becoming a reality. Project objectives or goals should be incorporated in the TOC, possibly as intermediate states or long term impacts. The Evaluation Office's approach to the use of TOC in project evaluations is outlined in a guidance note available on the Evaluation Office website,

[63] In some cases 'project management and supervision' will refer to the supervision and guidance provided by UN Environment to implementing partners and national governments while in others, specifically for GEF funded projects, it will refer to the project management performance of the executing agency and the technical backstopping provided by UN Environment.

[64] *UN Environment staff are currently required to submit a Theory of Change with all submitted project designs. The level of 'reconstruction' needed during an evaluation will depend on the quality of this initial TOC, the time that has lapsed between project design and implementation (which may be related to securing and disbursing funds) and the level of any changes made to the project design. In the case of projects pre-dating 2013 the intervention logic is often represented in a logical framework and a TOC will need to be constructed in the inception stage of the evaluation.*

https://www.unenvironment.org/about-un-environment/evaluation and is supported by an excel-based flow chart, 'Likelihood of Impact Assessment Decision Tree'. Essentially the approach follows a 'likelihood tree' from direct outcomes to impacts, taking account of whether the assumptions and drivers identified in the reconstructed TOC held. Any unintended positive effects should also be identified and their causal linkages to the intended impact described.

The evaluation will also consider the likelihood that the intervention may lead, or contribute to, unintended negative effects. Some of these potential negative effects may have been identified in the project design as risks or as part of the analysis of Environmental, Social and Economic Safeguards.[65]

The evaluation will consider the extent to which the project has played a catalytic role or has promoted scaling up and/or replication[66] as part of its Theory of Change and as factors that are likely to contribute to longer term impact.

Ultimately UN Environment and all its partners aim to bring about benefits to the environment and human well-being. Few projects are likely to have impact statements that reflect such long-term or broad-based changes. However, the evaluation will assess the likelihood of the project to make a substantive contribution to the high-level changes represented by UN Environment's Expected Accomplishments, the Sustainable Development Goals[67] and/or the high level results prioritised by the funding partner.

Factors affecting this criterion may include:

- Quality of Project Management and Supervision (including adaptive management)
- Stakeholders' participation and cooperation
- Responsiveness to human rights and gender equity
- Country ownership and driven-ness
- Communication and public awareness

E. Financial Management

Financial management will be assessed under two themes: *completeness* of financial information and *communication* between financial and project management staff. The evaluation will establish the actual spend across the life of the project of funds secured from all donors. This expenditure will be reported, where possible, at output level and will be compared with the approved budget. The evaluation will assess the level of communication between the Project/Task Manager and the Fund Management Officer as it relates to the effective delivery of the planned project and the needs of a responsive, adaptive management approach. The evaluation will verify the application of proper financial management standards and adherence to UN Environment's financial management policies. Any financial management issues that have affected the timely delivery of the project or the quality of its performance will be highlighted.

Factors affecting this criterion may include:

- Preparation and readiness

[65] *Further information on Environmental, Social and Economic Safeguards (ESES) can be found at http://www.unep.org/about/eses*

[66] *Scaling up refers to approaches being adopted on a much larger scale, but in a very similar context. Scaling up is often the longer term objective of pilot initiatives. Replication refers to approaches being repeated or lessons being explicitly applied in new/different contexts e.g. other geographic areas, different target group etc. Effective replication typically requires some form of revision or adaptation to the new context. It is possible to replicate at either the same or a different scale.*

[67] *A list of relevant SDGs is available on the EO website www.unep.org/evaluation*

- Quality of project management and supervision

F. Efficiency

In keeping with the OECD/DAC definition of efficiency the evaluation will assess the extent to which the project delivered maximum results from the given resources. This will include an assessment of the cost-effectiveness and timeliness of project execution. Focussing on the translation of inputs into outputs, cost-effectiveness is the extent to which an intervention has achieved, or is expected to achieve, its results at the lowest possible cost. Timeliness refers to whether planned activities were delivered according to expected timeframes as well as whether events were sequenced efficiently. The evaluation will also assess to what extent any project extension could have been avoided through stronger project management and identify any negative impacts caused by project delays or extensions. The evaluation will describe any cost or time-saving measures put in place to maximise results within the secured budget and agreed project timeframe and consider whether the project was implemented in the most efficient way compared to alternative interventions or approaches.

The evaluation will give special attention to efforts by the project teams to make use of/build upon pre-existing institutions, agreements and partnerships, data sources, synergies and complementarities with other initiatives, programmes and projects etc. to increase project efficiency. The evaluation will also consider the extent to which the management of the project minimised UN Environment's environmental footprint.

The factors underpinning the need for any project extensions will also be explored and discussed. As management or project support costs cannot be increased in cases of 'no cost extensions', such extensions represent an increase in unstated costs to implementing parties.

Factors affecting this criterion may include:

- Preparation and readiness (e.g. timeliness)
- Quality of project management and supervision
- Stakeholders' participation and cooperation

G. Monitoring and Reporting

The evaluation will assess monitoring and reporting across three sub-categories: monitoring design and budgeting, monitoring implementation and project reporting.

i. Monitoring Design and Budgeting

Each project should be supported by a sound monitoring plan that is designed to track progress against SMART[68] indicators towards the delivery of the project's outputs and achievement of direct outcomes, including at a level disaggregated by gender, vulnerability or marginalisation. The evaluation will assess the quality of the design of the monitoring plan as well as the funds allocated for its implementation. The adequacy of resources for mid-term and terminal evaluation/review should be discussed if applicable.

ii. Monitoring of Project Implementation

The evaluation will assess whether the monitoring system was operational and facilitated the timely tracking of results and progress towards projects objectives throughout the project implementation period. This should include monitoring the representation and participation of disaggregated groups

[68] *SMART refers to indicators that are specific, measurable, assignable, realistic and time-specific.*

(including gendered, vulnerable and marginalised groups) in project activities. It will also consider how information generated by the monitoring system during project implementation was used to adapt and improve project execution, achievement of outcomes and ensure sustainability. The evaluation should confirm that funds allocated for monitoring were used to support this activity.

iii. Project Reporting

UN Environment has a centralised Project Information Management System (PIMS) in which project managers upload six-monthly status reports against agreed project milestones. This information will be provided to the Evaluation Consultant by the Evaluation Manager. Some projects have additional requirements to report regularly to funding partners, which will be supplied by the project team (e.g. the Project Implementation Reviews and Tracking Tool for GEF-funded projects, or the annual Project Performance Reports (PPRs) for AF-funded projects). The evaluation will assess the extent to which both UN Environment and donor reporting commitments have been fulfilled. Consideration will be given as to whether reporting has been carried out with respect to the effects of the initiative on disaggregated groups.

Factors affecting this criterion may include:

- Quality of project management and supervision
- Responsiveness to human rights and gender equity (e.g. disaggregated indicators and data)

H. Sustainability

Sustainability is understood as the probability of direct outcomes being maintained and developed after the close of the intervention. The evaluation will identify and assess the key conditions or factors that are likely to undermine or contribute to the persistence of achieved direct outcomes (ie. 'assumptions' and 'drivers'). Some factors of sustainability may be embedded in the project design and implementation approaches while others may be contextual circumstances or conditions that evolve over the life of the intervention. Where applicable, an assessment of bio-physical factors that may affect the sustainability of direct outcomes may also be included.

i. Socio-political Sustainability

The evaluation will assess the extent to which social or political factors support the continuation and further development of project direct outcomes. It will consider the level of ownership, interest and commitment among government and other stakeholders to take the project achievements forwards. In particular, the evaluation will consider whether individual capacity development efforts are likely to be sustained.

ii. Financial Sustainability

Some direct outcomes, once achieved, do not require further financial inputs, e.g. the adoption of a revised policy. However, in order to derive a benefit from this outcome, further management action may still be needed e.g. to undertake actions to enforce the policy. Other direct outcomes may be dependent on a continuous flow of action that needs to be resourced for them to be maintained, e.g. continuation of a new resource management approach. The evaluation will assess the extent to which project outcomes are dependent on future funding for the benefits they bring to be sustained. Secured future funding is only relevant to financial sustainability where the direct outcomes of a project have been extended into a future project phase. Even where future funding has been secured, the question still remains as to whether the project outcomes are financially sustainable.

iii. Institutional Sustainability

The evaluation will assess the extent to which the sustainability of project outcomes (especially those relating to policies and laws) is dependent on issues relating to institutional frameworks and governance. It will consider whether institutional achievements such as governance structures and processes, policies, sub-regional agreements, legal and accountability frameworks etc. are robust enough to continue delivering the benefits associated with the project outcomes after project closure. In particular, the evaluation will consider whether institutional capacity development efforts are likely to be sustained.

Factors affecting this criterion may include:

- Stakeholders' participation and cooperation
- Responsiveness to human rights and gender equity (e.g. where interventions are not inclusive, their sustainability may be undermined)
- Communication and public awareness
- Country ownership and driven-ness

I. Factors and Processes Affecting Project Performance

(These factors are rated in the ratings table, but are discussed within the Main Evaluation Report as cross-cutting themes as appropriate under the other evaluation criteria, above)

i. Preparation and Readiness

This criterion focuses on the inception or mobilisation stage of the project (ie. the time between project approval and first disbursement). The evaluation will assess whether appropriate measures were taken to either address weaknesses in the project design or respond to changes that took place between project approval, the securing of funds and project mobilisation. In particular, the evaluation will consider the nature and quality of engagement with stakeholder groups by the project team, the confirmation of partner capacity and development of partnership agreements as well as initial staffing and financing arrangements. *(Project preparation is included in the template for the assessment of Project Design Quality).*

ii. Quality of Project Management and Supervision

In some cases 'project management and supervision' will refer to the supervision and guidance provided by UN Environment to implementing partners and national governments while in others, specifically for GEF and AF funded projects, it will refer to the project management performance of the executing agency and the technical backstopping and supervision provided by UN Environment.

The evaluation will assess the effectiveness of project management with regard to: providing leadership towards achieving the planned outcomes; managing team structures; maintaining productive partner relationships (including Steering Groups etc.); communication and collaboration with UN Environment colleagues; risk management; use of problem-solving; project adaptation and overall project execution. Evidence of adaptive management should be highlighted.

iii. Stakeholder Participation and Cooperation

Here the term 'stakeholder' should be considered in a broad sense, encompassing all project partners, duty bearers with a role in delivering project outputs and target users of project outputs and any other collaborating agents external to UN Environment. The assessment will consider the quality and effectiveness of all forms of communication and consultation with stakeholders throughout the project life and the support given to maximise collaboration and coherence between various stakeholders, including sharing plans, pooling resources and exchanging learning and expertise. The inclusion and participation of all differentiated groups, including gender groups should be considered.

iv. Responsiveness to Human Rights and Gender Equity

The evaluation will ascertain to what extent the project has applied the UN Common Understanding on the human rights based approach (HRBA) and the UN Declaration on the Rights of Indigenous People. Within this human rights context the evaluation will assess to what extent the intervention adheres to UN Environment's Policy and Strategy for Gender Equality and the Environment.

In particular the evaluation will consider to what extent project design, implementation and monitoring have taken into consideration: (i) possible gender inequalities in access to, and the control over, natural resources; (ii) specific vulnerabilities of women and children to environmental degradation or disasters; and (iii) the role of women in mitigating or adapting to environmental changes and engaging in environmental protection and rehabilitation.

v. Country Ownership and Driven-ness

The evaluation will assess the quality and degree of engagement of government / public sector agencies in the project. While there is some overlap between Country Ownership and Institutional Sustainability, this criterion focuses primarily on the forward momentum of the intended projects results, ie. either a) moving forwards from outputs to direct outcomes or b) moving forward from direct outcomes towards intermediate states. The evaluation will consider the involvement not only of those directly involved in project execution and those participating in technical or leadership groups, but also those official representatives whose cooperation is needed for change to be embedded in their respective institutions and offices. This factor is concerned with the level of ownership generated by the project over outputs and outcomes and that is necessary for long term impact to be realised. This ownership should adequately represent the needs of interest of all gendered and marginalised groups.

vi. Communication and Public Awareness

The evaluation will assess the effectiveness of: a) communication of learning and experience sharing between project partners and interested groups arising from the project during its life and b) public awareness activities that were undertaken during the implementation of the project to influence attitudes or shape behaviour among wider communities and civil society at large. The evaluation should consider whether existing communication channels and networks were used effectively, including meeting the differentiated needs of gendered or marginalised groups, and whether any feedback channels were established. Where knowledge sharing platforms have been established under a project, the evaluation will comment on the sustainability of the communication channel under either socio-political, institutional or financial sustainability, as appropriate.

Section 3. EVALUATION APPROACH, METHODS AND DELIVERABLES

The Terminal Evaluation will be an in-depth evaluation using a participatory approach whereby key stakeholders are kept informed and consulted throughout the evaluation process. Both quantitative and qualitative evaluation methods will be used as appropriate to determine project achievements against the expected outputs, outcomes and impacts. It is highly recommended that the consultant maintains close communication with the project team and promotes information exchange throughout the evaluation implementation phase in order to increase their (and other stakeholders') ownership of the evaluation findings. Where applicable, the consultant should provide a geo-referenced map that demarcates the area covered by the project and, where possible, provide geo-referenced photographs of key intervention sites (e.g. sites of habitat rehabilitation and protection, water management infrastructure, etc.)

The findings of the evaluation will be based on the following:

(a) A **desk review** of:

Relevant background documentation (see https://www.adaptation-fund.org/project/madagascar-promoting-climate-resilience-in-the-rice-sector/)

Project design documents; Annual Work Plans and Budgets or equivalent, revisions to the project document, the logical framework and its budget;

Project reports such as Project Performance Report (PPR) and financial reports, progress reports from collaborating partners, mission reports, meeting minutes, relevant correspondence, etc.;

Project technical studies, reports and other outputs;

Mid-Term Review Report of the project;

(b) **Interviews** (individual or in group) with:

UN Environment Task Manager (TM);

Project coordination team;

Project Chief Technical Advisor (CTA)

UN Environment Fund Management Officer (FMO);

Project partners (local and international)

Other relevant resource persons.

Field visits - this will include field visits to selected demonstration sites

Other data collection tools as deemed valuable by the evaluator

vii) Evaluation Deliverables and Review Procedures

The evaluator will prepare:

- **Inception Report:** (see Annex 1 for links to all templates, tables and guidance notes) containing an assessment of project design quality, a draft reconstructed Theory of Change of the project, project stakeholder analysis, evaluation framework and a tentative evaluation schedule.
- **Preliminary Findings Note:** typically, in the form of a PowerPoint presentation, the sharing of preliminary findings is intended to support the participation of the project team, act as a means to ensure all information sources have been accessed and provide an opportunity to verify emerging findings.
- **Draft and Final Evaluation Report:** (see links in Annex 1) containing an executive summary that can act as a stand-alone document; detailed analysis of the evaluation findings organised by evaluation criteria and supported with evidence; lessons learned and recommendations and an annotated ratings table.
- **Evaluation Bulletin:** a 2-page summary of key evaluation findings for wider dissemination through the EOU website.

Review of the draft evaluation report. The evaluator will submit a draft report to the Evaluation Manager and revise the draft in response to their comments and suggestions. Once a draft of adequate quality has been peer-reviewed and accepted, the Evaluation Manager will share the cleared draft report with the UNEP Task Manager, who will alert the Evaluation Manager in case the report contains any blatant factual errors. The Evaluation Manager will then forward revised draft report (corrected by the evaluation team where necessary) to other project stakeholders, for their review and comments. Stakeholders may provide feedback on any errors of fact and may highlight the significance of such errors in any conclusions as

well as providing feedback on the proposed recommendations and lessons. Any comments or responses to draft reports will be sent to the Evaluation Manager for consolidation. The Evaluation Manager will provide all comments to the evaluation team for consideration in preparing the final report, along with guidance on areas of contradiction or issues requiring an institutional response.

Based on a careful review of the evidence collated by the evaluation consultant and the internal consistency of the report, the Evaluation Manager will provide an assessment of the ratings in the final evaluation report. Where there are differences of opinion between the evaluator and the Evaluation Manager on project ratings, both viewpoints will be clearly presented in the final report. The Evaluation Office ratings will be considered the final ratings for the project.

The Evaluation Manager will prepare a **quality assessment of the first and final drafts** of the main evaluation report, which acts as a tool for providing structured feedback to the evaluation consultant. The quality of the report will be assessed and rated against the criteria specified in template listed in Annex 1 and this assessment will be appended to the Final Evaluation Report.

At the end of the evaluation process, the Evaluation Office will prepare a **Recommendations Implementation Plan** in the format of a table, to be completed and updated at regular intervals by the Task Manager. The Evaluation Office will track compliance against this plan on a six-monthly basis.

viii) The Evaluation Consultant

For this evaluation, one consultant will work under the overall responsibility of the Evaluation Office represented by an Evaluation Manager (Pauline Marima), in consultation with the UN Environment Task Manager (Anna Kontorov), Fund Management Officer (Bwiza Wameyo-Odemba), and Coordinators of UN Environment's sub-programme on Climate Change (Niklas Hagelberg - global, Richard Munang – Africa Office). The consultant will liaise with the Evaluation Manager on any procedural and methodological matters related to the evaluation. It is, however, the consultant's individual responsibility to arrange for their travel, visa, obtain documentary evidence, plan meetings with stakeholders, organize online surveys, and any other logistical matters related to the assignment. The UN Environment Task Manager and project teams will, where possible, provide logistical support (formal introductions, meetings etc.) allowing the consultant to conduct the evaluation as efficiently and independently as possible.

The consultant will be hired the over the period **November 2019 to May 2020,** during which time the evaluation deliverables listed in Section 11 'Evaluation Deliverables' above should be submitted.

S/he should have: an advanced university degree, at least 7 years' experience in evaluation of programs and projects and working experience in the area of climate change adaptation. Knowledge of **English** and **French** languages, along with excellent writing skills in English are required. Experience in managing partnerships, knowledge management and communication is desirable for all evaluation consultants.

The consultant will be responsible, in close consultation with the Evaluation Office of UN Environment, for overall management of this evaluation and timely delivery of the outputs described in Section 11 'Evaluation Deliverables', above. The consultant will ensure that all evaluation criteria and questions are adequately covered. **Detailed guidelines for the Evaluation Consultant can be found on the Evaluation Office of UN Environment website:** (http://web.unep.org/evaluation/working-us/working-us).

Specific Responsibilities:

The Consultant will be responsible, in close consultation with the Evaluation Office of UN Environment, for overall management of the evaluation and timely delivery of its outputs, described in Section 11 Evaluation Deliverables, above. The consultant will ensure that all evaluation criteria and questions are adequately covered. S/he will be responsible for the evaluation design, data collection and analysis, and report-writing. More specifically:

Inception phase of the evaluation, including:

- preliminary desk review and introductory interviews with project staff;
- draft the reconstructed Theory of Change of the project;
- prepare the evaluation framework;
- develop the desk review, interview protocols, and data collection and analysis tools;
- plan the evaluation schedule;
- prepare the Inception Report, incorporating comments received from the Evaluation Office.

Data collection and analysis phase of the evaluation, including:

- conduct further desk review and in-depth interviews with project implementing and executing agencies, project partners and project stakeholders;
- conduct an evaluation mission to **Madagascar** to visit the project locations, and interview project partners and stakeholders. Ensure independence of the evaluation and confidentiality of evaluation interviews;
- regularly report back to the Evaluation Office on progress and inform of any possible problems or issues encountered; and
- keep the Project/Task Manager informed of the evaluation progress and engage the Project/Task Manager in discussions on emerging findings throughout the evaluation process.
- Present the preliminary findings post-mission

Reporting phase, including:

- draft the Main Evaluation Report, ensuring that the evaluation report is complete, coherent and consistent with the Evaluation Office guidelines both in substance and style;
- liaise with the Evaluation Office on comments received and finalize the Main Evaluation Report, ensuring that comments are taken into account
- prepare a Response to Comments annex for the main report, listing those comments not accepted by the Evaluation Consultant and indicating the reason for the rejection; and
- prepare a 2-page summary of the key evaluation findings and lessons;

Managing relations, including:

- maintain a positive relationship with evaluation stakeholders, ensuring that the evaluation process is as participatory as possible but at the same time maintains its independence;
- communicate in a timely manner with the Evaluation Office on any issues requiring its attention and intervention.

ix) Schedule of the evaluation

The table below presents the tentative schedule for the evaluation.

Table 4. Tentative schedule for the evaluation

Milestone	Tentative schedule*
Consultant recruitment process	September-October 2019
Kick-off meeting (via Skype)	November 2019

Milestone	Tentative schedule*
Inception Report	November 2019
Data collection and analysis, desk-based interviews and surveys	December 2019 – February 2020
Field Mission (based on meeting arrangements and available budget)	January 2020
Draft report to UN Environment (Evaluation Manager and Peer Reviewer)	February - March2020
Draft Report shared with UN Environment Task Manager and Project Team	March 2020
Draft Report shared with wider group of stakeholders	April 2020
Final Report	May 2020

*Allowances have been provided for incidental and unexpected delays

x) Contractual Arrangements

Evaluation Consultant will be selected and recruited by the Evaluation Office of UN Environment under an individual Special Service Agreement (SSA) on a **"fees only"** basis (see below). By signing the service contract with UN Environment/UNON, the consultant certifies that they have not been associated with the design and implementation of the project in any way which may jeopardize their independence and impartiality towards project achievements and project partner performance. In addition, they will not have any future interests (within six months after completion of the contract) with the project's executing or implementing units. All consultants are required to sign the Code of Conduct Agreement Form.

Fees will be paid on an instalment basis, paid on acceptance by the Evaluation Manager of expected key deliverables. The schedule of payment is as follows:

Table 5: Schedule of Payment for the consultant:

Deliverable	Percentage Payment
Approved Inception Report (document 9 in Annex 1)	30%
Approved Draft Main Evaluation Report (document 16 in Annex 1)	30%
Approved Final Main Evaluation Report	40%

Fees only contracts: Air tickets will be purchased by UN Environment and 75% of the DSA for each authorised travel mission will be paid up front. Local in-country travel will only be reimbursed where agreed in advance with the Evaluation Office and on the production of acceptable receipts. Terminal expenses and residual DSA entitlements (25%) will be paid after mission completion.

The consultant may be provided with access to UN Environment's Programme Information Management System (PIMS) and if such access is granted, the consultant agrees not to disclose information from that system to third parties beyond information required for, and included in, the evaluation report.

In case the consultant is not able to provide the deliverables in accordance with these guidelines, and in line with the expected quality standards by the UN Environment Evaluation Office, payment may be withheld at the discretion of the Director of the Evaluation Office until the consultant has improved the deliverables to meet UN Environment's quality standards.

If the consultant fails to submit a satisfactory final product to UN Environment in a timely manner, i.e. before the end date of their contract, the Evaluation Office reserves the right to employ additional human resources to finalize the report, and to reduce the consultant's fees by an amount equal to the additional costs borne by the Evaluation Office to bring the report up to standard.

Annex III. Evaluation matrix

Evaluation questions	Indicators	Information source	Data collection method
A. Strategic relevance			
1. To what extent was the project aligned with the UNEP Medium Term Strategy (MTS) and Programme of Work (POW), and the AF Strategic Priorities?	• Level of alignment between the project and the MTS, the POW and the AF's strategic priorities	• Prodoc and project planning documents • UNEP MTS, POW and AF strategic priorities • UNEP staff, local executing team	• Desk review • Interviews
2. To what extent did the project respond to the national and sub-national environmental needs and priorities?	• Level of alignment between the project and national or sub-national development plans, poverty reduction strategies, climate change strategies and other environmental agreements. • Level of alignment between the project and local needs and priorities • Level of complementarity between the project and other existing initiatives • Evidence of coordination between relevant ongoing initiatives	• Prodoc and project planning documents • National and sub-national development plans, poverty reduction strategies, climate change strategies, other environmental agreements • Government partners • UNEP staff • Local executing team	• Desk review • Interviews
3. To what extent did the project go beyond the business as usual development approach to embrace a strong adaptation rationale?	• What makes the project an adaptation project? • How is it different from development projects? • Does the project respond to current and future climate threats and impacts?	• Prodoc and project planning documents • National and sub-national development plans, poverty reduction strategies, climate change strategies, other environmental agreements • Government partners	• Desk review • Interviews • Field visit

Evaluation questions	Indicators	Information source	Data collection method
	• Does it address root causes of vulnerability? • Is climate change adaptation fully and systematically integrated into project activities?	• UNEP staff • Local executing team	
B. Effectiveness			
1. *Achievement of outputs:* was the project successful in delivering its outputs and achieving targets as per the prodoc?	• Number and type of outputs delivered against the logframe' s final targets • Timeliness of output delivery against the work plan • Quality of outputs delivered: level of alignment with plan and with needs • Durability of execution	• Project planning documents (annual work plans) • Progress reports and monitoring reports • UNEP staff • PCU • Local executing partners • Local stakeholders • Direct observation	• Desk review • Interviews • Field visit
2. *Achievement of direct outcomes:* Did the outputs contribute to the achievement of the project's outcomes?	• Number and extent of achievement of milestones toward meeting direct outcome indicators • Evidence of contribution of the project to direct outcomes	• Monitoring and reporting documents (quarterly and annual work plans) • PCU, UNEP Task Manager, and/or CTA • Local executing partners • Local stakeholders • Government stakeholders, technical staff • Direct observation • PSC minutes	• Desk review • Interviews • Field visit
3. *Likelihood of impact (where appropriate and feasible):* Did intended impacts	• Number and extent of achievement towards meeting impact/objective indicators	• Monitoring and reporting documents (quarterly and annual work plans) • PCU, UNEP Task Manager, and/or CTA	• Desk review • Interviews

Evaluation questions	Indicators	Information source	Data collection method
effectively materialise as a result of the project's outcomes? • Did the project generate adverse environmental, social and economic effects?	• Evidence and extent of barriers or enabling conditions toward achievement of impact indicators • Nature and likelihood of adverse environmental, social and economic effects from the project	• Local implementing partners • Local stakeholders • Government stakeholders • Technical staff • Direct observation • PSC minutes	• Field visit
C. Financial management			
1. Was the rate of disbursement consistent with the work plan, the length of implementation to date and the outputs delivered?	• Budget execution per year, component and output, against total budget	• Monitoring and reporting documents (annual reports) • UNEP Task Manager, Financial Officer and CTA • AF/UNEP reporting requirements	• Interviews • Desk review
2. Did the project comply with financial reporting and/or auditing requirements/ schedule, including quality and timeliness of reports?	• Proportion and types of financial reporting and/or auditing materials submitted a) correctly and b) on time • Quality of financial reporting/auditing materials	• Financial reporting/ auditing documents (quarterly, annual reports) • UNEP Task Manager, Financial Officer and CTA • AF/UNEP reporting requirements	• Interviews • Desk review
D. Efficiency			
1. To what extent were the outputs achieved in a cost-effective manner?	• Level of alignment between planned and incurred implementation costs and nature of divergences • Evidence of use of financially sound practices for project execution and management…	• Financial reporting/ auditing documents (quarterly, annual reports) • UNEP Task Manager and CTA	• Desk review • Interviews

Evaluation questions	Indicators	Information source	Data collection method
	• Quality and timeliness of procurement processes • Cost-effectiveness of human resources arrangements		
2. Did the timing and sequence of activities contribute to or hinder efficiency?	• Timing and sequence of outputs against work plan • Nature and total delays (in months) generated by implementation bottlenecks	• Project planning and reporting documents • Financial reporting/ auditing documents (quarterly, annual reports) for this project and for other similar projects • UNEP Task Manager and CTA	• Desk review • Interviews
3. How did the project enhance its cost- and time-effectiveness, esp. after the MTR? •	• Number and nature of measures implemented to enhance cost- and time-effectiveness • Likelihood and effect of factors likely to enhance or hinder efficiency	• Project planning and reporting documents • UNEP Task Manager and CTA	• Desk review • Interviews
E. Monitoring and Reporting			
1. *Monitoring design and implementation:* Was the monitoring plan well-conceived, and sufficient to monitor results and track progress toward achieving project outputs and direct outcomes?	• Use of SMART indicators • Existence and quality of: ○ Baseline assessment; ○ Performance measurement framework/ logframe; ○ Methodology; ○ Roles and responsibilities; ○ Budget and timeframe/ work plan	• Planning documents • Baseline report • Monitoring and reporting documents • PCU, UNEP Task Manager and CTA	• Desk review • Interviews

Evaluation questions	Indicators	Information source	Data collection method
2. *Monitoring design and implementation:* Was the monitoring plan operational and effective to track results and progress towards objectives?	• Proportion of executed monitoring budget against planned monitoring budget • Degree of adherence to timeline and work plan, and (if any) evidence of external factors affecting them • Evidence of collection of monitoring data from all relevant stakeholders • Coherence between types of reported results (activities, outputs) and actual activities and outputs on the ground • Difference between types of progress and activities reported by local stakeholders and the indicators used to assess results	• Planning documents • Planning meeting minutes/review procedures • Monitoring and reporting documents (annual reports) • PCU, UNEP Task Manager, and/or CTA • Direct observation	• Interviews • Desk review • Field visit
3. *Project reporting:* Did the project comply with the progress documentation and monitoring reporting requirements/ schedule, including quality and timeliness of reports?	• Types, number and quality of reporting materials submitted a) correctly and b) on time	• Monitoring and reporting documents (quarterly, PPRs, relevant prodoc sections) • UNEP Task Manager and CTA • AF/UNEP reporting requirements	• Interviews • Desk review
4. *Project reporting:* What (if any) corrective actions were taken in response to monitoring reports (such as PPRs)?	• Evidence of management response/changes in project strategy/approach as a direct result of information in PRRs	• PPRs • Workshops/Meeting minutes from technical group, steering committee, staff, stakeholders, including PSC • PCU, UNEP Task Manager, CTA	• Interviews • Desk review

Evaluation questions	Indicators	Information source	Data collection method
5. *Project reporting:* What (if any) corrective actions were taken in response to MTR recommendations? • Were these actions able to enhance delivery of the project's results?	• Evidence of management response/changes in project strategy/approach as a direct result of recommendations in MTR	• MTR • Workshops/Meeting minutes from technical group, steering committee, staff, stakeholders, including PSC • PCU, UNEP Task Manager, CTA	• Interviews • Desk review
F. Sustainability			
1. Did the project design and implement an appropriate exit strategy and measures to mitigate risks to sustainability?	• Existence and quality of a plan to manage financial, socio-economic, institutional, governance and environmental risks • Existence and quality of an exit strategy • Degree of coherence between actions taken during implementation to avert sustainability risks and prepare project exit, and intended plan	• Project planning documents • PCU, UNEP Task Manager, and/or CTA • Local implementation partners • Project monitoring and reporting docs/data (annual reports) • Government stakeholders, technical staff	• Interviews • Desk review • Field visit
2. What factors in place enabled or hindered the persistence of achieved direct outcomes?	• Number and type of organisational arrangements that support or hinder the continuation of project activities or results (private or public sector) • Type of political and social conditions affecting the sustainability of direct outcomes • Types and intensity of bio-physical conditions affecting the sustainability of direct outcomes	• Project planning documents • PCU, UNEP Task Manager, and/or CTA • Local implementation partners • Local stakeholders (workshop participants, community members, etc.) • Project monitoring and reporting docs/data (quarterly and annual reports) • Government stakeholders, technical staff	• Interviews • Desk review • Field visit

Evaluation questions	Indicators	Information source	Data collection method
	• Level of declared willingness among stakeholders to take the project achievements forward • Level of dependence of achievements on future funding for their sustainability and likely availability of such resources		
3. To what extent is replication or upscaling of project activities ongoing / likely?	• Existence and type of contextual factors supporting or hindering replication/upscaling • Examples of actions undertaken by the project to favour upscaling and replication • Evidence of monitoring on the upscaling actions	• Project planning documents • PCU, UNEP Task Manager, and/or CTA • Local implementation partners • Government stakeholders, technical staff	• Interviews • Desk review • Field visit
G. Factors affecting project performance			
1. *Preparation and readiness*: Did the project appropriately address any weaknesses in project design or any changes in the context or needs identified during the inception/ mobilisation stage of the project?	• Nature and extent of weaknesses and change needs identified during the inception/ mobilisation, with regards to: ○ institutional, socio-economic, environmental or political context ○ nature and quality of engagement with stakeholders ○ capacity or partners ○ development of partnership arrangements ○ staffing and financing arrangements	• Local implementing partners • Government stakeholders • PCU, UNEP Task Manager, and/or CTA • Workshop/planning meeting minutes and action items, including PSC	• Desk review • Interviews • Field visit

Evaluation questions	Indicators	Information source	Data collection method
	• Number, quality and timeliness of adjustments made • Extent of beneficiary needs integrated into project design (appropriateness of strategies chosen, site selection, degree of vulnerability of targeted HHs, etc.)		
2. *Quality of project implementation and execution:* Did the MIE and EE, respectively, placed sufficient focus on: a. achieving project outcomes? b. supervision?	• Use of RBM tools, evidence of regular reporting by EE • Perceptions of quality of supervision of MIE and EE, PCU and PSC respectively • Difference in actual and planned timetable for project execution of activities	• Local implementing partners • Government stakeholders • Project team members • PCU, UNEP Task Manager, and CTA • Reporting documents • PSC and minutes	• Desk review • Interviews • Field visit
3. *Quality of project implementation and execution:* Did the MIE management team and EE project team, respectively, provide quality and timely project management and backstopping?	• Perceived leadership of MIE and EE towards achieving project outcomes • Perceived effectiveness of MIE and EE in managing team structures and maintaining productive partner relationships, communication and collaboration • Extent of use of risk management tools by MIE and EE, respectively • Perceived effectiveness of problem-solving methods • Perceived timeliness and quality of MIE management response to EE project team members' inquiries, needs	• Local implementing partners • Government stakeholders • Project team members • PCU, UNEP Task Manager, and CTA • Reporting documents • PSC and minutes	• Desk review • Interviews • Field visit

Evaluation questions	Indicators	Information source	Data collection method
	• PSC and other stakeholder perceptions of quality of PCU and oversight by MIE • EE and other stakeholder perceptions of technical inputs and feedback from MIE and CTA • Evidence of re-adjustment of project strategy in response to internal reviews, management findings and MTR		
4. *Stakeholder participation and cooperation*: Were the stakeholder communication and consultation mechanisms effective and inclusive of differentiated groups?	• Number and type of stakeholder engagement activities at each stage of the project • Evidence of participation from a representative range of stakeholder groups, including differentiated groups • Proportion of male/female implementing partners, and participants of workshops, trainings or knowledge exchange • Evidence that issues and feedback provided by stakeholders were taken into consideration in project implementation or *Extent of beneficiary needs integrated into project design (appropriateness of strategies chosen, site selection, degree of vulnerability of targeted HHs, etc.)*	• Workshop/planning meeting minutes and action items, including PSC • Local implementing partners • Community members, groups • Government stakeholders, technical staff • Other local stakeholder groups (non-government) • PCU, UNEP Task Manager, and/or CTA	• Desk review • Interviews • Field visit
5. *Stakeholder participation and cooperation*: To what extent were effective partnerships arrangements established	• Number and types of partnerships developed between project and local bodies/organisations	• Meetings/workshop minutes (steering committee) • Government partners and technical staff • Local implementing partners	• Desk review • Interviews • Field visit

Evaluation questions	Indicators	Information source	Data collection method
for implementation of the project with relevant stakeholders involved in the country/region?	• Extent and quality of interaction/ exchange between project implementers and local partners	• Communities/ potential beneficiaries • PCU, UNEP Task Manager, and/or CTA • PSC and minutes	
6. *Responsiveness to human rights and gender equity*: To what extent did the project apply the UN Human rights-based approach, the UN Declaration on the rights of Indigenous People and UNEP's Policy and Strategy for gender Equality and the Environment?	• Level of alignment between project design and implementation and the UN HRBA, the UN DRIP and UNEP Policy and Strategy for gender Equality and the Environment	• Planning documents • Monitoring and reporting documents • PCU, UNEP Task Manager and/or CTA	• Desk review • Interviews • Field visit
7. *Responsiveness to human rights and gender equity*: To what extent did the project design, implementation and monitoring take into account gender inequalities and differentiation?	• Number and quality of measures in project design, implementation and monitoring, respectively, that address: ○ possible gender inequalities in access to and control over natural resources; ○ specific inequalities in access to and control over natural resources; ○ the role of women in mitigating or adapting to environmental changes, and engaging in environmental protection and rehabilitation	• Planning documents • Monitoring and reporting documents • PCU, UNEP Task Manager and/or CTA • Local communities • Local implementing partners	• Desk review • Interviews • Field visit
8. *Country ownership and driven-ness*: was the level	• Number and types of representatives from government and public sector	• Government partners	• Desk review

Evaluation questions	Indicators	Information source	Data collection method
of involvement of government/ public sector officials sufficient to ensure ownership over project outputs and outcomes and representation of all gender and marginalised groups?	agencies present at workshops and involved in implementation (including PSC) • Number and types of regulations, policies or other government initiatives (existing, newly enacted, or changed) that support project outputs and outcomes • Proportion of a) representatives; b) government initiatives that represent the needs and interests of gender and marginalized groups. • Level of mainstreaming of MIRR into national policies and strategies	• Local implementing partners • Project monitoring and reporting information (workshop summaries, attendance lists, action items etc.) • PCU and PSC	• Interviews • Field visit
9. *Communication and public awareness*: Did the project effectively communicate lessons and experience with project partners and interested groups?	• Number and quality of knowledge sharing mechanisms with project partners and interested groups • Perceived awareness by partners and interested groups about project lessons, including by gender and marginalized groups • Evidence of existence and use of feedback channels by partners and interested groups	• Government partners • Local implementing partners • Project monitoring and reporting information (workshop summaries, attendance lists, action items etc.) • PCU and PSC	• Desk review • Interviews • Field visit
10. *Communication and public awareness*: Did the project implement appropriate outreach and public awareness campaigns?	• Number and quality of public awareness activities undertaken • Number and type of public reached	• Local implementing partners • Community members, groups • Government stakeholders, technical staff	• Desk review • Interviews • Field visit

Evaluation questions	Indicators	Information source	Data collection method
	• Changes in public awareness as a result of outreach/ communication by project	• Other local stakeholder groups (non-government) • PCU, UNEP Task Manager, and/or CTA • Workshop/planning meeting minutes and action items, including PSC	

Annex IV. Evaluation itinerary, containing the names of locations visited and the names (or functions) of people met/interviewed

Date	Time	Place	Activities	Stakeholders interviewed
16/02/20	11 pm	Antananarivo	Arrival of evaluator	
17/02/20	8 am – 5 pm	Antananarivo	Interviews	• PCU • M. C.A. RAZAFINDRAKOTO, compost expert • M. M.C RANAIVO, MEDD, Financial & Administrative Director
18/02/20	9 am – 5 pm	Antananarivo	Interviews	• Ms MAHARITRA, TV journalist • Ms MINO, MAEP, Office of climate change & environment; member of the PSC • Ms L. RAVELOMANANA, MEDD, Director of BNCCC-REDD+, national director of AF Rice • M. M. MANESIMANA, national coordinator of PAZC project
19/02/20	9 am – 5 pm	Antananarivo	Interviews	• Dr J. RAKOTOARISOA, FOFIFA, Scientific Director • Dr R. RABESON, FOFIFA, Chief of Staff, Department of Research on Rice Culture • Dr H. RATOVO, FOFIFA, market study expert • C. RAZAFINDRAKOTO, CALA • N. RAHOLIJAO, Ministry of Transport, Tourism and Meteorology, National Direction of Meteorology, Director • M. RASANDIMALA, Ministry of Transport, Tourism and

Date	Time	Place	Activities	Stakeholders interviewed
				Meteorology, National Direction of Meteorology, focal point for AF Rice
20/02/20	9 am – 5 pm	Domestic travel	Travel to Alaotra-Mangoro region (Ambatondrazaka)	
21/02/20	9 am – 12 pm	Ambatondrazaka	Interviews	• Chief of Inter-Collectivity Development • H. RANDRIAMPENO, Regional Director of Agriculture, Livestock and Fisheries • Chief of Staff for Environment, Regional Direction for Environment and Sustainable Development
	12 am – 5 pm	Manakambahiny	Interviews & site visits (water infrastructures, storage facilities, compost site)	• Mayor • Water Users Associations • Storage facility association • Beneficiaries
22/02/20	8 am –9.30 pm	Ambatondrazaka	Interviews	• Regional TV & radio • NGO Tanimaitso
	9.30 am – 5 pm	Manakambahiny	Interviews & site visits (water infrastructures, reforestation sites, women's cooperative)	• Water Users Association • Women's cooperative
23/02/20	7.45 am – 4 pm	Domestic travel	Travel to Andilamena	
24/02/20	7 am – 2.30 pm	Bemaitso	Interviews & site visits (water infrastructures, storage facility, reforestation sites, meteorological station,	• Mayor • Water Users Association • Beneficiaries • Storage facility association

Date	Time	Place	Activities	Stakeholders interviewed
			agroforestry demonstration site)	
	2.30 pm – 5 pm	Domestic travel	Travel to Tanambe	
25/02/20	6.30 am –2 pm	Ambohijanahary	Interviews & site visits (water infrastructures, storage facility, reforestation sites, meteorological station, compost site)	• Deputy Mayor • Water Users Association • Beneficiaries • Storage facility association • Nursery manager
	2 pm – 5 pm	Domestic travel	Travel to Ambatondrazaka	
26/02/20	8.45 am – 5.30 pm	Domestic travel	Travel to Antananarivo	
27/02/20	8 am – 6 pm	Antananarivo	Preparation of presentation on preliminary results & report drafting	
28/02/20	9 am – 12 am	Antananarivo	Presentation & discussion of preliminary results with PCU	
29/02/20	1.45 am	Antananarivo	Departure of the evaluator	

Annex V. Evaluation brief

"Promoting Climate Resilience in the Rice Sector through Pilot Investments in Alaotra-Mangoro Region" Results and lessons learned

About the project

The project "Promoting Climate Resilience in the Rice Sector through Pilot Investments in Alaotra-Mangoro Region", also known as AF Rice, was implemented from October 2012 to June 2019. It was a UNEP-implemented project (overseen by the Ecosystem Division, Climate Change Adaptation Unit) funded by the Adaptation Fund (AF) and executed by the National Office for the Coordination of Climate Change (BNCCC-REDD+) of the Ministry of Environment and Sustainable Development (MEDD). The budget for this project was USD 5,104,925. The project's overall objective was to "demonstrate pathways towards the transformation of the rice sub-sector to make it more resilient to current climate variability as well as expected climate change and associated hazards, through implementation of pilot investments in the Alaotra-Mangoro region that have the potential for being upscaled at national level". Three sites across the Lake Alaotra-Mangoro region were targeted through the AF Rice project. This region was identified as being amongst the highest rice-producing regions in the country, but also the most vulnerable to climate variability and climate change.

The project was extremely relevant to the national context of Madagascar, regional context of Alaotra-Mangoro and local contexts of the target communes. Indeed, Madagascar is dependent on a single crop that constitutes its staple food, and which is particularly vulnerable to the impacts of climate change. In addition, and despite the importance of rice for both its economy and food security, Madagascar needs to import 10% of its domestic consumption. This is because of limited yields of domestic rice culture – yields that are at risk of decreasing further because of the current and future impacts of climate change. This has led the rice sector to be ranked among the top adaptation priorities of Madagascar. The project was also fully aligned with UNEP's Medium-Term Strategy and Programme of Work.

Performance

A key achievement is the successful development of a holistic intervention strategy, encompassing the agricultural, environmental and institutional factors of climate resilience. The Integrated Rice Resilience Model (MIRR, for its acronym in French) incorporates the use of improved, short-cycle rice varieties which are more resilient to erratic rainfall and temperature conditions, and can be harvested up to three times during one season. AF Rice achieved strong results in this respect, with average yields multiplied by 2.5 to 3 among targeted farmers. Other livelihood options were also introduced, such as agroforestry and seed producing. Overall, positive results were achieved in the agricultural and income-generating components of the project, proving the validity of the MIRR at a pilot scale.

To complement the implementation of the MIRR, two types of hard infrastructures were built or restored – in response to needs expressed by local communities. Firstly, storage facilities were installed in the three target sites, that will eventually contribute to reduce post-harvest losses. Secondly, water infrastructures for the irrigation and drainage of rice fields were refurbished, allowing to increase and stabilise irrigation across the three pilot sites.

The institutional achievements of the project were both at the national, policy level with the mainstreaming of MIRR guidelines into national agricultural policies, and at the local level with the strengthening of water users' associations as well as the creation of users' associations for storage facilities.

Despite the several achievements of AF Rice outlined above, some challenges were also faced:

Although the project did acknowledge the importance of an ecosystem approach and initially planned to reforest 5,000 ha of land surrounding rice fields, a series of management and climate issues impeded reforestation efforts, and only 1,132 ha were eventually planted.

The effectiveness of water infrastructures is somewhat difficult to assess: while local farmers report an increase in water availability and quality, expert measurements are more equivocal and do not conclude on a general increase in water availability. Furthermore, some of these infrastructures were already damaged by the time of the evaluation.

The continued materialisation of long-term impacts from the project interventions will depend on whether the Government of Madagascar proceeds with the upscaling of the MIRR across the country.

Factors affecting performance

The main difficulties met by the project were primarily due to inadequate financial and procurement procedures within the Ministry of Environment and Sustainable Development. In particular, these procedures are very sensitive to staff turnover at the senior level, which happened significantly during project implementation, and resulted in procurement and payment delays, leading in turn to a lesser quality of some deliverables and frustration of several contractors and project staff. Procurement processes also need to be more transparent, so that the selection of bidders can be based on merits and not on political or personal motives. Other difficulties faced included the limited capacity of some implementing partners and unfavourable climatic conditions (for reforestation). Finally, the limited budget available as well as constrained timeline only allowed to initiate the upscaling of the MIRR to other communes within Alaotra-Mangoro as well as to Itasy and Vakinankaratra regions.

Key lessons learned

1. Enough time and budget should be planned for the upscaling phase of a pilot approach for it to yield significant results. This should be accounted for adequately in project design.
2. Reforestation by community members on their own private land can be more effective, efficient and sustainable than reforestation by external parties.
3. A strong training programme on business skills, financial management and entrepreneurship is required when setting up cooperatives.
4. It is unreasonable to expect being able to measure the benefits of reforestation in terms of erosion control within a project timeframe of six to seven years.
5. Beyond legal instruments adopted at project inception, financial and procurement procedures need to be agreed upon at the operational level from the project onset.
6. Compost production is a simple, replicable, environmentally-friendly and effective way to increase agricultural yields when raw materials are available. It can also be turned into a profitable business.
7. The rice varieties developed and tested under the project give good results in real-life conditions, and can be used in regions with similar toposequence as Alaotra-Mangoro.
8. Project implementation has been hampered by the limited capacity of some implementation partners. This risk should be mitigated in future projects by conducting capacity assessments either at the design or at the inception phase of the projects.

9. A dedicated budget for the recruitment of an M&E specialist should be included in the budget project from the onset.
10. A project aiming for behavioural changes must account for sufficient time to enable uptake of new practices by the farmers.

Annex VI. List of documents consulted

The following documents were consulted during the main evaluation phase:

- **Project Design and Partner Agreements:**
  - prodoc;
  - baseline study (interim and final report);
  - all partner agreements (Project Coordination Agreement, AF – UNEP agreement etc.);
  - all Memoranda of Understanding relating to the project;
  - procedures manual;

- **Project progress reports:**
  - project workplans, including revised versions;
  - project monitoring plan, with associated budget;
  - supervision/monitoring mission reports;
  - PSC meeting documents, including agendas, meeting minutes and any summary reports;
  - annual Project Performance Reports (except 2019 PPR);
  - any technical project reports;
  - any other management memos, minutes or correspondence relevant to the effective delivery of the project;
  - Mid-Term Review;
  - project's results summary (June 2019);
  - best practices & capitalisation document (June 2019);

- **Project deliverables:**
  - country assessment/sector studies etc.;
  - training agendas and participant lists;
  - project communications materials;
  - links to relevant knowledge sharing platforms;
  - communication strategy & 2017 report;
  - compost production reports;
  - TV & radio broadcasting certificates;
  - TV & radio broadcasts;
  - TV & radio final broadcasting reports.

- **Project financial management:**
  - high-level project budget (costs);
  - detailed project budget (i.e. by result);
  - budget revisions, including for no-cost extensions;
  - cash advance requests documenting disbursements;
  - disbursement (Funds Transfer) documents (cash statement) from UNEP to the MEDD;
  - project expenditure sheet (as of March 2020);
  - audit reports (2014, 2015, 2016, 2017); and
  - email exchanges that demonstrate joint (Project/Task Manager and Fund Management Officer) decision-making.

Annex VII. Sample communication and outreach tools used to disseminate results

Preliminary results of the evaluation were presented and discussed with the PCU at the end of the in-country mission. The presentation prepared on this occasion (in French) is reproduced below.

1. Contexte de la présentation des résultats préliminaires

- Présentation au terme de la mission du 17-28/02/2020
- Sites visités : Manakanbahiny, Bemaitso, Ambohijanahary

⇒ Résultats préliminaires présentés **uniquement pour une sélection des catégories d'évaluation** : conception du projet, mise en œuvre, résultats, et conclusions préliminaires

2. Conception du projet

- ***Pertinence stratégique***

Le projet a pour objectif principal de démontrer l'utilité d'un modèle intégré afin d'améliorer la résilience de l'activité rizicole dans la principale région productrice de Madagascar

- **Cohérence avec les priorités stratégiques :**
  - le projet est en adéquation avec les 5 premières priorités soulignées dans le Programme d'Action National d'Adaptation (PANA)
  - **Cohérence avec les priorités du PNUE et de l'AF :**
    - PNUE: alignement avec la Medium-Term Strategy et le Programme of Work
    - le projet répond aux priorités stratégiques de l'AF pour l'adaptation aux CC

2. Conception du projet

- ***Cadre logique***
- **Dans sa conception, le projet répond bien aux problèmes de base, barrières et nouveaux défis liés aux CC**
- **Cependant plusieurs problèmes relevés dans le Cadre de Résultats :**
  - Plusieurs cibles et indicateurs ont dû être modifiés suite à l'étude de la situation de base
  - Dans cette version révisée, plusieurs cibles n'étaient pas réalistes et certains indicateurs difficiles à évaluer (méthodologie coûteuse, situation de base non mesurée)
  - Une version révisée du Cadre de Résultats a été préparée en août 2017, mais jamais soumise ni approuvée par l'AF
- **Sous-estimation du coût de certaines interventions** (ex: infrastructures hydro-agricoles à Ambohijanahary)

2. Conception du projet

- ***Choix des sites pilotes***
  - **Cohérent:** vulnérabilité, facilité d'accès (Manakanbahiny, Ambohijanahary), enclavement (Bemaitso). Cf. annexe 3 du prodoc.
- ***Choix des régions de mise à l'échelle***
  - **Cohérent** : Itasy & Vakinankaratra : deux régions de même toposéquence que AM.
    - Autre région potentielle : Boeny, mais conditions climatiques différentes donc résultats pilotes pas directement transposables

3. Mise en œuvre

- ***Exécution et gestion du projet : aspects positifs***
- Equipe de projet réduite mais dynamique et engagée
- Montée en compétences de l'équipe de projet
- Efforts de coordination avec partenaires nationaux (MAEP, DGM, FOFIFA, TVM etc.) et régionaux (DREDD, DRAEP, CALA, ONGs etc.)
  - Réunions du Copil organisées alternativement à Tana et Ambatondrazaka
- Approche participative appliquée (ex : besoins exprimés par AUE de Bemaitso), avec consultations des communautés sur les sites bénéficiaires
- Bon engagement des communautés locales dans la mise en œuvre des activités de reboisement (HIMO)
- Appui stratégique du CTA

3. Mise en œuvre

- **Cependant, plusieurs limites à l'efficacité de la mise en œuvre** :
  - Une grande partie des difficultés rencontrées dans la mise en œuvre tient aux difficultés de décaissement. Le système de double signature pour le déblocage des fonds (DNP puis DAF ou SG) créé des retards quasi-systématiques pour la signature des contrats ou le paiement des prestataires, engendrant des frustrations :
    - Au niveau des bénéficiaires, qui perdent confiance dans les engagements pris par le projet
    - Au niveau des services déconcentrés
    - Au niveau des prestataires (FOFIFA, CALA, entreprises de BTP)
    - Au niveau de l'UCP
  - En plus de ces frustrations, les retards de décaissement engendrent des problèmes techniques :
    - Plantations entreprises après la saison idéale
    - Réception retardée des infrastructures empêchant de faire jouer les garanties en cas de dommages
    - Campagnes de suivi de la qualité de l'eau pas entreprises aux moments idéaux

3. Mise en œuvre

- Difficultés dans les procédures de passation de marché : l'équipe du projet a dû faire face à des tentatives de dérogation aux procédures officielles pour favoriser des entreprises particulières (greniers, infrastructures hydro-agricoles)
- Le manuel de procédures du projet n'a pas suffi a assurer une continuité et une fluidité des procédures nécessaire à la bonne exécution du projet. Le changement de signataires (4 ou 5 ministres, DNP, SG au cours du projet) y est pour beaucoup.
- Techniquement :
  - Difficultés d'organisation pour le reboisement avec le SNGF, qui ne pouvait pas venir sur le terrain aussi souvent que nécessaire pour superviser les campagnes de reboisement
  - Coûts trop élevés de la solution du reboisement avec les ONG
  - Manque d'organisation de certains GPS qui limite leur durabilité (seul 1 GPS vend ses semences, sur 30 créés).
  - Données météo de la station météo de Bemaitso jamais recueillies / exploitées depuis août 2017
- Gestion adaptative :
  - recrutement d'un consultant pour suivre les chantiers des magasins de stockage après les premières difficultés
  - Test de différentes solutions pour le reboisement (SNGF, ONG, commune, communautés)

3. Mise en œuvre

- **Suivi et évaluation**
- Pas de stratégie formalisée pour le S&E
- Manque de suivi des travaux de construction des magasins de stockage a engendré des problèmes
- Problèmes de communication : la station météo de Bemaitso aurait dû être réparée rapidement.
- Suivi de l'érosion pas possible (coût) ni souhaitable (pas assez de progrès dans le reboisement pour enregistrer des résultats significatifs)
- DREDD responsable du suivi du reboisement
  - Approche intéressante pour motiver les bénéficiaires à reboiser sur leurs terrains : une fois le reboisement validé par la DREDD, remise d'un titre de propriété foncière formel
- Etude de la situation de base de bonne qualité
- Revue de Mi-Parcours de bonne qualité, avec recommandations concrètes. Continuité avec la nouvelle CTA.
- Globalement, suivi efficace et précis

4. Résultats

- **Cibles, indicateurs et activités :**
- Plusieurs cibles n'étaient pas réalistes et auraient dûes être formellement modifiées en accord avec le Conseil de l'AF, suite aux propositions d'août 2017
- Dans ce contexte, certaines cibles ne sont pas atteintes : reboisement, infrastructures hydro-agricoles, quantité de semences améliorées distribuées
- Des progrès significatifs ont néanmoins été enregistrés pour ces activités
- L'approche intégrée, complexe à mettre en œuvre car impliquant de nombreuses activités dans des domaines variées, a été respectée
- La mise à l'échelle a commencé, même si beaucoup reste à faire
- **Au vu des ressources disponibles limitées et d'un contexte institutionnel peu favorable, le projet a atteint des résultats significatifs par rapport à son objectif principal: améliorer la résilience du secteur rizicole dans la région AM, en testant un modèle intégré de riziculture résiliente**

4. Résultats

- **Durabilité**
- Une stratégie de pérennisation est en cours de formulation. Quelques remarques à ce stade :
- Certaines infrastructures hydro-agricoles sont déjà endommagées (déversoir à Bemaitso, arrivée d'eau principale à Manakambahiny) et doivent être réparées, soit *via* la garantie, soit par la DRAEP une fois la passation effectuée
- L'utilité durable de plusieurs réalisations dépendra de la capacité d'organisation et de fonctionnement des associations d'usagers qui ont été formées
  - Magasins de stockage (besoin de sensibilisation / information pour les paysans adhèrent)
  - AUE pour le curage des canaux et l'entretien des infrastructure hydro-agricoles
- La pérennité de la production de semences n'est pas évidente ; la plupart des producteurs dépendent du CALA pour se fournir en semences de base. L'approche GPS n'a pas bien fonctionné (à une exception près), notamment par manque de formation sur les aspects financiers.

4. Résultats

- **Durabilité**
- La pérennité du relevé des données météo dépendra du service régional de la DGM
- Pérennité de la dissémination des bulletins météo à la radio ?
- Le taux de survie des jeunes plants dépendra de la sévérité des prochaines saisons sèches, ainsi que de la fréquence des feux de brousse
  - La gestion des pare-feux déléguée aux communes devra être efficace
  - Des campagnes de prévention locales devraient être menées pour limiter les risques de divagation de bétail et de déboisement « par jalousie »
- La pérennité de la production de compost dépend de la disponibilité des matières premières.

5. Recommandations préliminaires

- **Avant la clôture du projet :**
- Assurer la réparation du déversoir encore sous garantie (?)
- Réparer/changer le câble défectueux de la station météorologique de Bemaitso et tester son fonctionnement avant la passation à la DGM
- Le PNUE devrait appuyer l'UCP pour demander à la nouvelle équipe dirigeante du MEDD d'accélérer le déblocage des fonds en suspens, ce qui permettra de régulariser les arriérés de paiement, procéder à la réception définitive des chantiers et débloquer le dernier Cash Advance
- Transmettre aux maires des communes le nom et les coordonnées des personnes-ressources formées par le projet (ex : conservation des sols), et à la DREDD les coordonnées des facilitateurs agricoles formés.
- Transmettre le matériel de formation à la DREDD
- Etablir et partager une liste de l'ensemble des documents, rapports, supports de communication créés au cours du projet

5. Recommandations préliminaires

- **Pour d'autres projets :**
- Traduire le prodoc et la RMP en français
- Procéder à la révision formelle des indicateurs et cibles si nécessaire
- Favoriser le recrutement de consultants de longue durée présents sur les sites d'intervention, plutôt que des consultants de Tana qui ne viendront que ponctuellement et s'approprieront donc moins le projet
- Fournir des formations pour la gestion, y compris financière, des GP
- Capitaliser sur les leçons apprises en termes de reboisement : favoriser l'approche communautaire
- Reboisement : favoriser l'emploi d'espèces indigènes
- Favoriser la collaboration entre médias régionaux et nationaux
- Recruter une personne pour le suivi spécifique des travaux de construction
- Poursuivre la mise à l'échelle du MIRR au-delà du partage de documents techniques
  - Mise à l'échelle pas assez intégrée pour l'instant (ex : pas de reboisement)
  - Autre région potentielle : Boeny

6. Prochaines étapes

- Poursuite de l'analyse des documents et livrables du projet
- **30 avril : soumission de la première version du rapport à l'équipe du projet**
- **10 juin : remise du rapport final**

Annex VIII. Statement of project expenditure by activity

UNEP budget line	Description	Total project budget (USD)	Cumulative expenditures reported as of 28 February 2020 (USD)	Cumulative unspent balance as of 28 February 2020 (USD)
1101	Project coordinator	118,500	118,500	-
1102	National financial manager	98,750	98,750	-
1103	M&E Officer	31,654	31,654	-
1201	National agriculture and rice experts	60,000	60,000	-
1202	National agriculture guidelines experts	25,350	25,350	-
1203	National agriculture modelling trainer	6,000	6,000	-
1204	National hydrology experts	25,000	25,000	-
1205	National crm expert	14,500	14,500	-
1206	National extension specialists	50,000	50,000	-
1207	National agriculture researchers	50,000	50,000	-
1209	National agriculture/fertilisation experts	60,000	60,000	-
1210	National soil quality expert	8,000	-	-
1211	National IPM expert	32,000	32,000	-
1212	Chief Technical Advisor (CTA)	162,472	147,472	15,000
1213	National rice culture experts	112,000	112,000	-
1214	Community-based natural resources management expert	69,000	69,000	-
1215	National water quality expert	18,000	14,000	4,000
1216	National rice straw expert	29,110	29,110	-
1217	Socio-economist	20,000	20,000	-
1218	Livestock expert	50,000	50,000	-
1219	Economist	14,000	14,000	-
1223	National agro-forestry experts	151,000	151,000	-
1224	National development planning policy consultants	28,000	28,000	-
1225	National rural communication specialist	31,520	31,520	-
1226	Water management and infrastructure specialist	96,000	96,000	-

UNEP budget line	Description	Total project budget (USD)	Cumulative expenditures reported as of 28 February 2020 (USD)	Cumulative unspent balance as of 28 February 2020 (USD)
1227	Local Technicians (3)	51,300	51,300	-
1228	Driver	15,950	15,950	-
1229	National consultant meteorologist	35,000	35,000	-
1230	Organic fertilisation expert	15,000	15,000	-
1231	National consultant on community-managed storage facilities	25,000	25,000	-
1240	National agriculture modelling expert	4,000	4,000	-
1243	National agriculture policy consultants	11,000	19,000	-8,000
1244	Civil engineer	27,800	21,500	6,300
1246	National GIS expert	11,700	11,700	-
1247	National consultant on lesson learned	20,000	8,000	-4,000
1248	National consultant training on family-based financial management	15,665	15,665	-
1301	Administrative support	65,807	65,807	-
1601	Travel for PC	96,960	86,398	10,562
1602	Travel of consultants and technical staff	840	840	-
1603	CTA travel	19,433	14,433	5,000
1604	Travel costs for regional staff	1,000	-	1,000
1605	Travel costs for Terminal Evaluation	15,000	-	15,000
2102	Sub-contracting MEDD	124,653	124,653	-
2104	Sub-contracting with ONG Maharitra	75,000	75,000	-
2105	Sub-contracting with commune Manakambahiny	26,000	26,000	-
2106	Sub-contract with commune Bemaitso	26,000	26,000	-
2107	Sub-contract with commune Ambohijanahary	7,800	7,800	-
2108	Sub-contracting with NGO Volavita	25,000	25,000	-
2109	Sub-contracting with NGO Tanimaitso	25,000	25,000	-

UNEP budget line	Description	Total project budget (USD)	Cumulative expenditures reported as of 28 February 2020 (USD)	Cumulative unspent balance as of 28 February 2020 (USD)
2110	Sub-contracting with NGO Tolotanana	20,000	20,000	-
2111	Sub-contracting with local community for the reforestation 2017-2018	68,874	68,874	-
2203	Sub-contracting with regional radio	8,500	5,003	3,497
2204	MoU with IRRI	35,000	35,000	-
2205	Sub-contracting with national TV & radio (RNM &TVM)	25,000	12,500	12,500
2302	Sub-contract with Biotech Madagascar (for Taroka)	450,000	450,000	-
2304	Sub-contracting with water engineering firm	728,972	698,372	30,600
2307	Sub-contracting private sector firm	179,988	161,988	18,000
2309	Sub-contracting with CALA (pre-base seeds)	180,000	180,000	-
2310	Sub-contracting with CALA for soil quality analysis	15,840	5,840	10,000
2312	Sub-contracting with FOFIFA to develop and implement an upscaling strategy for the Itasy and Vakinankaratra regions	148,438	145,128	3,310
2313	Sub-contracting with CALA to develop and implement an upscaling strategy for the Alaotra-Mangoro region	119,112	83,112	36,000
3208	Awareness-raising meeting and workshop	34,204	34,204	-
3301	MIRR selection and validation workshop	29,366	29,366	-
3302	Climate risk management workshop	12,896	12,896	-
3303	Inception and steering meetings	14,692	14,692	-
3305	Training workshop on rice modelling DSSAT and ORYZA	3,033	3,033	-
3309	Training workshop on GIS	1,897	1,897	-
3310	Project final closure	15,000	13,763	1,237

UNEP budget line	Description	Total project budget (USD)	Cumulative expenditures reported as of 28 February 2020 (USD)	Cumulative unspent balance as of 28 February 2020 (USD)
4101	Agricultural inputs (seeds, fertilisers, land and tools)	23,286	23,286	-
4104	Equipment and office supplies for WUG	28,058	249	27,809
4106	Office equipment and expendables (PCU)	46,316	46,316	-
4108	Operating costs for regional directorates (fuel and expendables)	17,699	11,285	6,414
4109	Communication costs, translation and printing cost	35,952	19,202	16,750
4110	Publication and service	25,284	-	25,284
4111	Equipment for MIRR application in other communes of Alaotra-Mangoro	28,575	-	28,575
4112	Marble plaques on AF Rice infrastructure	5,648	-	5,648
4201	Software and hardware acquisition	5,000	5,000	-
4202	Synoptic weather stations (2)	9,717	9,717	-
4203	GIS material	9,211	9,211	-
4206	Vehicle and maintenance, fuel and expendables of PCU and local technicians (3)	129,853	123,004	6,849
5501	Baseline study	35,792	35,792	-
5502	Mid-term review	29,033	29,033	-
5503	Terminal evaluation	60,000	-	60,000
5504	Audits	23,000	11,000	12,000
99	**GRAND TOTAL**	**4,705,000**	**4,339,665**	**365,335**

Annex IX. Pending payments

The table below sums up pending payments as of March 2020. These consultants, contractors and suppliers have all delivered against their ToRs – or are expected to do so soonest –, but payments are withheld by the MEDD, as the former Secretary General ordered a special audit – for unclear reasons – before clearing these payments. Once these payments are cleared, UNEP will provide the final cash advance to the MEDD, final payments will be made and the project will proceed with financial closure.

Table 18. Pending payments before financial closure.

Budget line	Description	Amount (USD)	Explanation
1212	CTA	15,000	Cross-cutting component costs of the Chief Technical Advisor (CTA), January to June 2019
1215	National water quality expert	4,000	Consultancy fee to perform local level water quality monitoring, last payment (30%) of the additional contract
1244	Civil engineer	6,300	Consultancy fee civil engineer, last payment
1247	National consultant lesson learning	4,000	Consultancy fee lesson learning of the project activity
1601	Travel	11,783	Travel cost for missions to project sites, supervision and reporting costs
1603	CTA travel	5,000	Cross-cutting component. Cost of the CTA mission in Madagascar from January to June 2019
1604	Travel cost for regional directorates	1,000	Third and last payment
1605	Travel costs for Terminal Evaluation	15,000	Cross-cutting component costs
2203	Sub-contract with regional radio	3,498	Ensure the transmission of the data gathering and analysis, and annual support on agro-meteorology. Last payment.
2205	Sub-contract with national radio	12,500	Ensure the transmission of the data gathering and analysis, and annual support on agro-meteorology, national area. Last payment.

Budget line	Description	Amount (USD)	Explanation
2304	Rehabilitation of damaged gravitational irrigation infrastructure and canals, dredging silted water reservoirs, install new irrigation equipment, drainage and conservation structures	30,600	Last payment
2307	Sub-contract private sector firm	18,000	Payment to engineering firm: Invoice SANDRATRA SEDERA, site Andilamena, last payment.
2310	Sub-contract with CALA for soil quality analysis	10,000	
2313	Sub-contract with CALA to develop and implement an upscaling strategy for Alaotra-Mangoro region	36,000	Sub-contract with CALA to develop and implement an upscaling strategy for the Alaotra-Mangoro region. Last payment (30%).
4108	Operating cost for regional directorates (fuel and expendables)	6,414	Last payment after validation of report activities (monitoring of community reforestation, wildfire preventions)
4109	Communication, translation and printing costs	16,750	Final project communication material: translation and printing costs
4110	Publication and service	25,284	Publication and service costs
4111	Equipment for MIRR application in other communes of Alaotra-Mangoro	35,612	Equipment cost for MIRR application in other communes of Alaotra-Mangoro
4112	Marble plaques on AF Rice infrastructure	5,648	Marble plaques on AF Rice infrastructure costs
4206	Vehicle and maintenance	6,849	Maintenance of the vehicles (incl. 3 motorcycles), fuel and expendables)
5503	Terminal Evaluation	60,000	
5504	Audit	12,000	Cost of the 2016 and 2017 audits, last payment. Cost of the audit 2018, and final audit.
	TOTAL	**341,238**	

Annex X. Reforestation results

The following table has been consolidated from PPRs and activity reports.

Table 19. Reforestation results (hectares) per site and year.

	2014-2015	2015-2016	2016-2017	2017-2018	Total
Manakambahiny	20.4	100.25	117	111.68	349.33
Bemaitso	20.4	100.66	128,5	231.8	481.36
Ambohijanahary	27.2	72.25	83	119.5	301.95
Total	**68**	**273.16**	**328.5**	**462.98**	**1,132.64**

Annex XI. Photographic annex

Figure 4. Storage unit in Manakambahiny.

The storage units that were initally built in the three target communes did not meet best standards for the conservation of commodities (e.g. elevated floor, lower and higher air vents, rounded corners, use of concrete blocks instead of bricks), and had to be rebuilt. All three storage units now meet agreed specifications. Only the Manakambahiny storage unit had officially been accepted as of February 2020, as final payments for the other two units still need to be processed.

Figure 5. Irrigation canal and water infrastructure in Manakambahiny.

Sixteen wooden culverts (left) were replaced by concrete ones (bottom right) in Manakambahiny. This significantly improves water flow and constitutes a more durable solution than original infrastructures. The irrigation canal was cured; however, embankments are still very vulnerable to floods. The canal was damaged by intense rainfall and had to be fixed with sand bags and rice straw (upper right).

Figure 6. Damaged main water intake in Manakambahiny.

The main water intake in Manakambahiny allows to effectively channel water from the Ilakana River into the irrigation canal that was cured. Two major cracks appeared in February 2020, threatening the whole infrastructure. A potential cause is the inadequate quality of concrete, but expert advice is needed to assess the exact causes, damages and appropriate action. Even though the infrastructure was not officially accepted, it is no longer under warranty as more than a year elapsed since provisional acceptance. In the current situation, neither beneficiaries nor the DRAEP are authorised to undertake repair work, and the contractor is no longer contractually obliged to do so. The final payment needs to be expedited so that final acceptance can occur and the DRAEP can undertake repair work as soon as possible.

Figure 7. Reforestation sites in Manakambahiny.

Reforestation efforts in Manakambahiny were undertaken in several sub-sites, with a relatively satisfying success rate. Most dead seedlings were replaced. Plots planted by community members (upper left) are

generally scattered and unlikely to have the same impact on erosion than larger sites planted by the SNGF. Some promising examples of natural, multi-layer natural regeneration can be seen (bottom left), where shrubs and herbaceous plants populated areas planted of eucalypts. The project also attempted to plant directly into some *lavakas* in order to stabilise them (right), but it is too early to assess the effectiveness of this approach.

Figure 8. Water infrastructures in Bemaitso.

Interventions on water infrastructures in Bemaitso included the construction of intakes (bottom left) and a trough (upper left). Over 8 km of canals were also dredged, but some sections have started to clog up already (right). During the next dry season, WUA members will need to dredge them, as they were trained to by the project.

Figure 9. Reforestation in Bemaitso.

In Bemaitso, reforestation efforts intended to directly protect rice paddies but also to control sediment discharge in the lake (bottom left) that provides most of the water for irrigation. The plot reforested above the lake is indicated by the rectangle. Success rates of reforestation efforts vary greatly in Bemaitso, depending mostly on soil structure and composition. More arid and compact areas (upper right) show a lower density of live seedlings than average. In other areas, planted trees show a good vigour (bottom). Bushfires that occurred in the dry season also damaged some planted areas. As visible in the left pictures, acacia seedlings proved extremely resilient to fire: while the top of this acacia seedling is burnt, fresh leaves grew back closer to the stem base.

Figure 10. Damaged spillway in Bemaitso.

The spillway that was strengthened in Bemaitso incurred damages from heavy rainfall in February 2020. This seems to be largely due to an inadequate structure: the lower parts of the spillway that were added to the already-existing infrastructure should have been sealed and maintained with irons, which was not the case. As a result, overflowing water penetrated between the old sections and new, and severely damaged the latter. The infrastructure is still under warranty, and needs to be repaired by the contractor. The project team was not aware of these damages and found out about them during the evaluation mission.

Figure 11. Damaged weather station and agroforestry plot in Bemaitso.

Upper picture: the weather station in Bemaitso only transmitted data between its installation in 2015 and August 2017, when the laptop used to collect the data was stolen. Around the same period, rodents damaged some wires, which were not changed despite requiring a minor repair, and no data was communicated to DRAEP or DGM since then.
Lower picture: the agroforestry demonstration plot in Bemaitso mixes manioc with a diversity of fruit trees such as guava, orange, lemon etc.

Figure 12. Dredged canal in Ambohijanahary.

The main drainage canal in Ambohijanahary was dredged by the project, while irrigation canals were cured by the MAEP. Maintenance of this canal will not be straightforward however, as its width and depth will not allow WUA members to manually cure it, even during the dry season. WUAs will likely need to liaise with the DRAEP for the mechanical dredging of this main drainage canal. In addition, bare embankments show signs of erosion, which creates significant risks for the bridge of National Road 3a crossing the canal[69]. A solution would be to allow natural vegetation to grow back on the banks, which will help stabilise them.

[69] *Securing this bridge falls under the mandate of the Regional Direction for Large Works.*

Figure 13. Reforestation sites in Ambohijanahary.

Like in the other two target communes, reforestation success in Ambohijanahary varies significantly depending on soil conditions. While seedlings develop well in some areas (upper), other plots with bare, compact soil provide harsher conditions for the seedlings, which show lower survival and growth rates (middle). Erosion is particularly severe on the hillslope south of the Anony dam. Sisal and other species were planted in this area to try and limit sediment discharge into the reservoir (lower) that supplies water to both Ambohijanahary rice fields and the nearby town of Tanambe.

Figure 14. Compost production in Ambohijanahary.

The Compost Producers' Association to which this sample belongs exhibited at a local agricultural fair, and received an order of 250 tonnes of compost. This will provide additional income to nine beneficiaries, and may entice other producers to commercialise their own compost production.

Annex XII. Brief CV of the consultant

Pierre BÉGAT
French citizen
International driving license
International consultant in climate change adaptation and climate finance

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75013, Paris, France
French: + 33 (0) 6 95 07 22 85
Whatsapp: + 27 (0) 7 25 10 56 53
Skype: pierrebegat
pierre.begat1@gmail.com

Expertise and skills

- Design of complex climate and environment-focused projects in developing countries: management of project preparation team, review of state-of-the-art technical solutions, budget preparation, stakeholder consultations (from rural communities to senior officials), technical writing
- Project evaluation: relevance, efficiency, effectiveness, finance management, sustainability
- Technical assistance for project implementation
- Familiarity with the international landscape of climate, environment and development finance, with specific experience with the Global Environment Facility (GEF), Green Climate Fund (GCF), Adaptation Fund (AF) and Fonds Français pour l'Environnement Mondial (FFEM)
- Field experience in 15 developing countries across Africa, Asia and the Caucasus, acquired through over 30 missions
- Ability to navigate high-level, international governance settings and use diplomatic skills to tackle sensitive matters
- Strong academic background in economics and social sciences
- Integrity, extreme rigour and attention to details
- Excellent writing and communication skills in French and English

Experience

Dec. 2018 – present

International consultant in climate change adaptation and climate finance
Paris, France

- Project formulation:
  - 2020:
    - **GEF PIF** on financing for biodiversity conservation in **Haiti** (with **UNDP**)
    - **GEF PIF** on the resilience of agro-sylvo-pastoral systems in Sudano-Sahelian regions of **Burkina Faso** (with **FAO**)
  - 2019:
    - **GEF project documents** to bring support to **Samoa** and **Jamaica** to produce their UNFCCC National Communications and Biennial Update Reports (with **UNDP**)
    - **GEF PIF** in **Mali**: "Resilient, productive and sustainable landscapes in Mali's Kayes Region" (with **FAO)**
    - **GEF project document** on the conservation and sustainable use of cork oak forests in **Algeria** for **FAO**

- Project evaluation:
  - 2020:

- **Terminal evaluation** of an **Adaptation Fund** project in **Madagascar** (for **UNEP**): "Promoting climate resilience in the rice sector through pilot investments in Alaotra-Mangoro region"
- **Terminal evaluation** of a **GEF**-funded project in **Djibouti** (for **UNDP**): "Supporting rural community adaptation to climate change in mountain regions of Djibouti"

- 2019:
  - **Mid-term review** of the GEF-funded project "Adapting coastal zone management to climate change considering ecosystem and livelihoods" in **Madagascar** (for **UNEP**)

➢ Other mandates:
- 2019:
  - **Technical advisory** for a South-South knowledge exchange workshop on ecosystem-based hosted by **UNEP** and the **Chinese Academy of Sciences**, Beijing, China
  - **Presentation** on climate finance at **Americana 2019** (largest environmental & multisectoral event in North America), Montreal, Canada
  - Preparing and hosting a **workshop on climate finance** for **ICLEI Africa Local Governments for Sustainability**, Cape Town, South Africa

➢ **Missions**: South Africa, Algeria, China, Madagascar, Burkina Faso, Djibouti

Jan. 2017– Dec. 2018

International climate change consultant then **Team lead**
C4 EcoSolutions, Cape Town, South Africa

➢ **Conception of large-scale climate change adaptation projects**, for funding by the **Green Climate Fund** (GCF) and the **Global Environment Facility** (GEF).
- "Strengthening the capacity of government and communities in South Sudan to adapt to climate change" (GEF)
- "Climate change adaptation in the arid regions of Adrar, Inchiri and Trarza, Mauritania" (GEF)
- Development of National Adaptation Process readiness projects for funding by the GEF and GCF in the following countries: Rwanda (GEF), Mauritania (GCF), Cameroon (GCF), Iraq (GCF), Georgia (GCF), Zimbabwe (GCF), Lesotho (GCF), Swaziland (GCF), Seychelles (GCF), Nigeria (GCF)

➢ **Technical advisory** for the EbA South project: building climate resilience using Ecosystem-based Adaptation (EbA) in Least-Developed Countries and Small Island Developing States of the Asia-Pacific region and Africa

➢ **Project evaluations**:
- Building capacity for LDCs to participate effectively in intergovernmental climate change processes (GEF, UNDP/UNEP)
- Assisting non-LDC developing countries with country-driven processes to advance National Adaptation Plans (NAPs – GEF, UNDP/ UNEP)
- Mainstreaming Incentives for Biodiversity Conservation in the Climate Resilient Green Economy Strategy, Ethiopia (GEF, UNDP)

- From March 2018, **lead a team of four consultants**: technical oversight, quality control, client management
- **Missions**: Mauritania, Nepal, Seychelles, China, Rwanda, Georgia, Kenya, Ethiopia, Egypt

April 2016 – Jan. 2017

Sustainable development consultant
Nomadéis, Paris, France

- Economic assessment of the ecosystem services provided by four wetlands in the Mediterranean (Med-ESCWET project) for Plan Bleu (United Nations Environment Program)
- Study on the monitoring by organisations of the civil society of the climate commitments made by the private sector for EDF
- Conception of the TyCCAO project: organising the exploitation of an invasive reed as bio-based construction material and energy source in the basin of Senegal river (ADEME, FFEM)

- **Missions**: Senegal, Mauritania, Morocco

June – July 2015

Visiting researcher
Scuola Galileiana, University of Padova**,** Padova, Italy

- Preparatory work for an experimental economics project on the taste for privacy

July – Dec. 2014

Diplomatic attaché
Permanent Mission of France to the United Nations, Development and sustainable development Department, New York City, United States

- Negotiation of UN resolutions on climate change, financing for development & public health
- Redaction of background notes
- Preparation of French officials' visits to the United Nations

June – July 2013

Intern
Invivo (French union of agricultural cooperatives), International Treasury department, Paris, France

- Creation of an optimisation model for cash advance management

Sept. 2011 – June 2012

Teaching assistant
Henri-IV high school, Montaigne high school & Intégrale institution Paris, France

- Mathematics and English courses and individual tutoring for unprivileged students
- Classe Préparatoire for business schools: training sessions to prepare the students for the oral part of business schools entrance examination

Education

2015 – 2016

MSc, Environmental and Energy Economics, AgroParisTech (jointly with Ecole Polytechnique), Paris, France

- Master thesis on climate change mitigation and adaptation as ecosystem services provided by Mediterranean wetlands – honours.

2012 – 2014

MSc, Economic Analysis and Policy (APE), Paris School of Economics, Paris, France

- Master thesis on rational inattention modelling (theoretical behavioural economics) – honours.

Jan. – May 2015	**Visiting student**, Columbia University, Department of Economics and Earth Institute, New York City, USA
2011 – 2012	**BSc, Economics & Econometrics** (highest honours), University la Sorbonne/Paris-I, Paris, France
2011 – 2016	**Full fellowship ("normalien")**, École Normale Supérieure Ulm, Social sciences department, Paris, France
2008 – 2011	**Classe préparatoire aux Grandes Ecoles (B/L)**, Stanislas and Henri-IV highschools, Paris, France
2008	**Baccalauréat, Economics and Social Sciences** (highest honours), Le Mans, France

Skills, other activities and interests

Languages	French (native), English (full professional capacity), Spanish (B1)
Softwares	Office suite, notions of statistical programming (Stata), data visualisation (Gephi), scientific editing (LaTeX), geographic information system (QGIS)
Non-profit	Involvement in the MigrENS program, aiming to facilitate the academic insertion activity of refugees in France
Other activities	Correspondent for French art history magazine l'Estampille - l'Objet d'Art, USA, Switzerland, France
Interests	Literature, history, art history (non-degree student at Ecole du Louvre), photography (http://pierrebegat.canalblog.com/)

Publications

Author:

- Plan Bleu. 2016. Economic valuation of the ecosystem services provided by wetlands in terms of climate regulation in the Mediterranean, Plan Bleu, Valbonne.
- Soulé, A. Vadel Salihi, M.M. Abidine M.Y. Lafdal, P. Bégat and A. Mills. 2019. "Evaluation of the restoration process of a plantation: case of Benichab (Mauritania)" *in* International Journal of Advanced Research.

Cited contributor / editor:

- Balehegn, M. 2017. Greenhouse agriculture and water harvesting technologies for climate change adaptation in the Ningxia Hui Autonomous Region, China. EbA South Case Study.
- Fu. C. 2017. Paddy Land-to-Dry Land programme in the Miyun Reservoir Watershed of China's capital region. EbA South Case Study.
- Guanqi, L., Milin, T., Haimei, L., Xin, S., Yanyan, Z. 2018. Farmers' Seed System Enhancement and Traditional Knowledge Revitalization for Climate Change Adaptation of Mountainous Farming Communities in Southwest China. EbA South Case Study.
- Henriette, E. 2019. Protocol for Implementation of Ecosystem-based Adaptation Interventions in Coastal Wetlands of the Seychelles. UNEP, IEMP.
- Ilieva, L. 2019. Integrating Ecosystem-based Adaptation in Education Curriculum: A Resource Guide. UNEP, IEMP.
- Ilieva. L. 2019. Research on Ecosystem-based Adaptation (EbA): A reference guide. UNEP, IEMP.

- Swiderska, K., Kind-Okumu, C., Monirul Ismal, M. 2018. Ecosystem-based adaptation: a handbook for EbA in mountain, dryland and coastal ecosystems. IEMP, UNEP, IIED.
- Tan D., Xuuand, W., Lianga, B. 2018. Promoting Agroforestry in the Mountains of Southwest China-Improving Climate Change Adaptation Practices for Vulnerable Rural Communities. EbA South Case Study. EbA South Case Study.
- Terton, A and Dazé, A. 2018. ALiVe - Adaptation, Livelihoods and Ecosystems Planning Tool: User Manual. IISD, IEMP, UNEP.
- Vijitpan, T. 2017. Sustainable Development in Poor Rural Areas Project: Integrating Climate Change Adaptation into Poverty Reduction in China. EbA South Case Study.
- Vijitpan, T. 2018. Tackling Climate Change in Irrigated Agriculture in the3H (Huang-Huai-Hai) Basin of China. EbA South Case Study. EbA South Case Study.

Annex XIII. Weighted scores and ratings

The table below reports ratings per evaluation category, and uses weights provided by the UNEP EO to compute an overall rating.

Evaluation criteria	Rating	Score	Weight	Weighted Score
Strategic Relevance (select the ratings for sub-categories)	**Highly Satisfactory**	**6**	6	0,4
Alignment to MTS and POW	Highly Satisfactory	6	0,5	
Alignment to UNEP/GEF/Donor strategic priorities	Highly Satisfactory	6	0,5	
Relevance to regional, sub-regional and national issues and needs	Highly Satisfactory	6	2,5	
Complementarity with existing interventions	Highly Satisfactory	6	2,5	
Quality of Project Design	Satisfactory	5	4	0,2
Nature of External Context	Unfavourable	5		
Effectiveness (select the ratings for sub-categories)	**Moderately Satisfactory**	**4**	45	1,8
Delivery of outputs	Moderately Satisfactory	4	5	
Achievement of direct outcomes	Moderately Satisfactory	4	30	
Likelihood of impact	Moderately Likely	4	10	
Financial Management (select the ratings for sub-categories)	**Moderately Unsatisfactory**	**4**	5	0,2
Completeness of project financial information	Moderately Satisfactory	4		
Communication between finance and project management staff	Moderately Unsatisfactory	3		
Efficiency	Moderately Satisfactory	4	10	0,4

Monitoring and Reporting (select the ratings for sub-categories)	**Satisfactory**	**4**	5	0,2
Monitoring design and budgeting	Moderately Satisfactory	4		
Monitoring of Project Implementation	Moderately Satisfactory	4		
Project Reporting	Satisfactory	5		
Sustainability (select the ratings for sub-categories)	**Moderately Likely**	4	20	0,8
Socio-political sustainability	Likely	5		
Financial sustainability	Moderately Likely	4		
Institutional sustainability	Highly Likely	6		
Factors Affecting Performance (select the ratings for sub-categories)	**Moderately Satisfactory**	**4**	5	0,2
Preparation and readiness	Moderately Satisfactory	4		
Quality of project management and supervision	Satisfactory	5		
Stakeholder participation and cooperation	Satisfactory	5		
Responsiveness to human rights and gender equity	Moderately Unsatisfactory	3		
Country ownership and driven-ness	Moderately Satisfactory	4		
Communication and public awareness	Moderately Satisfactory	4		
			100	**4,16**

Moderately Satisfactory	

Annex XIV. Quality Assessment of the Evaluation Report

Quality Assessment of the Evaluation Report

Promoting Climate Resilience in the Rice Sector through Pilot Investments in Alaotra-Mangoro Region

All UNEP evaluations are subject to a quality assessment by the Evaluation Office. This is an assessment of the quality of the evaluation product (i.e. evaluation report) and is dependent on more than just the consultant's efforts and skills. Nevertheless, the quality assessment is used as a tool for providing structured feedback to evaluation consultants, especially at draft report stage. This guidance is provided to support consistency in assessment across different Evaluation Managers and to make the assessment process as transparent as possible.

	UNEP Evaluation Office Comments	**Final Report Rating**
Substantive Report Quality Criteria		
Quality of the Executive Summary: The Summary should be able to stand alone as an accurate summary of the main evaluation product. It should include a concise overview of the evaluation object; clear summary of the evaluation objectives and scope; overall evaluation rating of the project and key features of performance (strengths and weaknesses) against exceptional criteria (plus reference to where the evaluation ratings table can be found within the report); summary of the main findings of the exercise, including a synthesis of main conclusions (which include a summary response to key strategic evaluation questions), lessons learned and recommendations.	The Executive summary is well-written, concise and captures all the key elements necessary for it to be a stand-alone summary of the evaluation findings	6
I. Introduction A brief introduction should be given identifying, where possible and relevant, the following: institutional context of the project (sub-programme, Division, regions/countries where implemented) and coverage of the evaluation; date of PRC approval and project document signature); results frameworks to which it contributes (e.g. Expected Accomplishment in POW); project duration and	This introduction is covered in detail and addresses all the elements required for this section	6

	UNEP Evaluation Office Comments	Final Report Rating
start/end dates; number of project phases (where appropriate); implementing partners; total secured budget and whether the project has been evaluated in the past (e.g. mid-term, part of a synthesis evaluation, evaluated by another agency etc.) Consider the extent to which the introduction includes a concise statement of the purpose of the evaluation and the key intended audience for the findings?		
II. Evaluation Methods This section should include a description of how the *TOC at Evaluation*[70] was designed (who was involved etc.) and applied to the context of the project? A data collection section should include: a description of evaluation methods and information sources used, including the number and type of respondents; justification for methods used (e.g. qualitative/ quantitative; electronic/face-to-face); any selection criteria used to identify respondents, case studies or sites/countries visited; strategies used to increase stakeholder engagement and consultation; details of how data were verified (e.g. triangulation, review by stakeholders etc.). Methods to ensure that potentially excluded groups (excluded by gender, vulnerability or marginalisation) are reached and their experiences captured effectively, should be made explicit in this section. The methods used to analyse data (e.g. scoring; coding; thematic analysis etc.) should be described. It should also address evaluation limitations such as: low or imbalanced response rates across different groups; gaps in documentation; extent to which findings can be either generalised to wider evaluation questions or constraints on aggregation/disaggregation; any potential or apparent biases; language barriers and ways they were overcome.	Evaluation methods have been covered in depth, addressing all the required elements for this section	6

[70] *During the Inception Phase of the evaluation process a TOC at Evaluation Inception is created based on the information contained in the approved project documents (these may include either logical framework or a TOC or narrative descriptions), formal revisions and annual reports etc. During the evaluation process this TOC is revised based on changes made during project intervention and becomes the TOC at Evaluation.*

	UNEP Evaluation Office Comments	Final Report Rating
Ethics and human rights issues should be highlighted including: how anonymity and confidentiality were protected and strategies used to include the views of marginalised or potentially disadvantaged groups and/or divergent views. Is there an ethics statement?		
III. The Project This section should include: • *Context:* Overview of the main issue that the project is trying to address, its root causes and consequences on the environment and human well-being (i.e. synopsis of the problem and situational analyses). • *Objectives and components*: Summary of the project's results hierarchy as stated in the ProDoc (or as officially revised) • *Stakeholders:* Description of groups of targeted stakeholders organised according to relevant common characteristics • *Project implementation structure and partners:* A description of the implementation structure with diagram and a list of key project partners • *Changes in design during implementation:* Any key events that affected the project's scope or parameters should be described in brief in chronological order • *Project financing:* Completed tables of: (a) budget at design and expenditure by components (b) planned and actual sources of funding/co-financing	All the required elements are discussed in sufficient detail, and in a clear and concise manner	6
IV. Theory of Change The *TOC at Evaluation* should be presented clearly in both diagrammatic and narrative forms. Clear articulation of each major causal pathway is expected, (starting from outputs to long term impact), including explanations of all drivers and assumptions as well as the expected roles of key actors. Where the project results as stated in the project design documents (or formal revisions of the project	The TOC has been presented in narrative and diagram. Both are clear and coherent. The narrative describes the causal pathways from output to impact, including intermediate results, in clear detail. Changes made between TOC at Design and TOC at evaluation, and the rationale for	6

	UNEP Evaluation Office Comments	Final Report Rating
design) are not an accurate reflection of the project's intentions or do not follow UNEP's definitions of different results levels, project results may need to be re-phrased or reformulated. In such cases, a summary of the project's results hierarchy should be presented for: a) the results as stated in the approved/revised Prodoc logframe/TOC and b) as formulated in the *TOC at Evaluation*. *The two results hierarchies should be presented as a two-column table to show clearly that, although wording and placement may have changed, the results 'goal posts' have not been 'moved'.*	such changes, have been clearly elaborated upon. The TOC benefits from a consultative process with relevant project officers and stakeholders. Drivers and Assumptions affecting casual pathways are also sufficiently discussed.	
V. Key Findings **A. Strategic relevance:** This section should include an assessment of the project's relevance in relation to UNEP's mandate and its alignment with UNEP's policies and strategies at the time of project approval. An assessment of the complementarity of the project at design (or during inception/mobilisation[71]), with other interventions addressing the needs of the same target groups should be included. Consider the extent to which all four elements have been addressed: v. Alignment to the UNEP Medium Term Strategy (MTS) and Programme of Work (POW) vi. Alignment to UNEP/ Donor/GEF Strategic Priorities vii. Relevance to Regional, Sub-regional and National Environmental Priorities viii. Complementarity with Existing Interventions	This section has been well-covered. All the sub-categories of relevance are discussed in adequate detail	6

[71] *A project's inception or mobilization period is understood as the time between project approval and first disbursement. Complementarity during project implementation is considered under Efficiency, see below.*

	UNEP Evaluation Office Comments	Final Report Rating
B. Quality of Project Design To what extent are the strength and weaknesses of the project design effectively summarized?	The summary is clear and concise. The project's strengths and weakness have been described in sufficient detail. Reference is made to the PQD Assessment tool and overall score	6
C. Nature of the External Context For projects where this is appropriate, key external features of the project's implementing context that limited the project's performance (e.g. conflict, natural disaster, political upheaval[72]), and how they affected performance, should be described.	implementing context that was found to have limited the project's performance during its lifespan have been highlighted. The issues raised are objective and the rating (unfavourable) is suitably justified	6
D. Effectiveness **(i) Outputs and Project Outcomes:** How well does the report present a well-reasoned, complete and evidence-based assessment of the a) availability of outputs, and b) achievement of project outcomes? How convincing is the discussion of attribution and contribution, as well as the constraints to attributing effects to the intervention. The effects of the intervention on differentiated groups, including those with specific needs due to gender, vulnerability or marginalisation, should be discussed explicitly.	The discussion on outputs has been presented by component and each one is given its own separate detailed assessment. In some instances there is need for more in depth analysis of outputs delivered, particularly on the qualitative aspects with reference to the beneficiaries. Suggestions were provided at draft stage to include additional information that could make the assessment more comprehensive	5

[72] Note that 'political upheaval' does not include regular national election cycles, but unanticipated unrest or prolonged disruption. The potential delays or changes in political support that are often associated with the regular national election cycle should be part of the project's design and addressed through adaptive management of the project team.

	UNEP Evaluation Office Comments	Final Report Rating
(ii) Likelihood of Impact: How well does the report present an integrated analysis, guided by the causal pathways represented by the TOC, of all evidence relating to likelihood of impact? How well are change processes explained and the roles of key actors, as well as drivers and assumptions, explicitly discussed? Any unintended negative effects of the project should be discussed under Effectiveness, especially negative effects on disadvantaged groups.	Section is improved from draft stage where some inconsistency was noted in the assessment of this criterion against that of Outputs and Project Outcomes. The analysis of impact achievement in this version is more objective, consistent with the TOC and findings already discussed in other sections of the report.	5
E. Financial Management This section should contain an integrated analysis of all dimensions evaluated under financial management and include a completed 'financial management' table. Consider how well the report addresses the following: • *Adherence* to UNEP's financial policies and procedures • *completeness* of financial information, including the actual project costs (total and per activity) and actual co-financing used • *communication* between financial and project management staff	This section has been well covered however some additional information on the assessment of financial completeness has been requested. *(the 'Adherence' aspect - a recent inclusion - was not included in the TOR and has not been addressed in the TE report)*	5
F. Efficiency To what extent, and how well, does the report present a well-reasoned, complete and evidence-based assessment of efficiency under the primary categories of cost-effectiveness and timeliness including: • Implications of delays and no cost extensions • Time-saving measures put in place to maximise results within the secured budget and agreed project timeframe	All aspects of efficiency required by the TOR were addressed in sufficient detail, the assessment is objectively presented.	5

	UNEP Evaluation Office Comments	Final Report Rating
• Discussion of making use during project implementation of/building on pre-existing institutions, agreements and partnerships, data sources, synergies and complementarities with other initiatives, programmes and projects etc. • The extent to which the management of the project minimised UNEP's environmental footprint.		
G. Monitoring and Reporting How well does the report assess: • Monitoring design and budgeting *(including SMART results with measurable indicators, resources for MTE/R etc.)* • Monitoring of project implementation *(including use of monitoring data for adaptive management)* • Project reporting *(e.g. PIMS and donor reports)*	The assessment of project monitoring and reporting is well presented, and all sub-criteria are discussed in sufficient detail.	6
H. Sustainability How well does the evaluation identify and assess the key conditions or factors that are likely to undermine or contribute to the persistence of achieved project outcomes including: • Socio-political Sustainability • Financial Sustainability • Institutional Sustainability	The three dimensions of sustainability have been discussed satisfactorily, providing well-reasoned and detailed analyses of the status of project outcomes and the likelihood of their sustainability	6
I. Factors Affecting Performance These factors are <u>not</u> discussed in stand-alone sections but are **integrated in criteria A-H as appropriate**. Note that these are described in the Evaluation Criteria Ratings Matrix. To what extent, and how well, does the evaluation report cover the following cross-cutting themes: • Preparation and readiness	Overall, this section is well written and for the most part adequately supported with evidence (within the chapter or cross-references to relevant sections of the report). All themes are covered to varying levels of detail; GE and HR aspects of project	6

	UNEP Evaluation Office Comments	Final Report Rating
• Quality of project management and supervision[73] • Stakeholder participation and co-operation • Responsiveness to human rights and gender equity • Environmental and social safeguards • Country ownership and driven-ness • Communication and public awareness	implementation have been aptly discussed.	
VI. Conclusions and Recommendations **i. Quality of the conclusions:** The key strategic questions should be clearly and succinctly addressed within the conclusions section. It is expected that the conclusions will highlight the main strengths and weaknesses of the project and connect them in a compelling story line. Human rights and gender dimensions of the intervention (e.g. how these dimensions were considered, addressed or impacted on) should be discussed explicitly. Conclusions, as well as lessons and recommendations, should be consistent with the evidence presented in the main body of the report.	Key findings have been represented, including responses to the key strategic questions to varying degrees. The summary of is also included.	5
ii) Quality and utility of the lessons: Both positive and negative lessons are expected and duplication with recommendations should be avoided. Based on explicit evaluation findings, lessons should be rooted in real project experiences or derived from problems encountered and mistakes made that should be avoided in the future. Lessons must have the potential for wider application and use and should briefly describe the context from which they are derived and those contexts in which they may be useful.	Revisions requested on the presentation of the lessons learned section have been taken into consideration in this final version. They are based on findings in the report and the contextual background and applicability has been made more explicit.	5
iii) Quality and utility of the recommendations: To what extent are the recommendations proposals for specific action to be taken by identified	Revisions requested on the formulation of the recommendations have been	5

[73] *In some cases 'project management and supervision' will refer to the supervision and guidance provided by UNEP to implementing partners and national governments while in others, specifically for GEF funded projects, it will refer to the project management performance of the executing agency and the technical backstopping provided by UNEP.*

	UNEP Evaluation Office Comments	Final Report Rating
people/position-holders to resolve concrete problems affecting the project or the sustainability of its results? They should be feasible to implement within the timeframe and resources available (including local capacities) and specific in terms of who would do what and when. At least one recommendation relating to strengthening the human rights and gender dimensions of UNEP interventions, should be given. Recommendations should represent a measurable performance target in order that the Evaluation Office can monitor and assess compliance with the recommendations.	taken into consideration in this final version. They are based on findings in the report and the contextual background and agency for implementation has been made more explicit.	
VII. Report Structure and Presentation Quality		
i) Structure and completeness of the report: To what extent does the report follow the Evaluation Office guidelines? Are all requested Annexes included and complete?	The report is complete and follows the guidelines given in the TOR, Tools and Templates provided	6
ii) **Quality of writing and formatting:** Consider whether the report is well written (clear English language and grammar) with language that is adequate in quality and tone for an official document? Do visual aids, such as maps and graphs convey key information? Does the report follow Evaluation Office formatting guidelines?	The report is written in clear language, the tone is professional, there are numerous photographs to supplement the evidence, in general it is a good document.	6
OVERALL REPORT QUALITY RATING		**5.65 (Highly Satisfactory)**

A number rating 1-6 is used for each criterion: Highly Satisfactory = 6, Satisfactory = 5, Moderately Satisfactory = 4, Moderately Unsatisfactory = 3, Unsatisfactory = 2, Highly Unsatisfactory = 1. The overall quality of the evaluation report is calculated by taking the mean score of all rated quality criteria.