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LORTA Synthesis Report 2023

GCF/B.38/Inf.10 Annex V

Learning-Oriented Real-Time Impact Assessment



GREEN CLIMATE FUND
INDEPENDENT EVALUATION UNIT

LORTA Synthesis Report 2023

GCF/B.38/Inf.10 Annex V

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Abbreviations

AE	Accredited Entity
AfDB	African Development Bank
AEPC	Alternative Energy Promotion Centre
BOAD	West African Development Bank
CABEI	Central American Bank for Economic Integration
CCCCC	Caribbean Community Climate Change Centre
CI	Conservation International Foundation
CN	Concept note
CRA	Climate Resilient Agriculture
CRDB Bank	Cooperative Rural Development Bank
DAE	Direct access entity
DBSA	Development Bank for Southern Africa
DiD	Difference-in-differences
DPM	Division of Portfolio Management
DRC	The Democratic Republic of the Congo
EE	Executing entity
EPIU	Environmental Project Implementation Unit, State Agency of the Ministry of Nature Protection, Armenia
FAO	Food and Agriculture Organization of the United Nations
FMCN	Fondo Mexicano Para La Conservación De La Naturaleza A.C.
FP	Funding proposal
GCF	Green Climate Fund
IAE	International Accredited Entity
IE	Impact evaluation
IEU	Independent Evaluation Unit
IFAD	International Fund for Agricultural Development
ISDC	International Security and Development Center
IUCN	International Union for Conservation of Nature
JICA	Japan International Cooperation Agency
J-Pal	Abdul Latif Jameel Poverty Action Lab
LORTA	Learning-Oriented Real-Time Impact Assessment
MoE	Ministry of Environment of Rwanda
MoU	Memorandum of understanding
MSME	Micro, small- and medium-sized enterprise
SLEM	Sustainable Landscapes in Eastern Madagascar
SPREP	South Pacific Regional Environment Programme
UNDP	United Nations Development Programme



I. Background

1. The GCF aims to support a paradigm shift towards low-carbon and climate-resilient development pathways. Understanding if a paradigm shift is occurring and to what extent GCF is driving it is critical. The GCF's contribution to the shift requires GCF project investments to credibly measure if they achieve their stated goals and intended impacts. Since 2018, the IEU has asked to what extent GCF-supported projects can credibly report their impacts, efficiency and effectiveness in an evidence-based and robust way as part of its evaluability study.
2. From its recent evaluability study, the IEU found in 2022 that most GCF proposals, explicitly or implicitly, outline their programme logic and reasonably substantiate the credibility of their claims about causal pathways. Some 36 per cent of approved proposals even cite good evidence supporting their causal claims. However, only 34 per cent of proposals satisfactorily accounted for any unintended consequences of their GCF funding, and 28 per cent ignored the issue. Thirty-six per cent of proposals indicated they already had or intended to collect baseline data for evaluative purposes. However, only 27 per cent of proposals adequately identified the frequency and level of data collection and reporting necessary to ensure monitoring and evaluation (M&E) activities continue unhindered. Thus, the results of the evaluability assessment are alarming, and in this context, the IEU's Learning-Oriented Real-Time Impact Assessment (LORTA) programme can serve as one of the countermeasures to change such limitations of GCF proposals and address relevant capacity concerns.
3. The LORTA programme uses best practices in theory-based impact evaluations to build feedback loops and measurements into GCF projects and programmes. LORTA has supported a range of project and programme teams to acquire skills and competencies that can be applied to project design, implementation and evaluation.
4. LORTA's primary objectives are threefold:
 - (a) Strengthening the capacity of accredited entities (AEs) for impact assessments
 - (b) Supporting the generation of an evidence base for the GCF about the impact and improving quality at entry for GCF investments
 - (c) Disseminating lessons learned in real-time to the GCF ecosystem
5. LORTA provides the following activities:
 - (a) Capacity building: The IEU builds the capacity of the AEs in impact evaluations and helps the project teams embed the impact evaluations in their measurement systems. This provides project teams with high-quality data on implementation effectiveness and helps them measure the causal impact of their projects or programmes (referred to later in the text simply as "projects").
 - (b) Evaluation advisory services: The IEU advises project teams on conducting or managing impact evaluations and impact measurement systems through state-of-the-art, theory-based, counterfactual methods that measure the causal change attributable to GCF investments.
 - (c) Measuring impact: The IEU measures the impact of the GCF-funded project/programmes through a causal analysis of what works and to what extent. In particular, impact assessment is used to evaluate innovations, test causal pathways and drivers for delivery, scale or replicate decisions and increase the global evidence base of what works and what does not.
 - (d) Dissemination to foster wider learning: The IEU employs impact evaluation designs using theory-based counterfactuals to assess the results of the GCF-funded projects and



to report on the implementation challenges and opportunities for these projects and the LORTA programme. The IEU, through LORTA, offers learnings to improve the GCF-funded projects' design and implementation, as well as their M&E and thus LORTA serves as a learning mechanism for the GCF.

II. Progress and milestones in 2023

6. The IEU has been expanding LORTA's portfolio since the programme's inception in 2018 to generate evidence about what works and enhance learnings about the design, implementation and management of real-time measurement systems and impact evaluations within the GCF ecosystem. The LORTA programme has engaged with around 50 GCF-funded project teams, all of whom have benefited from capacity building sessions and technical assistance in conducting impact evaluations.

7. According to the IEU's evaluability study mentioned above, 55 per cent of approved GCF project proposals do not require M&E, or the requirement is not apparent in the proposal. The study highlights that substantial improvements have been observed in some areas, such as identifying causal pathways, measuring and verifying investment criteria, collecting quality data, and reporting. These improvements may be attributed to the continuous capacity-building efforts of the IEU and the GCF Secretariat, especially the Division of Portfolio Management. However, some risks have been identified in implementation fidelity and performance against the GCF investment criteria.

8. In 2023, the IEU LORTA programme continued to guide, assist and advise the impact assessment for a selection of GCF-funded projects. The knowledge gained from the LORTA programme can help to improve the quality of funding proposals, ensure the adequate budgeting of funding activities, and build foresight into project implementation. Lessons learned from the LORTA programme can strengthen the review processes and adaptive management of GCF projects. Additionally, in 2023, the IEU onboarded four new projects into the LORTA programme, comprising FP179 Tanzania, FP187 Benin, FP192 Barbados and SAP021 Timor-Leste.

2.1 Capacity building

9. As part of its ongoing effort to support the AEs within its portfolio, the LORTA team actively engaged with entity and project teams online and in-country. The latter included visits to Mexico, Paraguay, Zambia, Rwanda, Uganda and Armenia to support data collection for impact evaluation and project M&E.

10. **Workshops:** Annual Virtual Impact Evaluation (June 2023) and In-Person (August 2023) Design workshops

(a) In June 2023, the LORTA team delivered its Annual Virtual Impact Evaluation Design workshop for seven direct access entities (DAEs) and three international accredited entities (IAEs), attracting more than 38 participants. As in earlier years, the topics covered in the 2023 workshop included impact evaluation concepts, constructing a project's theory of change and outcome indicators, tracking a project's progress in real time, and designing an impact evaluation.

(b) In August 2023, the LORTA team held an in-person workshop in Songdo, Incheon, which focused on advanced methodology and the more practical and technical aspects of an impact evaluation. The in-person workshop aimed to build the capacity of selected GCF-funded projects from the virtual workshop, comprising five country teams who



submitted preliminary impact evaluation designs. During the workshop, the participants learned about how experimental and quasi-experimental research designs, data collection, and geospatial data can be applied in their respective projects under the guidance of specialists. Participants could also share their project experience.

2.2 Evaluation advisory services

11. LORTA’s technical advisory work aims to support approved GCF projects in building independent, high quality and useful measurement and data systems. Advice is provided regarding impact evaluation methodology, data collection methods and statistical analyses.

12. The LORTA programme has supported AEs embedding interventions with impact evaluation designs while ensuring they fully own their designs and reports. Moreover, the programme supports AEs in analysing collected data for the impact evaluation, including technical support for data analysis and producing baseline, midline or endline reports.

13. The programme made substantial progress in designing and implementing impact assessments in 2023, including designing two impact assessments, collecting five rounds of household data, and finalizing one endline, two midline and three baseline impact evaluation reports.

Table 1: List of 2023 LORTA evaluation advisory services

DESIGN	DATA COLLECTION	ANALYSIS AND REPORTS
FP192 Barbados (CCCCC) SAP021 Timor-Leste (JICA)	<p>Baseline data FP068 Georgia (UNDP) SAP023 Mexico (UNDP) FP062 Paraguay (FAO)</p> <p>Midline data FP074 Rwanda (MoE, Rwanda)</p> <p>Endline data FP101 Belize-BYG (IFAD)</p>	<p>Three baseline reports FP034 Uganda (UNDP) SAP023 Mexico (FMCN) FP062 Paraguay (FAO)</p> <p>Two midline reports FP073 Rwanda (MoE, Rwanda) FP026 Madagascar (CI)</p> <p>One endline report FP069 Bangladesh (UNDP)</p>

Source: IEU LORTA database, as of 10 December 2023.

Note: Letters in parentheses represent the project AEs.

2.3 Dissemination and outreach

14. On the margins of B.36, the LORTA team delivered a side event, introducing its impact evaluation work and lessons learned at the country level to GCF Board members, advisers, Secretariat staff, and observers representing civil society and public sector organization networks. The B.36 side event was well received by the participants as it offered insights into the impact of GCF’s investments and the on-ground beneficiaries reached through GCF projects.

15. To enhance the dissemination and uptake of LORTA-related learnings and insights, the IEU delivered two talks in 2023 on the significance of impact evaluations, inviting colleagues from the Division of Mitigation and Adaptation as co-speakers. The learning talks not only facilitated a comprehensive understanding of how the impact of GCF-funded activities is measured at different stages of the project cycle but also delved into specific case studies from FP002 Malawi and FP069 Bangladesh. These talks offered Secretariat colleagues an opportunity



to reflect on the sustainability of project impacts and to consider how they appraise and apply IEU evidence and findings regarding GCF-funded projects when supporting AEs and other stakeholders.

III. Portfolio

16. Since 2018, the LORTA programme has onboarded 29 GCF projects, equivalent to around 10 per cent of all approved GCF projects. Of these, three projects were dropped due to implementation challenges. LORTA currently has 11 projects at the engagement and design stage, six at the baseline stage, eight at the post-baseline stage, and one completed. The status and phase of each project is summarized in Table 2.¹

Table 2: LORTA project portfolio status and phase

	COUNTRY/REGION	ENGAGEMENT/DESIGN	BASELINE	POST-BASELINE STAGE	RESULTS AND DISSEMINATION
1 ST COHORT (ENTERED IN 2018)	FP002 Malawi				X
	FP035 Vanuatu		X		
	FP026 Madagascar			X	
	FP062 Paraguay		X		
	FP034 Uganda			X	
	FP068 Georgia			X	
2 ND COHORT (ENTERED IN 2019)	FP072 Zambia			X	
	FP096 DRC	X			
	FP069 Bangladesh			X	
	FP073 Rwanda			X	
	FP087 Guatemala			X	
	FP097 Central America	X			
3 RD COHORT (ENTERED IN 2020)	FP098 Southern Africa	X			
	FP101 Belize		X		
	FP110 Ecuador		X		
4 TH COHORT (ENTERED IN 2021)	FP116 Kyrgyzstan	X			
	FP172 Nepal		X		
	SAP023 Mexico		X		
	FP138 Senegal	X			
5 TH COHORT (ENTERED IN 2022)	FP060 Barbados			X	
	CN Armenia	X			
6 th cohort (entered in 2023)	SAP031 Brazil	X			
	FP179 Tanzania	X			
	FP187 Benin	X			
	FP192 Barbados	X			
	SAP021 Timor-Leste	X			

Source: IEU LORTA database, as of 10 December 2023.

¹ Additional information about the current portfolio can be found in the Table 3.



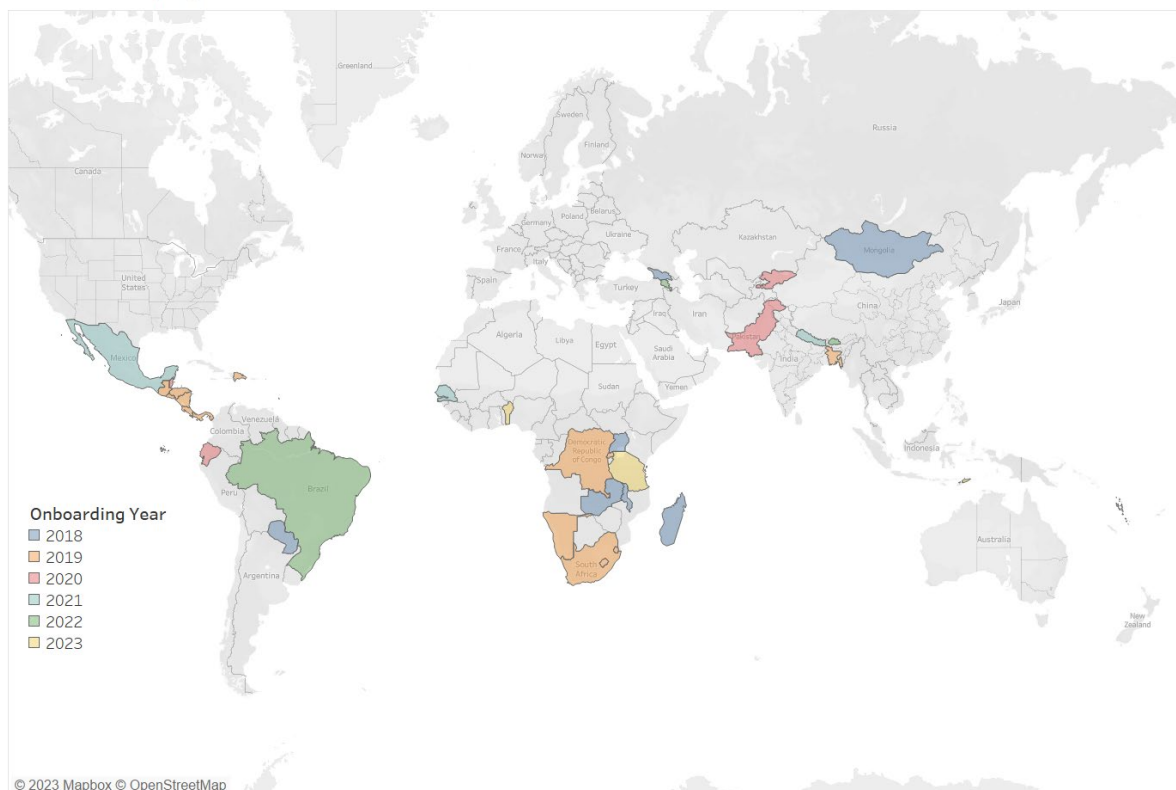
Note: While the LORTA programme initially included these projects, FP028 Mongolia (1st cohort in 2018), FP108 Pakistan and SAP010 Philippines (3rd cohort in 2020) are no longer considered under the LORTA programme due to implementation challenges.

3.2 Portfolio by LORTA cohort and project location

17. As of December 2023, the LORTA portfolio comprises 26 GCF-funded projects worldwide. Figure 1 lists the projects' geographical locations and the years that LORTA onboarded them. Since its inception in 2018, the LORTA programme has achieved a balanced regional distribution of projects. There are currently 10 projects in Africa, five in the Asia-Pacific region, nine in Latin America and the Caribbean, and two in Eastern Europe.

Figure 1: World overview of LORTA projects

Onboarded projects - LORTA



Source: IEU LORTA database as of 10 December 2023.

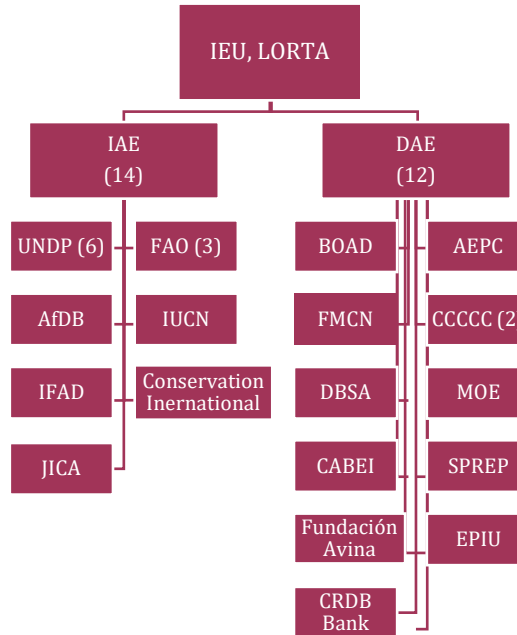
Note: The figure shows the geographic distribution of GCF-funded projects under the LORTA programme. The colour legend represents the year that LORTA onboarded these projects.

3.3 Portfolio by implementing partner

18. The LORTA portfolio has achieved a balanced representation of both IAEs and DAEs, as seen in Figure 2. This balanced distribution ensures diverse perspectives and experiences, contributing to the programme's success and effectiveness.



Figure 2: List of LORTA working partners



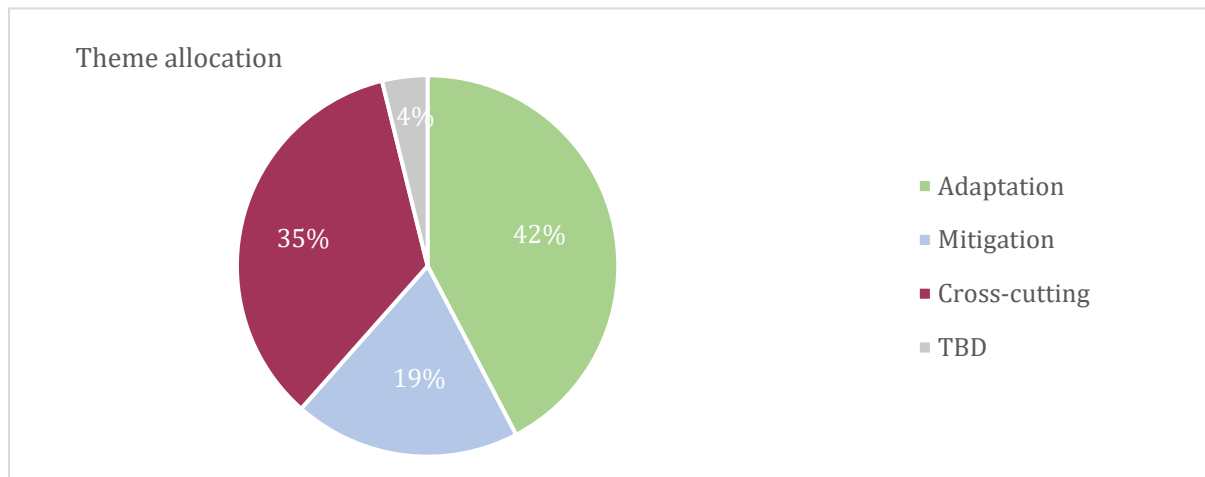
Source: LORTA Impact Evaluation Portfolio.

Note: (#) indicates the number of projects managed by each entity if the number is bigger than one. For example, UNDP has six projects with LORTA.

3.4 Portfolio by theme

19. The LORTA portfolio comprises 26 projects: 11 adaptation, nine cross-cutting, five mitigation, and 1 still to be determined in the case of Armenia as the project is at the concept note stage.

Figure 3: Theme allocation of onboarded projects



Source: IEU LORTA database, as of 10 November 2023.

Note: The LORTA programme includes one project, CN Armenia, onboarded in 2022 after the 2022 Annual Impact Evaluation Design workshop. The Armenia project is still under consideration for Board approval, hence its thematic allocation has not yet been confirmed.



IV. Learnings in 2023

4.1 Learnings from project engagement

20. The LORTA evaluation cycle closely follows the implementation cycle of GCF-funded activities. Therefore, some lessons derived from the LORTA evaluations are operational, while others are specific to evaluation. The lessons learned and the challenges encountered in the coordination, collaboration, and process of GCF's 2023 projects are summarized below:

- (a) **Learning 1: Conducting rigorous impact assessment of GCF projects requires broader coordination effort beyond engagement with the Accredited Entity (AE).**
- (i) Accredited Entities (AEs) are crucial in developing and implementing funding proposals in the GCF business model. They are the lead agency in coordinating all the stakeholders, including GCF, throughout the project life cycle to execute the project successfully. The LORTA maintains close communication with AEs. It engages less with Executing Entities (EEs) as the communication with an EE typically passes through an AE. As EEs play a critical role in implementing GCF-funded projects and delivering impact, they may require more attention, particularly from the IEU.
 - (ii) Impact evaluations also aim to understand the contribution and attribution of a GCF-funded activity. The project team requires valid information about control variables and environments. Awareness of such methods needs to be established within the project teams and the project's wider ecosystem. Designing and conducting a rigorous impact assessment that includes a valid counterfactual requires alignment between several stakeholders. These include counterpart governments for their political buy-in, AEs for operational alignment such as budget, timeline, and scope of evaluations, and EEs for feasibility or evaluability on the ground. Sometimes, there are multiple co-executing entities for one project. Each EE has a distinct responsibility based on geographical coverage or technical expertise. The LORTA team must coordinate with every individual actor to ensure the evaluation's success. In 2023, the LORTA team dropped an impact evaluation after almost three years of engagement due to a lack of clarity around technical feasibility. Had there been full engagement with all the stakeholders, including earlier engagement with one of the EEs responsible for the early warning system's technical aspects, such an incident would not have occurred.
- (b) **Learning 2: Adapting to challenges in project dynamics, LORTA drives responsive implementation and ensures project effectiveness.**
- (i) LORTA evaluates the overall impact of a project or a specific component at the end of the project cycle and tests solutions through pilots, which can help improve and maximize the effectiveness of the GCF's investments. In Paraguay, the LORTA team is evaluating the impact of reforestation and climate-smart agroforestry activities under the Poverty, Reforestation, Energy and Climate Change project. Although it will take almost nine years to assess the project's final impact, the team conducted a nimble, complementary evaluation to increase the take-up of the agroforestry intervention with a grant from J-PAL King Climate Action Initiative and partnership with researchers from FAO, C4ED, and Maastricht University. During the project's first few years of implementation, the long waiting period between the initial sign-up and the



actual instalment of the agroforestry systems posed a serious dropout challenge. The team tested the modalities to address this challenge through a randomized encouragement design. Using simple WhatsApp text and audio messages, some people received nudges focusing on individual benefits, while others received messages emphasizing collective environmental benefits. The LORTA team did not find strong evidence of change in beneficiaries' perceptions following these message communications. However, the intervention and results were still useful for the operations team to take action to improve the project implementation. The report is forthcoming.

(c) **Learning 3: Collecting high-quality data is the backbone of LORTA's impact evaluation work, which requires early planning and close monitoring.**

- (i) An impact evaluation project generally requires multiple rounds of data collection, including a baseline survey before the start of a project and a follow-up survey after it has been implemented. Collecting data is often time-consuming, taking up to six months for preparation, including developing and testing a questionnaire, hiring a survey firm, training enumerators, and conducting a pilot survey. Together with the AEs, the LORTA team develops a survey questionnaire that can adequately measure the indicators mentioned throughout the theory of change. Usually, a local survey firm is hired to collect data for evaluating GCF-funded projects. Through its advisory services, the LORTA team supports the AEs to ensure that the firm meets the required qualifications, including experience in data collection of large-scale household surveys. The LORTA team also visits the field to participate in enumerator training and pilot-testing the survey to ensure the evaluation standards are met.
- (1) **Early planning for data collection is crucial, as impact evaluation projects are sensitive to the timing of the data collection.** For instance, the difficulty in procuring a survey firm in Uganda delayed baseline data collection until after the start of project activities. The delay may lower the quality of the impact evaluation study as it may be difficult to compare the treatment and control groups prior to project implementation. For this reason, it is important to plan for data collection at least six months before the survey start date, coordinate with the implementing agency and ensure project/programme operations do not commence before the baseline survey.
- (ii) During field data collection, the LORTA team must work closely with the survey firm to keep attrition and non-response as low as possible. A major issue during the data collection stage was maintaining the sample size agreed upon during the impact evaluation design. Maintaining the sample size is important, as low sample size or attrition problems reduce the statistical power to detect a project's impact. During the data collection in Barbados, unforeseen events, such as low response rates from the control group in the endline survey, resulted in a smaller sample size. The LORTA team offers two recommendations for avoiding such issues:
- (1) **Implementing data quality assurance measures at multiple stages helps ensure the collected data is reliable.** To ensure acceptable data quality, the LORTA team would need to work closely with the data collection team to develop enumerator training materials and a data quality assurance plan. Quality checks of the data should occur at multiple stages, including immediate checks of the collected data by



enumerators, later random checks by supervisors, and high-frequency checks by the research team.

- (2) **The LORTA team can strengthen GCF stakeholders' data collection through capacity-building workshops.** The LORTA team holds capacity building workshops for the AEs and EEs of approved projects to strengthen their technical capacity and knowledge of data collection. During the workshops, the LORTA team should assess the possibility of undertaking a large field survey of the beneficiaries and a valid comparison group. In addition, the sampling strategy, including the importance of maintaining the agreed-upon sample sizes, must be fully discussed between the data collection and LORTA teams.

4.2 Learnings from individual projects

21. The LORTA programme finalized three baseline reports, two midline reports and one endline report by the end of 2023. The reports' findings contribute to the accountability and effectiveness of the GCF-funded projects by generating credible, high-quality theory-based evidence. The finalized reports provide the results and lessons learned from the evaluation of four GCF-funded projects, and here is a summary of these findings gleaned from the reports of the four projects concerned.

4.2.1 FP069 Bangladesh

22. In 2019, LORTA engaged in a long-term impact evaluation of the UNDP-managed project FP069, "*Enhancing adaptive capacities of coastal communities, especially women, to cope with climate change induced salinity*". The purpose of the Bangladesh-based project, among others, is to support women's livelihoods for income generation, enhance agricultural adaptation to the risk of rising sea levels and increased salinity in coastal areas, and provide drinking water to families and communities. **The LORTA evaluation explores the impacts of livelihood support on women's economic empowerment and food security.**²

23. Key impacts

- (a) The key results of the impact evaluation indicate that the livelihood support programme provided women with much-needed income support, positively impacting their families' food security in the short- to medium term. The project supported engagement in at least one income-generating activity, particularly homestead gardening, and increased women's income by 250 USD (14,000 Taka).³ As a result, food security improved by 8 per cent, as measured by the consumption of food types important for well-being and health.⁴ The project also increased family awareness of and preparedness for future climate-related shocks. Programme-assigned beneficiaries exhibit a 4-percentage point

² The impact evaluation was completed in December 2023, and the UNDP project team will finalize the project by October 2024. To fully explore the project's causal impact, the LORTA impact evaluation and project teams collected data from 3,120 families in two coastal areas, Khulna and Satkhira, in November 2021 and November 2022, respectively.

³ In particular, the impact estimate for the income is 14,020 with a standard error of 4,437 that corresponds to the deviation of the income effects across the sample households. The impact estimate is significant at 1 per cent level.

⁴ The impact estimate of food security corresponds to 4.6 units on a scale from 0 to 100, with a standard error of 1.1. The estimate is significant at 1 per cent level.



increase in their perception of household preparedness against future extreme weather events, reaching a total of 95 per cent.⁵

- (b) However, despite the ability of women to diversify their income-generating activities, the project did not result in women gaining more power or control over the expenditure of their generated income. This limitation can be attributed to the predominantly male-dominated and patriarchal culture in the southwestern provinces of Bangladesh. In these regions, decisions regarding family finances are typically made solely by males. Changing deeply ingrained perceptions, lifestyles, and decision-making processes may require more time and sustained effort. However, it is important to note that female empowerment remains a crucial objective of FP069. Conducting long-term evaluations of this project or implementing subsequent rounds of data collection could provide valuable insights into gender dynamics and potential avenues for transformation.
24. Results from the capacity building activities
- (a) The capacity building in the impact evaluation for the UNDP team in Bangladesh consisted of various activities. Initially, the LORTA team visited Bangladesh in 2019, followed by regular monthly virtual meetings until the completion of the impact evaluation in 2023. This consistent engagement was crucial in maintaining motivation and interest in impact evaluation among all involved parties.
- (b) The decision to randomize the intervention early in the LORTA engagement, along with the support from the project team and relevant stakeholders, enhanced the rigour of the evaluation. The randomized control trial – the gold standard in impact evaluation – ensured a fair allocation of resources to beneficiaries and allowed for the phased implementation of the intervention to the control group at a later stage.
- (c) Furthermore, the Bangladesh team had the opportunity to participate in the LORTA Data Workshop in Ethiopia in late 2022. This workshop provided valuable insights on effectively interpreting and utilizing data for impact evaluation. As a result, the endline data collection in autumn 2022 was successful, and the key impacts were analysed and triangulated with the support of the LORTA team in 2023. The project team also expressed interest in continued engagement with LORTA for future intervention rounds.
25. Challenges from the implementation of the impact evaluation
- (a) Implementing impact evaluations for the IEU has provided valuable insights into the effectiveness of climate-related adaptation interventions in developing countries. However, this process had its own set of challenges and valuable lessons.
- (b) One of the primary obstacles faced during the implementation was the impact of **COVID-19 and natural disasters**. These events led to delays in data collection and project implementation. In Bangladesh, where the pandemic was particularly difficult, extra health safety measures had to be implemented during data collection. Additionally, some team members fell ill, further disrupting data collection in certain communities. Furthermore, cyclone Sitrang and the resulting heavy rainfall in late 2022 disrupted the endline data collection process.
- (c) Another challenge, more specific to the standard GCF project cycle rather than the impact evaluation design, was the difficulty in measuring **the long-term sustainability** of project impacts. The one-year gap between baseline and endline data collection only covered one to two agricultural production cycles for women. This limited time frame

⁵ The shock perception effect corresponds to an increase of 4 per cent with a standard error of 2 per cent. The impact estimate is significant at 5 per cent level.



makes it challenging to determine whether the positive impacts on women's livelihoods are sustained and whether they remain engaged in their chosen activities. Therefore, financing for an endline survey, which could be conducted for six months, one year, or longer after project completion, would be beneficial in assessing the sustainability of impacts beyond the project duration.

- (d) Finally, collecting data **from indigenous communities and minority ethnic groups** posed another challenge. While the aim was to include diverse population groups to better understand the differential impacts, the sensitive issue of revealing ethnic identity made it impossible to identify the impacts on a specific local indigenous group called Adivasi. Instead, the impacts were analysed collectively among all ethnic groups that engaged with the project. The information from the Annual Performance Reports of the projects submitted by the project teams does not adequately identify the impacts on the most vulnerable groups. Therefore, to properly assess their impacts, identifying which specific groups within the population engaged with the project requires more effort.

26. Lessons for the Green Climate Fund (GCF)

- (a) The following lessons for the Green Climate Fund (GCF) can be derived from the implementation of the impact evaluation:
- (i) **Flexibility in project timelines:** The impact evaluation highlighted the importance of being prepared for unforeseen events, such as natural disasters and pandemics, that can affect the data collection and project timelines. The GCF should consider and plan for potential disruptions to project implementation and evaluation, ensuring flexibility in timelines to accommodate such challenges. This relates specifically to GCF colleagues in the Divisions of Portfolio Management (DPM) and Mitigation and Adaptation (DMA) and is also relevant to AE project teams and local stakeholders involved in project implementation.
 - (ii) **Contextual adaptation:** Adapting to the local context and conducting country visits can provide valuable insights into the project and the communities. This enables the development of more precise indicators and enhances impact measurement. Additionally, such visits can help identify and address the specific needs of vulnerable groups within the population. This is relevant for the LORTA team and relevant GCF divisions, namely DPM and DMA.
 - (iii) **Stakeholder and beneficiary engagement:** Maintaining frequent communication with the project team and stakeholders involved in impact evaluation and project design is essential for sustained engagement. Regular in-person or virtual meetings facilitate ongoing collaboration, knowledge sharing, and learning throughout the evaluation process. This learning is specific for the LORTA team, relevant AEs and involved stakeholders.
 - (iv) **Inclusive data collection:** Efforts should be made to collect relevant data from indigenous communities and minority ethnic groups. Ensuring representation and inclusivity in the impact evaluation allows for a more comprehensive understanding of the differential impacts and helps identify the needs of these vulnerable groups. Further efforts are needed to obtain sufficient information on which groups benefit from the project. Good coordination and knowledge exchange between the Office of Sustainability and Inclusion (OSI), the LORTA team, and the AEs project team are key to ensuring that data on indigenous populations are available, relevant and current.



- (b) By incorporating these lessons into future projects and impact evaluations, the GCF can strengthen its ability to enhance the effectiveness of climate-related adaptation interventions in developing countries.

4.2.2 FP026 Madagascar

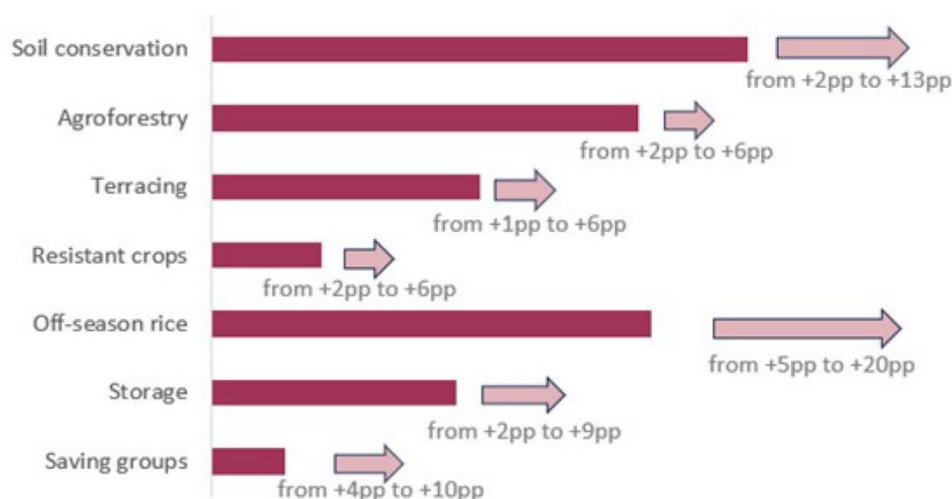
27. The *Sustainable Landscapes in Eastern Madagascar* (SLEM) project aims to increase the resilience of smallholder farmers and reduce carbon emissions by implementing climate-smart agriculture and more sustainable forest management in two protected areas. These two corridors are the remaining large blocks of forest in eastern Madagascar, with 660,000ha covering 15 districts. This USD 18.5 million project started in 2018 and is due to be completed by November 2024. It is funded by the GCF and implemented by Conservation International Madagascar.

28. The SLEM project addresses one of the core causes of severe deforestation and land erosion in recent decades: unsustainable land-use practices. The project aims to raise awareness of climate-related risks and climate-smart agricultural practices through various activities.

29. Key impacts

- (a) The evaluation follows an experimental approach relying on randomizing the order in which each local community receives project activities. Precisely 1,654 households were interviewed at midline in late 2022. **Midline results show widespread adoption of the conservation agriculture practices** illustrated in Figure 1 below. The arrows indicate the increase in adoption resulting from the SLEM project, expressed in percentage points.

Figure 4: Midline impacts on the adoption of conservation agriculture practices



Source: LORTA team



Note: See footnotes 6 and 7

Figure 4 is illustrative and not to scale.

- (b) In addition to these short-term outcomes, there are early signs of changes in longer-term outcomes. Most importantly, the midline evaluation showed **food security improved** between 2 and 7 per cent. In terms of agricultural production, the midline evaluation found that one crop, ginger, was boosted by the project at midline, with production increasing by 26 to 44 per cent. The midline evaluation also highlights a **reduction in households' reliance on forest resources**, with the proportion of early beneficiaries deriving income from environmentally unsustainable activities declining by 1 – 3 percentage points in the summer and 4 – 7 percentage points in the winter.
- (c) When assessing impacts by gender, the midline estimates highlighted that women-headed households drive the adoption of soil conservation practices and terracing. Households headed by men drive the adoption of drought-resistant crops, off-season rice, pest management practices and saving groups.
- (d) Overall, the **evaluation design of a clustered randomized phase-in approach worked well** and allowed the generation of a robust set of estimates of the project's effects based on a clean panel data set. The attrition rate of 9.2 per cent was within the buffer factored into the study and is within acceptable limits. Differential attrition across Phase 1 and Phase 3 households has been controlled for within the regression estimates.
30. Challenges and lessons from the implementation
- (a) The key lesson from the Madagascar midline is **maintaining a strong relationship with the impact evaluation champions across different stakeholder levels**. For example, the strong support for the impact evaluation by the project's AE Conservation International Madagascar's Country Director and its regional staff in Antananarivo, Toamasina and Fianarantsoa proved critical. These officers ensured the ownership and buy-in by fokontany (village) chiefs and the householders interviewed in Communautés de Base, all of whom contributed to this evaluation. Second, it is clear that ensuring support and ownership from different actors within the AE is important. For this evaluation, these included the Betty and Gordon Moore Center for Science, the Natural Climate Solutions division and the dedicated GEF/GCF Agency, which are the divisions within Conservation International.

⁶ Figure 4 shows impact estimates from six model specifications for each conservation agriculture practice. It shows a range of values based on these models. The LORTA team measured intention-to-treat effects (the impacts of belonging to beneficiary groups), the project's impacts on beneficiaries (specifically, local average treatment effects) and when using panel data in difference-in-differences estimates. For each of these three approaches, two different sets of covariates were applied including key baseline outcomes (specifically logged expenditures and food security measures) and variables which differed at baseline based on balance tests, totalling six model specifications in all.

⁷ The significance levels for the individual conservation agriculture practices are as follows:

- Soil conservation (2 to 13 percentage points at the 1 per cent level)
- Agroforestry (2 to 6 percentage points at 1 per cent level, for 5 out of 6 sets of estimates)
- Terracing (1 to 6 percentage points at 1 per cent level)
- Resistant crops (2 to 6 percentage points at the 1 per cent level)
- Off-season rice (5 to 20 percentage points at the 1 per cent level)
- Storage (2 to 9 percentage points at the 1 per cent level)
- Savings groups (4 to 10 percentage points at the 1 per cent level)

The LORTA team also found a reduction in the proportion of households practising pest management strategies (7 to 10 percentage points at the 1 per cent level). Multi-cropping, irrigation and the number of conservation agriculture practices do not show consistent levels of significance.



4.2.3 FP073 Rwanda

31. The midline evaluation of “*Strengthening Climate Resilience of Rural Communities in Northern Rwanda*”, often called the Green Gicumbi project, evaluates the impact of watershed protection, climate resilient agriculture and sustainable energy use. Where possible, the report employs the differences-in-differences methodology, using panel data from baseline and midline household surveys. Where outcomes cannot be assessed using the differences-in-differences methodology, the report uses propensity score matching on midline data instead.
32. The midline evaluation found that the **treatment group has higher rates of adopting climate resilient agricultural (CRA) practices**. The proportion of treatment households adopting CRA practices is 20 to 24 percentage points higher than comparison households. They also adopt around 0.5 more climate resilient agricultural practices per household than control households. **Results are mixed regarding measures of agricultural production and climate resilience**. At midline, the intervention enhanced the agricultural production of specific crops like beans and sweet potatoes. However, similar improvements were not observed for other key crops such as potatoes, maize, and sorghum. Regarding yields, the only crop that shows a significantly greater yield is beans.
33. **Green Gicumbi project activities increase short-term food security**. A significantly smaller proportion of treatment households (on average, 17.6 percentage points) reported suffering from food shortages in the past year. Furthermore, treatment households report lower coping strategies index scores (between 3.3 and 3.6 points lower), indicating that they resort less to harmful strategies in response to food shortages than control households. However, long-run dietary habits might not be affected. There is no significant difference between treatment and control households regarding household dietary diversity scores.
34. The LORTA team observed no changes in tropical livestock units and the climate resilience index compared to the household control areas. It also observed counterintuitive findings regarding the type and quantity of fuel used for cooking. The team found that a significantly smaller proportion of treatment households use improved cookstoves (29.4 percentage points), with a greater proportion using traditional stoves (31.9 percentage points).
35. **These findings suggest that the project's interventions have had a greater influence on female-headed households than male-headed households**. Female-headed households show a more pronounced adoption of climate-resilient agricultural practices. Additionally, a smaller proportion of female-headed households experienced food shortages and showed a greater decline in the need for food security coping strategies. Conversely, male-headed households exhibit an increase in the absolute number of days characterized by food shortages.
36. Several challenges were encountered during the field data collection exercise, including difficulty contacting respondents who lacked access to mobile phones and traversing poor road networks in some areas. In addition, the survey team sensed a degree of survey fatigue. It appeared the respondents found it challenging to complete the questionnaire due to its complex measurements (e.g. land size, yields, fertilizer, pesticides, seeds, etc.). To deal with the challenging questionnaire length, the survey team used encouraging language to motivate respondents while remaining patient throughout the process. The survey team collaborated with community leaders to encourage control group members to participate.
37. More broadly, lessons from the evaluation include challenges encountered with the quality of both baseline and endline data sets. The feasibility of the original design of DiD hinged on the creation of panel data sets at both baseline and midline. Due to constraints during fieldwork and other factors, the survey team could not maintain consistent household



identification. There were also material differences in the samples drawn at baseline and midline and in the questionnaires used, making analysis difficult. These challenges meant the LORTA team had to be flexible, nimble and innovative in completing the midline report. Two points illustrate these aspects.

38. First, the **evaluation combined both DiD and matching forms of analysis. The LORTA team proceeded with the DiD analysis using two cross sections instead of panel data**, ensuring that variables were defined consistently throughout. Where variables were not consistently defined across baseline and midline data collection, matching methods were used to draw reliable and credible causal estimates.

39. Second, the team also encountered a challenge related to attrition. In this repeated cross section design, a different approach to the one used with panel data is required, where the team uses a probit model with the dependent variable equal to one when households drop from the sample. Attrition can impart bias into impact estimates. Similarly, the observed discrepancies within the numbers of households interviewed per village can impart bias into the estimates. Consequently, **the LORTA team completed the attrition analysis through a series of ANCOVA models at the village level**. The analysis revealed no overall distinct or apparent trend in changes within household characteristics at the village level between the baseline and midline surveys. When significant differences do occur, it is through chance. Any systematic differences between baseline and midline were controlled for in our impact estimates.

4.2.4 FP034 Uganda

40. The “*Building Resilient Communities, Wetland Ecosystems and Associated Catchments in Uganda*” project (FP034) is managed by the United Nations Development Programme (UNDP) and predominantly implemented through government agencies. The project covers 2017-2025 and is being implemented in 12 districts in Southwestern Uganda and 12 in Eastern Uganda. It consists of three key components. The first focuses on restoring and managing wetland hydrology and associated catchments alongside community engagement and sensitization. A second component targets improving agricultural practices and alternative livelihood options in the wetland catchments. The third component strengthens access to climate and early warning information for farmers and other target communities to support wetland management.

41. LORTA is evaluating the project using a DiD design with matching at the levels of both wetland systems and households. Wetlands have been matched using expertise and local knowledge from project stakeholders. Household matching will involve applying statistical techniques to survey data, including constructing an artificial comparison group from control wetlands that share key observable characteristics with the treatment group. Ecological factors are also examined using satellite data and bio-chemical analysis.

42. This report is a preliminary assessment, focusing mainly on components 1 and 2. For the evaluation, survey data was collected from 1,666 households in eight treated and eight control wetland systems, four in each of Uganda's Eastern and Western regions.

43. On average, households reported growing 5.5 crops. The application of inputs to crops is very low, with many more control households applying agrochemicals, using better varieties and applying more sustainable land management practices. Overall, men tend to receive more information on agricultural practices from extension services than women, which highlights some of the key challenges women-headed households face. In addition, men tend to control income from agriculture, apply agrochemicals, transport crop produce and sell crop produce. Women tend to contribute labour through planting, weeding, harvesting and post-harvest handling.



44. Regarding livestock, control households own more cattle and chickens, implement more intensive livestock practices, including zero grazing, and receive more income from these sources. These findings suggest more advanced livestock rearing systems within control households, hinting at greater access to agricultural extension and a different demographic profile. Overall, the lack of difference in employment profiles of the two areas suggests there is still a large reliance on agriculture, and diversification of livelihoods has not proceeded at pace.

45. The baseline report highlights a difference between treatment and control households in their demographic profiles. Treatment households are more likely to be headed by a woman (who is less likely to be married), have fewer members (reflected in a lower adult equivalence score), have less education, and are more likely to be widowed. These demographic differences may be influencing current residence patterns and access to land. It is widely known that women-headed households face challenges accessing and owning land, as reflected in the preliminary assessment.

46. The completion of the baseline report identified several lessons. The survey data collection exercise experienced significant GPS errors when recording the location of households in Southwestern Uganda due to cloud coverage. This challenge was remedied by recording the names and administrative locations of survey respondents. The survey team faced difficulties collecting socio-economic data due to accessibility challenges posed by the mountainous terrain in the project areas.

47. More broadly, the evaluation as a whole has encountered a number of challenges, including delays during the COVID-19 pandemic, as well as pivoting away from the use of ecological data collected in 2018 to match wetland systems (due to concerns about the data quality) towards relying on local expertise and experience.

48. To remedy these challenges, the LORTA programme supported a four-day workshop, which was facilitated by the UNDP and the Ministry of Water and Environment and attended by over 30 government officials and stakeholders from various ministries and agencies. **Working in person with government agencies ensured more meaningful consultations with in-country stakeholders**, ultimately leading to a new and improved impact evaluation approach better aligned with national expertise, understanding and priorities. The country visit to Uganda highlighted how **engagement across different local and national actors is central to successful LORTA collaboration with the relevant stakeholders** on estimating the impacts of GCF projects on the ground.

V. Conclusion

49. In 2023 the LORTA programme continues to guide and advise on impact assessment for GCF-funded projects. As of December 2023, the programme was supporting 26 ongoing GCF projects. Capacity-building remained a key focus for the LORTA programme. Through virtual and in-person workshops, the LORTA team supported 10 new project teams in building their evaluation capacities and onboarded four new projects. The team also made substantial progress with its advisory services in 2023, including delivering two new designs, five sets of household-level beneficiary data and four finalized reports.

50. The impact evaluations of FP069 in Bangladesh, FP026 in Madagascar, FP034 in Uganda and FP073 in Rwanda, discussed in this report, provide valuable insights into the effectiveness of GCF-funded projects and highlight the challenges encountered during impact evaluation. For instance, the evaluations demonstrate the positive impact on women's economic empowerment and food security in Bangladesh. In Madagascar, households were less likely to rely on forest resources and more likely to adopt conservation agricultural practices. One noticeable



observation is that the positive impacts of GCF-funded projects in Bangladesh, Madagascar, and Rwanda were commonly driven by female-headed households, which aligns with GCF's objective to target the most vulnerable. Implementing impact evaluations also presented challenges, including delays in collecting data due to unforeseen events and difficulties in measuring the long-term sustainability of project impacts. These implementation challenges highlight the importance of planning data collection timelines and closely coordinating with implementing agencies, among other efforts, to ensure more inclusive data collection approaches.

51. The LORTA team actively engaged in dissemination and outreach efforts throughout the year. A successful side event during B.36 and dedicated learning talks highlighted the strong interest in assessing the attributional impacts of GCF-funded projects, which underscored the importance of LORTA's work. The IEU's LORTA programme continues to play a vital role in enhancing the effectiveness and impact of GCF-funded projects and provides essential support, guidance, and critical insights.

**Table 3: List of current LORTA Portfolio**

PROJECT ID	COUNTRY/REGION	RELATED SECTOR	CLIMATE TOPIC	AE	MILESTONE	ONBOARDING YEAR
FP068	Georgia	Climate information and early warning system	Early warning system	UNDP	Implementation	2018
FP026	Madagascar	Agriculture and food security Ecosystems and ecosystem services	Smart agriculture, forest protection	Conservation International	Implementation	2018
FP002	Malawi	Climate information and early warning system	Climate information and adaptive livelihoods	UNDP	Academic publication	2018
FP062	Paraguay	Forest and land use	Reforestation	FAO	Implementation	2018
FP034	Uganda	Ecosystems and ecosystem services	Wetlands and sustainable livelihoods	UNDP	Implementation	2018
FP035	Vanuatu	Climate information and early warning system	Climate information	SPREP	Implementation at pause	2018
FP072	Zambia	Agriculture and food security	Agricultural livelihoods	UNDP	Implementation	2018
FP069	Bangladesh	Agriculture and food security Water security	Agricultural livelihoods, water security	UNDP	Implementation	2019
FP097	Central America	Ecosystems and ecosystem services	Biodiversity friendly MSMEs	CABEI	Inception at pause	2019



PROJECT ID	COUNTRY/REGION	RELATED SECTOR	CLIMATE TOPIC	AE	MILESTONE	ONBOARDING YEAR
FP087	Guatemala	Ecosystems and ecosystem services	Watershed management, climate smart agriculture	IUCN	Implementation	2019
FP096	DRC	Energy access and power generation	Renewable energy	AfDB	MoU	2019
FP073	Rwanda	Agriculture and food security	Watershed protection and adaptive livelihoods	MOE	Implementation	2019
FP098	Southern Africa	Energy access and power generation	Renewable energy	DBSA	Implementation	2019
FP101	Belize	Agriculture and food security	Smart agriculture	IFAD	Implementation	2020
FP110	Ecuador	Forest and land use	REDD-plus reforestation	UNDP	Implementation at pause	2020
FP116	Kyrgyzstan	Energy access and power generation	Natural resources management	FAO	MoU delayed	2020
FP060	Barbados	Water security	Adaptive livelihoods, water security	CCCCC	Implementation	2021
SAP023	Mexico	Forest and land use	Ecosystem	FMCN	Implementation	2021
FP172	Nepal	Energy access and power generation	Clean cooking solutions	AEPC	FAA	2021
FP138	Senegal	Energy access and power generation	Renewable energy	BOAD	Inception at pause	2021



PROJECT ID	COUNTRY/REGION	RELATED SECTOR	CLIMATE TOPIC	AE	MILESTONE	ONBOARDING YEAR
CN	Armenia	TBD	TBD	EPIU	Pre-approval	2022
SAP031	Brazil	TBD	TBD	<i>Fundación Avina</i>	Inception	2022
FP179	Tanzania	Agriculture and food security	Adaptive livelihoods, Agricultural livelihoods	CRDB Bank	Inception	2023
FP187	Benin	Agriculture and food security	Adaptive livelihoods, Agricultural livelihoods	FAO	Inception	2023
FP192	Barbados	Water security	Water and energy management	CCCCC	Inception	2023
SAP021	Timor-Leste	Forest and land use	Land use planning, natural resource management	JICA	Inception	2023

Source: LORTA database.



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