

Annex 11. Planning, Monitoring Evaluation and Learning System (PMEL)

Background

PCRPP aims to increase production while improving the most vulnerable people's autonomous capacity to face the challenges posed by ongoing climate change. The target therefore is to increase and stabilize family income and food security while incentivizing young generations to stay active in rural activities even in areas/periods at risk of climate change impacts. As such project activities tackle the main barriers that limit an increased resilience of this specific population. Project performance indicators measure access to knowledge, technology and support required to overcome said barriers and increase their resilience in the face of ongoing climate change. The project applies in tandem a series of monitoring tools and strategies to ensure result-oriented monitoring and successful achievement of project objectives. Relevant results will be reported:

1. Avoided losses during drought events as compared to the 2010-2020 baseline;
2. Increase in soil moisture during the dry season;
3. Reduced and avoided emissions;
4. Increased resilience capacities; and
5. Behavioural change (i.e. Production practices, WASH, gender empowerment, minimum diet diversity)

A Planning, Monitoring Evaluation and Learning System (PMEL) will be developed to allow the results-based project management. The data and information collected through the use of specific tools for the implementation of Climate Resilience Productive Systems (CRPS), will contribute not only to learning, feedback and improvement of project interventions but will also build the foundations for the material relevant to the knowledge management (KM). The PMEL will be a fundamental tool to the Central Project Management Unit (CPMU/BNDES) decision making and will be in particular useful to provide feedback to the State-level Implementing Units (SIUs) at the state level. In addition, the systematization and dissemination of good practices and successful experiences will be important to define and design South-South cooperation schemes, advancing concrete results.

The design of the PMEL is based on the experience of practices and methodologies applied in previous IFAD operations in Brazil and in other countries in the region. The planning and monitoring tools will favour participative practices both in their intervention at the level of Territorial Resilience Investment Plans (TRIPs), communities, as well as in the Project management.

In order to manage the state level information, the Country-based Monitoring and Evaluation system (DATA-FIDA), developed and implemented for the ongoing IFAD Brazil portfolio will be used. The system has been developed by Programa Semear Internacinoal (PSI) and all projects in Brazil have been trained on its use. It is a project-supporting tool for organizing the information so that it reflects the implemented activities contribution both to the Logical Framework (LF) and to the projects AWPB. Each SIU will carry out the physical and financial monitoring of the implemented activities in its respective state using the DATA-FIDA system and will report to the CPMU to monitor the implementation of the project as a whole. During the first year of project implementation, improvements will be made to the DATA-FIDA system to allow the aggregation of the state data and its handling by the CPMU, in addition, an interface will be implemented for DATA-FIDA to dialogue with the IT system of BNDES. The CPMU will be responsible

for preparing and sending to IFAD the required consolidated progress reports and other project information, based on information provided by the SIUs. IFAD will be responsible for preparing and sending the progress reports to the GCF, in collaboration with BNDES.

Focus and objectives

The PMEL objective is to generate learning for the Project implementation and evidence on the results on changes in the quality of life of vulnerable groups, communities and regions in which the Project will operate. The PMEL will be developed in a participatory manner including all the actors involved, to promote the ownership of the used instruments and procedures.

Planning

It will be undertaken at a strategic and operational level. At the **strategic** level, the state project authorities' participation will be promoted for a preliminary mapping of the area of intervention in each state. In these selected areas, the participation of SIUs will be important, to initiate the Project actions with the selection of municipalities and beneficiary groups with the highest socioeconomic, climate and environmental vulnerability. The SIUs that will have on board, both an M&E specialist and an analyst, will be responsible for the preliminary mapping of this planning exercise to be aligned with the objectives and goals defined in the ML and the Project design document.

At the **operational** level, the Annual Work Plan and Budget (AWPB) will be carried out annually by defining a logical and coherent set of concrete activities that will be carried out each year, with the State-level subproject (SIU) and central level managers (CPMU) involved. The project's AWPB will be composed by systemic or wide-ranging activities such as the proposed in component 3, as well as those of a territorial nature, limited to the specific realities in the selected states.

The AWPB preparation and its implementation will be facilitated by the tools available and under use in IFAD portfolio in Brazil for the financial and physical performance (DATA-FIDA) follow up. The AWPB as a project management instrument will facilitate the monitoring for the fulfilment of the activities, the use of resources and the budget execution, it will also be a continuous evaluation tool allowing informed and timely decision-making to adjust and/or reschedule the Project at any moment during its implementation. Each state, through its SIU, must participate in the elaboration of its AWPB taking into account the Project final goals. Starting in the second year, the assessment of the results of the previous year will also be considered, to include adjustments in the implementation rates depending on the magnitude of the changes achieved against those projected. The project's consolidated AWPB will be submitted by the CPMU/BNDES annually for the IFAD's non-objection.

If necessary, the LF will be revised at the beginning of the Project implementation to ensure that expected results and goals will be consistent with its purpose, as well as checking the validity of assumptions and adjusting the verification means.

Monitoring

Monitoring will ensure the efficient Project performance and the coherence of its physical and financial progress to achieve the proposed results, for which specific tools will be designed to present aggregated data that can be compiled as a result of a participatory community exercise. The mentioned tools must be the same applied for all the participant states in the Project, for which their development and/or changes throughout the Project life must be carried out in agreement with the CPMU.

Complementary, a georeferenced GIS-based monitoring system will be implemented, which will be managed by each state SIU, to determine the degree of recovery of the project's intervention areas through GIS-based monitoring studies of vegetation cover and ecological quality. The adoption of this type of methodology will make it possible to calculate carbon mitigation.

Furthermore, relevant climate data will be collected by each state SIU in or near the locations of the project such as: rainfall, temperature, consecutive dry days (CDD), soil moisture among other variables. The combination of GIS-based monitoring with relevant climate data and the index of resilience capacities can improve the understanding of factors contributing to resilience and identify if the measure implemented were successful.

The a resilience scorecard and index have been tailored to the project's theory of change and are included in Annex 8 (Project Implementation Manual – PIM). This methodology has a pragmatic approach to deal with the multifactor complexity. It focuses in monitoring the resilience capacities the project seeks to address or is likely to influence. It does not monitor absolute resilience but changes in resilience of the beneficiaries compared to the baseline or control group. The resilience questionnaire and scorecard may be adjusted in consultation with project stakeholders at project start-up and will be completed as part of the baseline survey, at midterm and at the end of the project. It should be used for knowledge generation and improved analysis of resilience dynamics by combining it with the GIS-based monitoring studies of vegetation cover and ecological quality and climate data showing if stresses or extreme weather events have occurred during the implementation of the project.

The monitoring must provide timely and reliable information, both at central and state level, on the fulfilment of projected activities in the AWPB, the obtained achievements and the use of the financial resources, with the aim to take decisions at the community, state and project levels and make possible the needed corrections and reorientations during its implementation. For the territorial resilience investment plans (TRIPs) monitoring, tools that have already been proved in other states with other IFAD projects in Brazil will be adapted to be applied to the PCR proposed activities. The Project monitoring subsystem will be consistent with the LF.

To carry out the M&E throughout the Project cycle, specialized services and studies will be contracted for these functions as part of the project third component; the quality of these services will be ensured by the CPMU that will be established at BNDES. The CPMU will be responsible for monitoring the quality of the information and data uploaded into the systems in a decentralized manner. It is expected the data will be uploaded at the level of each state so that they have the possibility to update the progress in terms of

activities implemented (AWPB) and to provide follow-up information to and from the TRIPs. The CPMU will also be responsible for the development and implementation of new (planning, monitoring, and evaluation) complementing tools deemed necessary along the project life, in coordination with the responsables for the M&E areas of the SIUs.

On the SIU side, it is expected that the development and implementation of the monitoring subsystem will be in charge and carry out through the M&E specialists and analysts designated for the project in each participating state. They will mainly require specific training in activities related to the GIS information system management and maintenance, the use of satellite information, georeferencing, etc.

Evaluation

The evaluation implies an analysis, which is carried out in different moments with diverse scopes and depths and it is mainly focused on the analysis of effects and outcomes, with less emphasis on the implementation of activities or immediate products. The Project must have a clear evaluation strategy that allows evaluating the Project's contribution to the achievement of the results and impacts defined in the LF. The mentioned strategy will be defined at the Project's start-up to ensure that all the needed information will be collected through the execution. In this sense, the evaluation subsystem will be closely linked to the monitoring subsystem and will partly be fed by the information generated by the latter.

The **monitoring and evaluation** strategy will be developed around three key moments and studies to be developed for an objective comparison of implementation progress and adequate measurement of its impact, and results, related to the Project's expected outcomes in its LF. As minimum –together with project resilience scorecard and GIS mapping of Climate Change trends/impacts-, the following indicators will be included:

- i) income;
- ii) level of assets and equity;
- iii) production, consumption and commercialization;
- iv) natural resources and environmental management;
- v) level of families' participation in community-based organizations;
- vi) valuation of gender, race and ethnic identities;
- vii) access to public policies;
- viii) food security;
- ix) rainfall,
- x) consecutive dry days (CDD),
- xi) soil moisture,
- xii) normalized difference vegetation index (NDVI).

The baseline involves a sample survey of treatment groups (representing the beneficiary families) and a control group (representing those who will not be served by the project). Information will be disaggregated on gender for knowledge, attitudes and practices (KAP) regarding climate change adaptation in target communities.: the baseline study, the mid-term review and the final report (including the results of the impact evaluation study).

(1) **Baseline study.** Its objective is to describe and analyse the initial situation of the Project's target group based on selected indicators of impact and effect related to the Project's expected outcomes in its LF. It will serve as a benchmark for comparison for future evaluations. As minimum, the following indicators will be included: i) income; ii) level of assets and equity; iii) production, consumption and commercialization; iv) natural resources and environmental management; v) level of families' participation in community-based organizations; vi) valuation of gender, race and ethnic identities; vii) access to public policies; and viii) food security. The baseline involves a sample survey of treatment groups (representing the beneficiary families) and a control group (representing those who will not be served by the project). Information will be disaggregated on gender for knowledge, attitudes and practices (KAP) regarding climate change adaptation in target communities.

Studies will include the following gender sensitive dimensions: (i) Access and control over resources (human, social, natural and economic); (ii) Access and control over benefits (monetary and non-monetary); (iii) Decision making; (iv) Work load/ division of tasks and responsibilities; (v) Health and well-being (gender violence, social relations, etc); and, (vi) Food groups consumed by women of 15-49 years of age in project area.

The research questionnaire follows the model used by IFAD projects in Brazil, adapted to cover all the program's expected outcomes. The baseline study and its database should be available before preparation of any productive investment projects. The baseline data will be added to the projects M&E, system and compared, using charts and tables, to evidence collected during implementation, especially along with the project impact assessment (reported at the close of the implementation period).

Initial report: Will be developed and must contain details of the sample design, the plan for applying the questionnaire in the field, and the manual for field data collection. The *Preliminary Report* will include a detailed description of the activities to be carried out for application of the survey in the field, delivery of the database, and Preliminary Report of the field-work results. The final report should include: i) executive summary; ii) sample design; iii) identification and selection of observations; (iv) description of the study's methodology and calculation of the indicators; v) data analysis of the set of evaluation indicators listed above and compiled through the data-gathering tool (the questionnaire), with visual presentations of data (graphs, maps, tables, etc.); and (vii) conclusions and recommendations. The report will include an annex that contains a summary of the database in printed form and in its full electronic Excel form (IFAD standard) and "csv," in addition to other materials relevant to the study (photographs of registered households, etc.). To prepare the sample design of the baseline (essential for conducting the impact assessment), consultations will be held with expert institutions, such as the International Policy Center for Inclusive Growth (IPC-IG), a United Nations body and IFAD's partner in developing sample designs and validation of baseline databases in Brazil.

To this effect, specialized services will be hired to collect needed information for the Project activities and in line with the objectives and results to be achieved and that are found in the LF. The baseline survey will be conducted under Component 3 in a consolidated manner for each specific state. The terms of reference for this contracting, as well as the sampling, shall be elaborated jointly and agreed with the CPMU. Previous experience with the grant Adapting Knowledge for Sustainable Agriculture and Access To Market (AKSAAM) with the Federal University of Viçosa (UFV), the Programa Semear

Internacional (PSI) grant and other experiences such as with the International Policy Centre for Inclusive Growth (IPC-IG) will be taken into account. The data survey in each one of the states must follow the same methodology. The proposed methodology and the sample must have the IFAD's no objection. The CPMU will be responsible for monitoring the conduction of the baseline study, applying a minimum content of the aspects to be considered in the report that IFAD is satisfied with.

(2) Mid-term Review (MTR). BNDES and IFAD will carry out a MTR by the end of the fifth year of Project execution (the date will depend on the state of execution of the Project and its total duration). The MTR will be carried out once a study on the progress and results of the Project is finalized, which will present the first advances in terms of effect indicators. This study will be carried out with information collected from each of the participating states. The minimum content of the aspects to be considered in the document will be jointly defined by the CPMU and IFAD. This review will also analyze the implementation process and the relevance of the intervention strategies and methodology. The mid-term review report will serve to adjust the orientation of the Project.

(3) Final evaluation and impact assessment: The final evaluation will be carried out during the last year of Project execution, by contracting specialized services in the same way as the baseline elaboration proceeded. For the study, a methodology will be defined (including the sample design) to be consistent with that applied for the baseline of the Project, in order to make an objective comparison of the progress of implementation and adequate measurement of its impact and results. The proposed methodology and sample must have the IFAD's no objection. The results of this study will provide inputs for the Project Completion Report (PCR). Previous experiences of collaboration in the area with the AKSAAM grant with the UFV, PSI and IPC-IG will be taken into account.

Project Completion Report: Will be developed, and must describe the situation at the end of the intervention, including the results achieved in relation to the goals set in the LF and the lessons learned. The report will be prepared based on the results and impact study described above, between the completion date and before the closing date of the loan. The report is a Project responsibility and will therefore be prepared by CPMU/BNDES following IFAD's guidelines. IFAD will be responsible for sending the PCR to the GCF, which will be carried out in collaboration with BNDES.

The following tools and strategies will be applied for Monitoring and Evaluation:

(4) Monitoring and evaluation (M&E) using geographic information system (GIS): The GIS-based monitoring studies of vegetation cover and ecological quality combined with monitoring of rainfall and temperatures can help show the actual recovery of the intervention areas (productive areas using Climate Resilient Productive Systems (CRPS) and collective preservation areas). Adoption of this type of methodology will make it possible to calculate carbon sequestration. The GIS-based monitoring can also improve the understanding of factors contributing to resilience by overlapping the recovery data, climate data (rainfall and temperatures) with the index for resilience capacities of farming families.

The use of space technology will be fundamental for monitoring and space-time analysis of the soil cover of the intervention area. Such report can use digital images obtained by satellites that can be incorporated/integrated into a GIS.

The recovered area, when it attains the reference values, will advance to more mature stages of vegetation without further intervention. Green areas can be monitored through ecological indicators of sustainable recovery. The selected ecological indicators include: soil and canopy cover (treetops), regeneration density, and number of regenerated species. The analysis can extrapolate the limits of the intervention areas, evaluating the spillover effect of project actions.

The vegetation recovery should be monitored every three years, but always in the same month of the year and corrected for the variation in rainfall and eventual extreme temperatures. The first study should be conducted before the project begins. Subsequent studies should preferably be performed during or soon after the rainy season. Execution of these surveys will be supported by partnerships with expert institutes, such as GEO-BNDES, the National Institute of Space Research (INPE), and MapBiomass. Expert consultants will also be hired.

(5) **Monitoring of resilience:** Monitoring of changes in the resilience capacities of farming families is a particular feature of the monitoring of the impacts of the project. Understanding and monitoring family/household resilience is complex. There are multiple factors, linked to socioeconomic and agroecological conditions, contributing to the families' capacities to cope with climate shocks and adapt to growing stress from slowly increasing temperatures and hotter and dryer conditions. Inspired by the [DFID KPI4 Methodology](#) adapted to the IFAD and GCF project type, a resilience scorecard and index have been developed tailored to the project's theory of change (reference appendix 1). This methodology has a pragmatic approach to deal with the multifactor complexity. It only focuses at monitoring the resilience capacities the project seeks to address or is likely to influence. It does not monitor absolute resilience but changes in resilience of the beneficiaries compared to the baseline or control group families. The resilience questionnaire and scorecard may be adjusted in consultation with project stakeholders at project start-up and will be completed as part of the baseline survey and at midterm and at the end of the project. As mentioned under point (3), it should be used for knowledge generation and improved analysis of resilience dynamics by combining it with the GIS-based monitoring studies of vegetation cover and ecological quality and climate data showing if stresses or extreme weather events have occurred during the implementation of the project.

The scorecard will analyze resilience dynamics by combining it with the GIS-based monitoring studies of vegetation cover and ecological quality and climate data showing if stresses or extreme weather events have occurred during the implementation of the project. The table in appendix I, links risks and vulnerabilities existing in the baseline scenario that the project seeks to address (columns 1 and 2) with the project's interventions to address these (column 3). The expected effects in terms of resilience capacities of the families participating in and benefiting from the interventions (column 4), and monitoring questions and scores that will be used for the resilience index tailored to the project (column 5). The monitoring questions will allow for assessing if the families have adopted the outputs of the project and are acquiring the desired resilience capacities. This index and its variables represented in the questions will allow the PCRP and its beneficiaries to monitor progress in creating family resilience capacities and take action to adjust, if some activities are not being adopted by the families or are not achieving the intended results. The questions will be fine-tuned and included in the questionnaire for the baseline study and repeated at midterm and at the end of the project. The questionnaire can also be

applied as part of the TRIPS formulation process among the families in the involved communities as an input to the assessment of vulnerabilities and needs for resilience capacities to be addressed by the TRIPS.

- (6) **Participative and qualitative evaluations of results**: Participative monitoring will use indicators to analyze several aspects (in conjunction with the "youth communicators"). The team should use M&E data to prepare communication documents on the project's main results for the media, government, and partners, including the Forum of Secretaries of Family Agriculture of the Northeast and Minas Gerais. It is the responsibility of the consulting team to present -- in a simple, visual and comprehensive manner -- the progress made in the project's main activities and results, in both the monitoring and evaluation phases. This consulting team will use the progress reports as well as the M&E system inputs, results of the baseline study, thematic systematizations, and impact assessment study to draft and disseminate material summarizing and illustrating the project's main advances to a diverse audience, in both the public and private sectors. The consulting team will prepare and organize the photographic material to be used in the content disseminated to the government and partner entities. The project's knowledge management team will also be in charge of the dialogue and exchange of experiences with other BNDES and IFAD projects in Brazil. Publication and dissemination of communication material on results of exchanges and learning pathways with farmers and technical assistance teams from other IFAD and BNDES projects will also be part of the project's knowledge and results management.
- (7) **Quantitative organization of interventions by thematic area**: The project should quantitatively organize activities by thematic area (e.g., productive farms, sheep / goats, transformation of waste from productive activities into production inputs, etc.). This organizing will report on the most immediate impacts on each family's well-being in terms of income and food security in the short to medium term. At least five thematic organizing efforts should be undertaken during the project execution period. By their nature, these evaluations will be part of the Learning and Knowledge Management subsystem.
- (8) **GHG tracking tool (annex 11A)**: will provide initial estimations on GHG reductions, for verification. The information required to complete the report will be streamlined into TRIPs and will be tracked at investment level. Each SIU will present to the CPMU semiannual reports tracking investments for evaluation.

Learning and knowledge management (KM)

Will be carried throughout the execution and will be based on the results of the monitoring and evaluation subsystems, where the lessons learned become inputs to adapt planning and monitoring. Due to the importance of these activities, which are more fully described in component 3, each state will have two specialists in communication and knowledge management.

The Project will also have specific learning and knowledge management activities. The learning products that will be developed as a basis for these activities may be identified in events related to monitoring and evaluation or others, these could be: thematic and methodological systematizations; technical learning notes; technical training; case studies, good practices, horizontal exchanges and exchanges between institutions and communities

The promotion of learning will be done at the community, territory, state, and regional (Northeast) levels, as well as internationally for the benefit of the implementation of PCR in the targeted area. To this end, the Project will develop a communication strategy that considers the different audiences to which the information will be directed and the various communication objectives. It will be crucial to exchange information and experiences with initiatives of a similar nature in other countries, for which reason the Project will place great emphasis on South-South and Triangular Cooperation (SSTC) activities.

Experiences and best practices of previous and ongoing projects in Brazil will be fully considered in order to enhance learning and KM. In this regard, the Dryland Adaptation Knowledge Initiative (DAKI) grant approved in December 2019 will pave the way for cross-cutting activities in learning and KM, SSTC, policy dialogue and M&E.

Monitoring				
Data/source	Data-gathering tool	Frequency	Indicator	Budget (USD)
Beneficiary families (survey / questionnaire) (1)	Baseline study	1	Fund-level impacts Fund-level outcomes	243,000
IBGE and state agencies	Government data/records	Once a year	Fund-level outcomes	Internal cost
Beneficiary families (5)	Survey/questionnaire	Once a year for 7 years	Fund-level outcomes	141,000
Studies of satellite imagery in areas with recovered vegetation (4)	GIS data	Once a year in years 2, 5, and 8	Fund-level outcomes	110,000
State agencies	Public expenditure reporting	Once a year	Project/program performance indicators	Internal cost
Beneficiary families (6)	Survey/questionnaire	Years 4 and 7	Fund-level outcomes	129,000
	Focus groups		Project/program performance indicators	
	Field observation visits			
	Key informant interviews			
Beneficiary families / State agencies (7 and 8)	Key informant interviews	Once a year	Project/program performance indicators	147,250 / year
	Survey/questionnaire			
	Focus groups			
	Field observation visits			

	Evaluation			
	Type	Year	Independent / self-evaluation	Budget (USD)
(3)	Impact	8	Independent	308,000
(2)	Mid-term	5	Independent	122.000
(1)	Baseline	1	Independent	243.000
	Ex-poste	8	Self-Assessment	47,000
	Process	Once a year	Self-Assessment	Internal cost

Appendix 1: Draft resilience index and scorecard

To understand and monitor the progress in building resilience capacities of family farming households in the NEB a resilience scorecard and index has been developed in the below table, which will be adjusted at project start-up through discussions with project stakeholders. The table links risks and vulnerabilities existing in the baseline scenario that the project seeks to address (columns 1 and 2) with the project's interventions to address these (column 3), the expected effects in terms of resilience capacities of the families participating in and benefiting from the interventions (column 4), and monitoring questions and scores that will be used for the resilience index tailored to the project (column 5). The monitoring questions will allow for assessing if the families have adopted the outputs of the project and are acquiring the desired resilience capacities. This index and its variables represented in the questions will allow the PCR and its beneficiaries to monitor progress in creating family resilience capacities and take action to adjust, if some activities are not being adopted by the families or are not achieving the intended results. The questions will be fine-tuned and included in the questionnaire for the baseline study and repeated at midterm and at the end of the project. The questionnaire can also be applied as part of the TRIPS formulation process among the families in the involved communities as an input to the assessment of vulnerabilities and needs for resilience capacities to be addressed by the TRIPS.

Risk Type	Potential impacts and vulnerabilities	Project interventions	Expected resilience capacities	Monitoring questions and scores for the project's family resilience index
Social and institutional risks and resilience measures				
Low adaptation planning and action capacities	Even though most communities and family farmers in the NEB relate their suffering from water scarcity to climate change, they are not taking part in joint processes to analyze their	Participatory formulation of TRIPs accompanied with capacity building in climate change risk management, adaptation and resilience building.	Participation in the TRIP formulation and implementation process will build participating families' capacities to understand current and future climate change risks, causes of vulnerabilities linked to management and use of their landscapes and productive resources, and adaptation and resilience building options. This will allow them to plan and take	<p>1. Has anyone from your household participated in discussions and meetings for the formulation of a TRIP (or a similar adaptation plan) for the area you live and farm in? (Yes=1 point, No=0 point)</p> <p>2. Can you mention adaptation or climate resilience practices/activities priorities in this TRIP? (> 2</p>

	vulnerabilities and identify adaptation options and actions with a comprehensive territorial approach		collective and individual actions to improve their resilience including in future iterations of the risk assessment and planning process.	Practices/activities = 2 points, 1-2 practices/activities = 1 point, 0 practices/activities = 0 point) <i>A list of eligible practices to be developed as a support for the interviewer.</i>
Lack of land tenure security	Many family farmers and indigenous, quilombolas and Fundo Pasto communities do not have tenure security to their lands, which makes them vulnerable to encroachment from other actors and reduce their incentives to invest in CRPS and conservation measures	<p>The participatory mapping and planning exercise, as part of the development of the TRIPs, will include conflict mediation and resolution over the use of resources if needed.</p> <p>The project will provide legal and notary support to project's beneficiary communities for the registration of their land.</p> <p>Interested communities or individual beneficiaries will be supported in obtaining a CAR.</p>	The communities and family farmers have improved land tenure security providing them with a basic incentive to invest in resilience measures in their land and farming systems.	3. Do you or your community have a registered land title? (Yes=1 point, No=0 point)
Gender based discrimination	Women are not participating in project activities and do not receive the benefits. The	The project has a Gender Assessment and Action Plan that is mainstreamed in project activities and is an important	Both men and women (at least 40% of beneficiaries) from beneficiary families participate in implementing activities promoting resilience of their	4. Who of the adults in your household participate in the implementation of practices and measures that can decrease the impacts from climate events on

	<p>exclusion of half of the adult population and important users and potential protectors of agroecosystems reduces the adaptation capacities of the families and the communities</p>	<p>complement to the ESMP. Some key actions are:</p> <p>All project personnel will have training in gender sensitive approaches and avoidance of gender biases and discrimination</p> <p>Direct targeting strategies will be applied and their effectiveness monitored for the inclusion of women</p> <p>40% of technical assistance team will be women.</p> <p>Specific training for women on CRPS technologies and practices and encourage and support to women in becoming farmers-trainers</p> <p>Implementation of productive activities with women focused on the cultivation of nutritionally-rich foods in backyard gardens and other productive spaces, including native, rustic edible plants that are more resilient in semiarid conditions</p> <p>Promotion of seed banks” operated by women as a mechanism for validating the native knowledge of heirloom</p>	<p>agroecosystems and their families.</p>	<p>your access to food and income? (only men participate = 0 points, women and men or only women for women headed HHs = 1 point)</p> <p><i>The question will not apply for HH without women. A list of eligible practices and measures to be developed as a support for the interviewer.</i></p>
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		seeds, involving women directly in such efforts.		
Exclusion of youth	Young people are not participating in project activities and do not receive the benefits, making them more prone to migration. The exclusion of youth and the strength and innovativeness they potentially represent reduces the adaptation capacities of the families and the communities.	<p>Specific strategies will be implemented to encourage youth participation in the development and implementation of the TRIPs such as the use of youth focus group discussions to capture their ideas and aspirations to be included in the TRIPs</p> <p>Youth rural educational institutions will be supported in developing and implementing curricula for teaching and experimenting with CRPS.</p> <p>Youth will be involved in young communicators networks being trained in and responsible for facilitating production of audiovisual and printed materials to support CRPS and development of a participatory audiovisual monitoring model all in close collaboration with TA teams and community-based partner organizations</p> <p>Youth will also be involved in short-term professional courses in CRPS and will subsequently</p>	Youth from beneficiary families (at least 50% of beneficiaries of which 50% are young women) from beneficiary families participate in activities supporting the implementation of CRPS.	<p>5. Has the households' children participated in activities experimenting with CRPS in their school? (Yes=1 point, No=0 point)</p> <p><i>The question will not apply for HH without children</i></p> <p>6. Do at least one of the households' youth (15-29 years) participate in activities supporting CRPS and what are these activities? (Yes=1 point, No=0 point)</p> <p>7. Does the youth's participation in these activities contribute to the households' access to food and/or income? (Yes=1 point, No=0 point)</p> <p><i>The questions will not apply for HH without youth. A list of eligible activities to be developed as a support for the interviewer.</i></p>

		<p>be incorporated in TA teams and serve as liaisons with families</p> <p>Finally, youth will also be an important part of the target group for the small grant support for micro enterprises and entrepreneurship in businesses that support the upscaling of CRPS</p>		
Lack of diversity in food and income sources	<p>Farming families, who only have one income source and/or a few food sources are at higher risk of deeper impacts from climate shocks and stresses and needs more time and support to recover. Limited access to food sources does not allow for diverse healthy diets making the families more vulnerable to impacts from</p>	<p>The project recognizes that increasing the diversity in income and food sources is one of the more effective ways of building the resilience of rural families.</p> <p>Through the promotion of CRPS, the project will support family farmers and communities in diversifying their crop-livestock farming systems to increase food and income sources. At the same time, The diversification in the CRPS system is a main element in the resilience of these systems themselves. The integration of different crops and livestock allows for the recycling and optimization in the use of biomass, nutrients, water and energy.</p>	<p>The number of income and food sources has increased for beneficiary families allowing them to spread risks and experience more stability in income and access to a diversity of food.</p>	<p>Which of the following sources does the household have providing an important income for the family economy?</p> <p>8. - Selling of 1-2 agricultural produce (1 point)</p> <p>- Selling of 3 agricultural produce (2 points)</p> <p>- Selling of 4 or more agricultural produce (3 points)</p> <p>9. - salary from temporal jobs (0.5 points for each household member with temporal jobs providing an important contribution to the family economy, Max 2 points)</p> <p>10. - salary from full time job (1 point for each household member with full time job providing an</p>

	diseases and less strong to cope with shocks.	The project will also provide small grants to support the start-up of small micro enterprises and entrepreneurship in businesses that support the upscaling of CRPS and opens new income generating opportunities.		<p>important contribution to the family economy, max 2 points)</p> <p>11. - stable income from micro enterprise (yes = 1 point)</p> <p>12. How many types of food do your family consume regularly from your farm or local market during a normal week? (If all food groups are adequately covered = 2 points, if at least 70% of the food groups are adequately covered = 1 point, less than 70% = 0 point)</p> <p><i>A list of context adapted food groups to be covered for a healthy diversified diet will be developed with a nutritionist and the scores adapted. Alternatively, the Minimum Dietary Diversity for Women indicator may be used.</i></p>
Low capacity to cope and recover after stress and shocks from droughts	The hotter and dryer climate will lead to periodic droughts causing crisis in the family economy and access to food	All the project interventions are focused at building the families capacities to be less impacted from these crisis and be able to recover faster.	Families participating in the formulation of TRIPs for their territories, adopting CRPS at farm and landscape level, and participating in different income generating micro enterprises have better resilience capacities to cope with crisis.	<p>If the next two years should be just as dry with minimum rainfall, as you experienced in 2018 and 2019, how would it affect your family in terms of:</p> <p>13. Impact on your family income worse or the same as in 2018/19? (Yes=0 point, No=1 point)</p>

				<p>14. Impact on your access to a diversity of food worse or the same as 2018/19? (Yes=0 point, No=1 Point)</p> <p>15. Has one or more family member a bank account with savings that can be used in drought crisis periods? (Yes=1 point, No=0 point)</p> <p>16. Does the family have a relative that can send money in times of crisis? (Yes=1 point, No=0 point)</p> <p>17. Is one or more family member a member of a social or economic group or network that supports its member families in times of crisis through a credit or a donation? (Yes=1 point, No=0 point)</p>
Climate risks, agroecosystem fragility and resilience measures				
Increasing droughts and dry spells	Increased evapotranspiration and crop water needs, prolonged dry spells and droughts and increased scarcity of water resources	The main source of humidity which will increase resilience is the implementation of CRPS. But these systems take time to function and retain water.	Sustainable access to water resources covering household, livestock and crop farming needs and minimizing yield losses during prolonged dry seasons and droughts.	18. Does your household have access to a secure and quality water source (rainwater harvested and stored and irrigation equipment) for at least 0.2 hectares of land for production

	<p>for crop, livestock and human needs. Increasing vulnerability for family farmers primarily dependent on agriculture with adverse impacts on their food security and nutrition and income generation.</p>	<p>Thus, the project will also support increased access to production water in the short term through rainwater harvesting and storage structures.</p> <p>Water use efficiency in irrigation and though the use of less water demanding crops and planting schemes.</p> <p>Treatment and reuse of household waste water for vegetable gardening (grey water) and fruit trees and non-eatable plants (black water).</p>		<p>during the dry season? (yes=1 point, No=0 point)</p> <p>19. Do you use drip irrigation or other water-use efficient systems? (yes=1 point, No=0 point)</p> <p>20. Do you have an irrigated fruit and vegetable garden regularly providing food for the family? (Yes=1 point, No=0 point)</p>
Soil erosion and reduced drought buffering capacity	<p>Hotter and dryer climate increases soil dryness and erosion risks. Unsustainable cropping and grazing practices may further affect the soil health and its ability to store and filtrate water and sustain biomass productivity, leading to declining yields</p>	<p>The CRPS promoted by the project include a variety of practices to avoid soil erosion and improve the soils physical and chemical characteristics on farmland: (i) avoid building water harvesting structures and other infrastructure in the wet season to avoid soil erosion; (ii) identification and containment and monitoring of existing and new erosive processes; (iii) reduced tillage, increased vegetation soil coverage, and reintegration of biomass, manure and use of green fertilizers in</p>	<p>Family farmers adoption of CRPS practices on their farms will stabilize and over time increase yields from a variety of crops.</p>	<p>21. Is your family adopting CRPS practices on at least 2/3 of your crop land and what are these practices? (> 2 Practices = 3 points, 1-2 practices = 2 point, 1 practice = 1 point, 0 practices = 0 point)</p> <p><i>A list of eligible practices to be developed as a support for the interviewer.</i></p> <p>22. Has the introduction of these practices supported your family in having more stable total harvest from your land? (Yes=1 point, No=0 point)</p>

	and ultimately desertification and adverse impacts on family farmers' and communities' food security and nutrition and income generation.	cropland; (iv) crop diversification, stratification; (v) integration of tree species as wind shields and provider of biomass in cropping systems; (vi) contour planting; etc.		23. Has the introduction of these practices supported your family in having an increase in total harvest from your land? (Yes=1 point, No=0 point)
Reduced vegetation cover at landscape level	Reduction in vegetation cover increases soil dryness, its inability to sustain biomass production, and erosion and desertification risks. At landscape level it affects habitats and biodiversity, water availability and the resilience of the ecosystem services family farmers and communities are dependent on.	In order to avoid the fragmentation of the remnants and eventual changes in the composition and structure of the Caatinga vegetation, the project promote the adoption of CRPS at landscape level including a variety of practices: (i) facilitate community decisions and implementation of land use zoning and use-regulations (crop production, pasture, housing and urbanized area, water protection, among others); (ii) mapping, classification of natural vegetation coverage, and conservation of remaining forest fragments of the region avoiding conversion of any new areas for crop production, and when needed assists its natural	Family farming, indigenous and traditional communities' adoption of CRPS practices in their landscapes will sustain the regeneration of biomass, availability of animal feed, and the availability of water.	<p>24. Is any member participating in community activities and practices to manage the use and protection of the landscape in your area (protection of the vegetation cover, forest areas, endangered species, sustainable grazing)? (Yes = 1 point, No = 0 point)</p> <p><i>A list of eligible practices to be developed as a support for the interviewer.</i></p> <p>25. Has the introduction of these practices supported your family in having more stable access to fodder for your animals? (Yes=1 point, No=0 point)</p> <p>26. In your opinion, has the introduction of these practices supported the availability of</p>

		regeneration; (iii) sustainable grazing practices		water resources in the landscape for animals, plants and for the water harvesting structures? (Yes=1 point, No=0 point)
Total maximum score:				34 points (1point =2.94%)