



**GREEN  
CLIMATE  
FUND**

**Meeting of the Board**  
9 – 13 November 2020  
Virtual meeting  
Provisional agenda item 11

**GCF/B.27/02/Add.03**

21 October 2020

---

# Consideration of funding proposals - Addendum III

## Funding proposal package for FP143

---

### **Summary**

This addendum contains the following seven parts:

- a) A funding proposal titled "Planting Climate Resilience in Rural Communities of the Northeast (PCRP)";
- b) No-objection letter issued by the national designated authority(ies) or focal point(s);
- c) Environmental and social report(s) disclosure;
- d) Secretariat's assessment;
- e) Independent Technical Advisory Panel's assessment;
- f) Response from the accredited entity to the independent Technical Advisory Panel's assessment; and
- g) Gender documentation.

## Table of Contents

Funding proposal submitted by the accredited entity	3
No-objection letter issued by the national designated authority(ies) or focal point(s)	68
Environmental and social report(s) disclosure	70
Secretariat's assessment	72
Independent Technical Advisory Panel's assessment	87
Response from the accredited entity to the independent Technical Advisory Panel's assessment	95
Gender documentation	97

# Funding Proposal

Project title:	<u><i>Planting Climate Resilience in Rural Communities of the Northeast (PCRP)</i></u>
Country:	<u><i>Brazil</i></u>
Accredited Entity:	<u><i>International Fund for Agricultural Development (IFAD)</i></u>
Date of first submission:	<u><i>[2020/04/09]</i></u>
Date of current submission	<u><i>[2020/10/19]</i></u>
Version number	<u><i>[V.001]</i></u>



GREEN  
CLIMATE  
FUND

## Contents

Section A	<b>PROJECT / PROGRAMME SUMMARY</b>
Section B	<b>PROJECT / PROGRAMME INFORMATION</b>
Section C	<b>FINANCING INFORMATION</b>
Section D	<b>EXPECTED PERFORMANCE AGAINST INVESTMENT CRITERIA</b>
Section E	<b>LOGICAL FRAMEWORK</b>
Section F	<b>RISK ASSESSMENT AND MANAGEMENT</b>
Section G	<b>GCF POLICIES AND STANDARDS</b>
Section H	<b>ANNEXES</b>

### ***Note to Accredited Entities on the use of the funding proposal template***

- Accredited Entities should provide summary information in the proposal with cross-reference to annexes such as feasibility studies, gender action plan, term sheet, etc.
- Accredited Entities should ensure that annexes provided are consistent with the details provided in the funding proposal. Updates to the funding proposal and/or annexes must be reflected in all relevant documents.
- The total number of pages for the funding proposal (excluding annexes) **should not exceed 60**. Proposals exceeding the prescribed length will not be assessed within the usual service standard time.
- The recommended font is Arial, size 11.
- Under the [GCF Information Disclosure Policy](#), project and programme funding proposals will be disclosed on the GCF website, simultaneous with the submission to the Board, subject to the redaction of any information that may not be disclosed pursuant to the IDP. Accredited Entities are asked to fill out information on disclosure in section G.4.

**Please submit the completed proposal to:**

[fundingproposal@gcfund.org](mailto:fundingproposal@gcfund.org)

**Please use the following name convention for the file name:**

“FP-[Accredited Entity Short Name]-[Country/Region]-[YYYY/MM/DD]”

## Abbreviations and acronyms

ABC	Low Carbon Agriculture Program	LR	Legal Reserve
AMS	Accounting Management System	LTB	Letter to the Borrower
AWPB	Annual Work Plan and Budget	LULUCF	Land use, land-use change and forestry
BNDES	Brazilian Development Bank	M&E	Monitoring & Evaluation
BS	Baseline Studies	MC	Ministry of Citizenship
CAR	Rural Environmental Registry	MDC	Ministry of Regional Development
CASM	Collective Areas Sustainable Management	ME	Ministry of Economy
CCVI	Climate Change Vulnerability Index	MOV	Means of verification
COFIEEX	External Financing Commission	MRD	Ministry of Regional Development
CPE	Consulta prévia eletrônica or Consultation Letter	NAP	National Adaptation Plan
CPMU	Central Project Management Unit	NDA	National Designed Authority
CRA	Environmental Reserve Quota	NDC	Nationally Determined Contributions
CRPS	Climate Resilient Productive System	NEB	Northeast Brazil
EE	Executing Entity	NGO	Non-Governmental Organization
EFA	Economic and Financial Analysis	NPV	Net Present Values
EIRR	Expected Internal Rate of Return	PCP	Procurement and Contracting Plan
EMBRAPA	Brazilian Agricultural Research Corporation	PIM	Project Implementation Manual
ENREDD+	National REDD+ Strategy	PLANAVEG	Recovery of Native Vegetation Plan
ESIA	Environmental and Social Impact Assessment	PMEL	Planning, Monitoring Evaluation and Learning
FAO	Food and Agriculture Organization	PMF	Performance Measurement Framework
FC	Forest Code	PNAPO	National Policy for Agroecology and Organic Production
FMA	Financial Management Assessment	POA	Plans of Accounts
GDP	Gross Domestic Product	PPA	Permanent Preservation Areas
GEF	Global Environment Facility	PROVEG	Policy for the Recovery of Native Vegetation
GHG	Greenhouse Gas	R&D	Research and Development
GIS	Geographic Information System	REDD+	Reducing emissions from deforestation and forest degradation
HDI	Human Development Index	RMF	Results Management Framework
IDB	Inter-American Development Bank	SECAP	Social, Environmental Climate Assessment Procedures
IFAD	International Fund for Agricultural Development	SICAR	National Rural Environmental Registry System
IFR	Interim Financial Reports	SIU	State-level Implementing Unit
INPE	National Institute of Space Research	SSC	South-South Cooperation
INTOSAI	International Organization of Supreme Audit Institutions	SSTC	South-South and Triangular Cooperation
IPCC	Intergovernmental Panel on Climate Change	TA	Technical Assistance
IPPF	Indigenous People's Planning Framework	TDS	Total dissolved solids
IRPAA	Regional Institute for Small Agriculture	TOR	Terms of Reference
IRR	Internal rate of return	TPR	Technical Progress Reports
ISA	Investments in Systems of Agroforestry	TRIP	Territorial Resilience Investment Plan
KM	Knowledge Management	WB	World Bank
LAC	Latin America and the Caribbean	YC	Youth Communicators

A. PROJECT/PROGRAMME SUMMARY			
A.1. Project or programme	Project	A.2. Public or private sector	Public
A.3. Request for Proposals (RFP)	Not applicable		
A.4. Result area(s)	<p>Check the applicable <a href="#">GCF result area(s)</a> that the <u>overall</u> proposed project/programme targets. For each checked result area(s), indicate the estimated percentage of <u>GCF budget</u> devoted to it. The total of the percentages when summed should be 100%.</p>		
	<p><b>Mitigation:</b> Reduced emissions from:</p> <p><input type="checkbox"/> Energy access and power generation:</p> <p><input type="checkbox"/> Low-emission transport:</p> <p><input checked="" type="checkbox"/> Buildings, cities, industries and appliances:</p> <p><input checked="" type="checkbox"/> Forestry and land use:</p> <p><b>Adaptation:</b> Increased resilience of:</p> <p><input checked="" type="checkbox"/> Most vulnerable people, communities and regions:</p> <p><input checked="" type="checkbox"/> Health and well-being, and food and water security:</p> <p><input type="checkbox"/> Infrastructure and built environment:</p> <p><input checked="" type="checkbox"/> Ecosystem and ecosystem services:</p>	<p><b>GCF contribution:</b></p> <p><u>Enter number</u>%</p> <p><u>Enter number</u>%</p> <p><u>2</u>%</p> <p><u>32</u>%</p> <p><u>22</u>%</p> <p><u>22</u>%</p> <p><u>Enter number</u> %</p> <p><u>22</u>%</p>	
A.5. Expected mitigation impact	11 M tCO <sub>2e</sub>	A.6. Expected adaptation impact	Indicate total number of direct and indirect beneficiaries <b>1,000,000 people</b>
			<b>4.7 % of Semiarid Brazil</b>
A.7. Total financing (GCF + co-finance)	202,500,000 USD	A.9. Project size	Medium (Upto USD 250 million)
A.8. Total GCF funding requested	99,500,000 USD		
A.10. Financial instrument(s) requested for the GCF funding	<p>Mark all that apply and provide total amounts. The sum of all total amounts should be consistent with A.8.</p> <p><input checked="" type="checkbox"/> Grant      <u>34,500,000</u>      <input type="checkbox"/> Equity      <u>Enter number</u></p> <p><input checked="" type="checkbox"/> Loan      <u>65,000,000</u>      <input type="checkbox"/> Results-based payment      <u>Enter number</u></p> <p><input type="checkbox"/> Guarantee      <u>Enter number</u></p>		
A.11. Implementation period	8 years	A.12. Total lifespan	20 years
A.13. Expected date of AE internal approval	12/9/2020	A.14. ESS category	B
A.15. Has this FP been submitted as a CN before?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	A.16. Has Readiness or PPF support been used to prepare this FP?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
A.17. Is this FP included in the entity work programme?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	A.18. Is this FP included in the country programme?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
A.19. Complementarity and coherence	<p>Does the project/programme complement other climate finance funding (e.g. GEF, AF, CIF, etc.)? If yes, please elaborate in section B.1.</p> <p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>		
A.20. Executing Entity information	<p>Banco Nacional de Desenvolvimento Econômico e Social (BNDES) is a company wholly-owned by the federal government with legal personality incorporated under private law. BNDES is an organization linked to the Ministry of Economy.<sup>1</sup> BNDES was accredited to the GCF at the B23 meeting held on July, 2019.</p>		

### A.21. Executive summary (max. 750 words, approximately 1.5 pages)

The project will take place in the semiarid region of Northeast Brazil (NEB) (annex 16),<sup>2</sup> a region with a population of 21.3 million people (12% of the national population).<sup>3</sup> The states in this region are home to the poorest population in the country; IFAD has been supporting rural development there for the past 25 years. The Northeast region has experienced periodic droughts and chronic problems related to water scarcity. Nonetheless, the 2011–2016 drought that affected this region is considered the worst in the past 100 years; it has exacerbated many social problems through farmers' indebtedness, migration, disease, and malnutrition.<sup>4, 5</sup> Estimated economic losses from the drought event in the agricultural sector alone are on the order of US\$ 6 billion.<sup>6</sup>

It is possible to identify an increase in temperature from **1901 to 2000 of about 0.8°C** in NEB.<sup>25</sup> An analysis of drought events in NEB from 1981 to 2016<sup>7</sup> reveals that drought intensity has been increasing over the last 36 years, and that **recent droughts have been more frequent, more severe and have affected a larger area** with significant impact on population as well as economical activities. NEB is expected to experience a further temperature increase of **0.5–2.0°C in the period 2011–2040** compared to a baseline period of 1961–1990.<sup>8</sup> Despite increased precipitation in the summer, the projected annual cycle shows an average annual **reduction of precipitation in the region**. Furthermore, an **increase in number of consecutive dry days** and wide climate variability are common features in these and other simulations for NEB.<sup>9</sup>

Family farmers are the most affected by climate change. There is a significant correlation between average precipitation and agricultural production, but statistically, the effect is significantly higher for crops produced by family farmers than average agricultural production. The **average crop area lost due to droughts from 1990 to 2016 was 221,973 hectares per year**.<sup>10</sup>

It is estimated that due to climate change, subsistence foods such as cassava beans and corn can suffer productivity losses up to 5% by 2030 in the Northeast, and some scenarios project that cassava could even disappear from the region.<sup>11</sup> From 2017 to 2030, a 10%-precipitation-reduction scenario could cause an average **annual loss of R\$ 96.7 million in family farmers' agriculture production value**. If rainfall is reduced by 20%, the **annual loss would be R\$ 193.3 million in family farmer's agriculture production value**.<sup>37</sup>

The Planting Climate Resilience in rural communities of the Northeast (**PCR**) project will work towards paradigm shift: it is possible to transform family farmers' productive systems in the semiarid NEB by increasing production while simultaneously improving farmers' capacity to face the challenges posed by ongoing climate change. The project will result in resilient and productive farming systems performing restored ecosystem functions, which, in turn, both increase and stabilize family income and food security while incentivizing young generations to stay active in rural activities. The partnerships between IFAD, GCF, the Government of Brazil (GoB), and BNDES will mobilize resources and disseminate lessons to many levels of government in other regions in Brazil and abroad.

The project will consist of three components that reinforce one another to promote climate resiliency as well as emission mitigation: 1) Climate Resilient Productive Systems (CRPS); 2) Water access; and 3) Knowledge Management and Scaling-Up.

Implementation of diversified agroforestry systems that will increase local water availability in the productive system - **CRPS**-, as proposed under Component 1, will influence hydrological conditions across the landscape. The *Caatinga* is a rich productive area, with fertile soils, where temporary streams and wetlands exist, making up a biome with good

<sup>1</sup> The BNDES Statute can be found at: [https://www.bndes.gov.br/SiteBNDES/bndes/bndes\\_en/Institucional/The\\_BNDES/BNDES\\_bylaws.html/](https://www.bndes.gov.br/SiteBNDES/bndes/bndes_en/Institucional/The_BNDES/BNDES_bylaws.html/)

<sup>2</sup> The Resolution 115 of 23/11/17 from Sudene defines these features of the Semiarid: i) Average annual rainfall  $\leq 800$  mm; ii) Thornthwaite Aridity Index  $\leq 0.50$ ; and iii) Daily percentage of water deficit  $\leq 60\%$  (average of all days of the year). In the case of Maranhão, it will also consider Bill (Projeto de Lei) no. 2492/2019 which enlarges the semiarid of Maranhão to additional 44 municipalities. <https://www25.senado.leg.br/web/atividade/materias/-/material/136472>

<sup>3</sup> Banco do Nordeste, O Novo Perfil do Nordeste Brasileiro no Censo Demográfico 2010 : [https://www.bnb.gov.br/documents/88765/89729/novo\\_perfil\\_nordeste\\_brasileiro\\_censo\\_demografico\\_2010.pdf/34fcc2e-1048-4dc1-9342-46b13eda208b](https://www.bnb.gov.br/documents/88765/89729/novo_perfil_nordeste_brasileiro_censo_demografico_2010.pdf/34fcc2e-1048-4dc1-9342-46b13eda208b)

<sup>4</sup> Gutiérrez APA, Engle NL, De Nys E, Molejon C, Martins ES (2014) Drought preparedness in Brazil. *Weather Clim Extremes* 3:95–106. doi:10.1016/j.wace.2013.12.001

<sup>5</sup> Marengo, Jose A., et al. "Climatic characteristics of the 2010-2016 drought in the semiarid Northeast Brazil region." *Anais da Academia Brasileira de Ciências* 90.2 (2018): 1973-1985.

<sup>6</sup> Marengo, J. A., et al. "Drought in Northeast Brazil—past, present, and future." *Theoretical and Applied Climatology* 129.3-4 (2017): 1189-1200.

<sup>7</sup> Brito, SSB; et al. Frequency, duration and severity of drought in the Semiarid Northeast Brazil region, *International Journal of Climatology*, 2017.

<sup>8</sup> Chou, SC; et al. Assessment of Climate Change over South America under RCP 4.5 and 8.5 Downscaling Scenarios. *American Journal of Climate Change*, v. 03, p. 512-527, 2014.

<sup>9</sup> Lacerda, FF; et al. Long-term Temperature and Rainfall Trends over Northeast Brazil and Cape Verde. *Journal of Earth Science & Climatic Change*, v. 06, p. 296, 2015.

<sup>10</sup> Young, C.E. et al. Drought in the Brazilian Semi-Arid. Study commissioned by IFAD (please see Annex 23)

<sup>11</sup> Machado Filho, H, et al. Mudança do clima e os impactos na agricultura familiar no Norte e Nordeste do Brasil. Centro Internacional de Políticas para o Crescimento Inclusivo (IPC-IG), Programa das Nações Unidas para o Desenvolvimento (PNUD), Instituto de Pesquisa Econômica Aplicada (Ipea), Fundo Internacional de Desenvolvimento Agrícola (FIDA). 2016

capacity for agricultural production, provided that adapted vegetation is used, with adequate arrangements and techniques appropriate to the levels of humidity and solar radiation. The area has great biomass production capacity for multiple purposes and can afford to produce with quality, without use of industrial inputs. For this, it is enough to establish a vertically stratified system that promotes total coverage of the soil and maximizes use of sunlight.

The water access solutions proposed in Component 2, such as rainwater harvest and storage, if accompanied by the current agricultural model, may be temporarily palliative – subject to severe water loss due to high evapotranspiration from heat and wind – but productivity would remain limited. In fact, water investments in the semiarid must be complemented by soil recovery practices promoted in Component 1, to allow infiltration of rainwater, increase soil biomass rate, create shade and wind shelters to reduce evapotranspiration (which can exceed 2,000 mm/year). The specific flora and fauna in the semiarid have developed a high capacity to access and store water (in roots, trunks, stems and leaves), resulting in a biota capable of supplying more water than needed for growth and reproduction, adding surplus water to the system.

Knowledge management, policy dialogue, communication, and monitoring and evaluation (M&E) activities under Component 3, meanwhile, will allow the investments under Components 1 and 2 to be sustainable and scaled up to other states in the region and dryland areas, including other countries, resulting in the intended paradigm shift in approaches to climate adaptation and mitigation.

The project will directly benefit a total of approximately 1,000,000 people in 250,000 family farms (of which 40% are women and 50% youth), increase the resilience of agricultural production systems over 84,124 ha and restore degraded ecosystems of importance for the provision of environmental services. It will increase the water access to 36,000 families, increasing their resilience to droughts. The project will mitigate between -11 266 144 tCO<sub>2</sub>eq and -11 797 804 tCO<sub>2</sub>eq over a 20 years period.

## B. PROJECT/PROGRAMME INFORMATION

### B.1. Climate rationale and context (max. 1000 words, approximately 2 pages)

#### *Climate change problem*

The project will take place in the semiarid region of Northeast Brazil (NEB) (annex 16),<sup>12</sup> a region with a population of 21.3 million people (12% of the national population).<sup>13</sup> The states in this region are home to the poorest population in the country (average HDI 0.587)<sup>14</sup> where IFAD has been supporting rural development for the past 25 years.

Family farms account for almost all of agricultural properties in the drylands of Brazil (generally over 90%).<sup>15</sup> These farms are usually smallholdings, mostly less than 20 hectares.<sup>16</sup> Despite some variation,<sup>17</sup> they generally blend annual dryland agriculture (harvesting food crops – mainly maize, beans and cassava – for home consumption and sale) with raising livestock. Families often have backyard gardens, a few fruit trees, and poultry. A few also have small irrigated areas. There are 2 million family farms employing over 6.5 million people in the Northeast, covering a total of 28 million hectares; these farms account for 52% of the production value and 87% of the total labour in the sector.<sup>18</sup>

In the Semiarid, brackish or salty groundwater is common. Approximately 25% of wells have freshwater (<500 mg/l TDS),<sup>19</sup> 33% are brackish (501–1,500 mg/l TDS), and 42% salty (>1,500 mg/l TDS).<sup>20</sup> Hence, an estimated 75% of the wells in the Semiarid are unfit for human consumption.

In Brazil, drought is the natural disaster that affected approximately 50% of all population, and most of this population is in the Northeast of Brazil - NEB, about 60% of the drought events were registered in the Northeast<sup>21</sup>. The Northeast region has experienced periodic droughts and chronic problems related to water scarcity. Nonetheless, it is possible to identify an increase in temperature from **1901 to 2000 of about 0.8 °C** in NEB.<sup>25</sup> An analysis of drought events in NEB from 1981 to 2016<sup>22</sup> reveals that drought intensity has been increasing over the last 36 years, and that **recent droughts have been more frequent, more severe and have affected a larger area** with significant impact on population as well as economical activities. For instance, the 2011–2016 drought that affected this region is considered the worst in the past 100 years; it has exacerbated many social problems through farmers' indebtedness, migration, disease, and malnutrition.<sup>23, 24</sup> Estimated economic losses from the drought event in the agricultural sector alone are on the order of US\$ 6 billion.<sup>25</sup>

To identify droughts for operational purposes based upon regional climatic differences, crop water requirements, duration, and human interactions, they were classified in meteorological, agricultural, hydrological, and socio-economic drought<sup>26</sup>. Meteorological drought is usually defined based on the degree of dryness (compared to some “normal” or average amount) and the duration of the dry period. On the other hand, hydrological drought is associated with the effects of periods of precipitation, shortfalls on the surface, or subsurface water supply. While agricultural drought links various characteristics of meteorological (or hydrological) drought to agricultural impacts, focusing on precipitation shortages, differences between actual and potential evapotranspiration, soil water deficits, reduced groundwater, or reservoir levels, in other words, it reflects the deficit of water for crops. The associated effects of these drought types include economic losses and large social disorders such as hunger, migration, and family breakdown leading to socio-

12 The Resolution 115 of 23/11/17 from Sudene defines these features of the Semiarid: i) Average annual rainfall  $\leq 800$  mm; ii) Thornthwaite Aridity Index  $\leq 0.50$ ; and iii) Daily percentage of water deficit  $\leq 60\%$  (average of all days of the year).

13 Banco do Nordeste, O Novo Perfil do Nordeste Brasileiro no Censo Demográfico 2010 : [https://www.bnb.gov.br/documents/88765/89729/novo\\_perfil\\_nordeste\\_brasileiro\\_censo\\_demografico\\_2010.pdf/34cfc2e-1048-4dc1-9342-46b13eda208b](https://www.bnb.gov.br/documents/88765/89729/novo_perfil_nordeste_brasileiro_censo_demografico_2010.pdf/34cfc2e-1048-4dc1-9342-46b13eda208b)

14 PNUD; IPEA; PINHEIRO, F. J. Atlas do Desenvolvimento Humano no Brasil - 2010. Brasília: PNUD, 2013. Available at: <http://www.atlasbrasil.org.br/2013/>.

15 A study of the São Francisco do Sertão Territory in Bahia State shows that 90.7% of the properties are family farms (Articulação-Nacional-de-Agroecologia, 2018). In the Chapada do Vale do Itaim Territory of the Sertão in Piauí State, 92.7% are family farms (SIDERSKY, 2017).

16 Using data from the 2006 Census of Agriculture conducted by the Brazilian Institute for Geography and Statistics (IBGE), a study of the São Francisco do Sertão Territory in Bahia State showed that 62% of the farms and ranches in this territory are 0–20 hectares.

17 In the states of Piauí, Ceará, and Rio Grande do Norte in particular, there are areas where cashew tree groves are commonly found on family farms, in addition to shifting food crop plots and livestock. In the state of Bahia, there is an area where almost all family farms have areas set aside for perennial sisal plantations.

18 Agricultura familiar no Nordeste: uma análise comparativa entre dois censos agropecuários / Carlos Enrique Guanziroli, Alberto Di Sabbato, Maria de Fátima Vidal. – Fortaleza: Banco do Nordeste do Brasil, 2011. 172p.

19 TDS – Total Dissolved Solids.

20 MME-CPRM-SERVIÇO-GEOLÓGICO-DO-BRASIL. Projeto Cadastro da Infra-Estrutura Hídrica do Nordeste. [Relatório Preliminar - 1ª Etapa - 225.000 km2 - Versão Beta](#). Brasília: MME-CPRM-Serviço-Geológico-do-Brasil.

Available at:

[www.cprm.gov.br/publique/media/hidrologia/m\\_apas\\_publicacoes/cadastramento\\_fontes\\_semiarido\\_brasileiro.pdf\\_2003](http://www.cprm.gov.br/publique/media/hidrologia/m_apas_publicacoes/cadastramento_fontes_semiarido_brasileiro.pdf_2003).

21 CEPED - Centro Universitário de Estudos e Pesquisas sobre Desastres. Atlas Brasileiro de Desastres Naturais 1991 A 2012. Volume Brasil. 2ª ed. rev. ampl. – Florianópolis: CEPED UFSC, 2013. 126 p.

22 Brito, SSB; et al. Frequency, duration and severity of drought in the Semiarid Northeast Brazil region. International Journal of Climatology, 2017.

23 Gutiérrez-APA, Engle NL, De Nys E, Molejon C, Martins ES (2014) Drought preparedness in Brazil. Weather Clim Extremes 3:95–106. doi:10.1016/j.wace.2013.12.001

24 Marengo, José A., et al. "Climatic characteristics of the 2010–2016 drought in the semiarid Northeast Brazil region." Anais da Academia Brasileira de Ciências 90.2 (2018): 1973–1985.

25 Marengo, José A., Roger Rodrigues Torres, and Lincoln Muniz Alves. "Drought in Northeast Brazil—past, present, and future." Theoretical and Applied Climatology 129.3–4 (2017): 1189–1200.

26 Wilhite, D. A.; and M. H. Glantz. Understanding the drought phenomenon: The role of definitions. Water International 10:111–20. 1985

economic drought status. So, socio-economic drought aggregates the consequence of other drought types. This occurs when physical water shortage starts to affect people, individually and collectively. In more abstract terms, most socio-economic definitions of drought are associated with the supply and demand of an economic good. In general, meteorological drought onset is first, followed by agricultural, then hydrological. The sequence is similar for recovery<sup>27</sup>.

One of the economic activities most affected by droughts in NEB is agriculture. A large part of the population depends on agriculture in the classic model of subsistence agriculture<sup>28</sup>. In this context, agricultural production in NEB is a significant source of income, especially for family farming<sup>29</sup>, responsible for 82.6% of the jobs in rural areas and 50% of the value of marked production. This segment is the one that is most affected by drought events, partly because of their few resources for adaptation.

Besides the recurrent drought events affecting the region in the past years, as shown by Brito et al. (2017) and Marengo et al. (2017), in the context of climate change, NEB is considered to be one of the most vulnerable regions in the country (Marengo et al., 2016; Simões et al., 2010) due to its high population exposure, high poverty rates, and low adaptive capacity.

In order to find a suitable adaptation measure to cope with the effects of climate change on maize yield, Martins et al. (2019)<sup>30</sup> estimated the attainable total production based on 2015 planted and irrigated areas for the baseline scenarios and the variation in the total production for the future scenarios<sup>31</sup> considering the estimates for irrigation areas for 2030. (See Figure 1 and Figure 2).

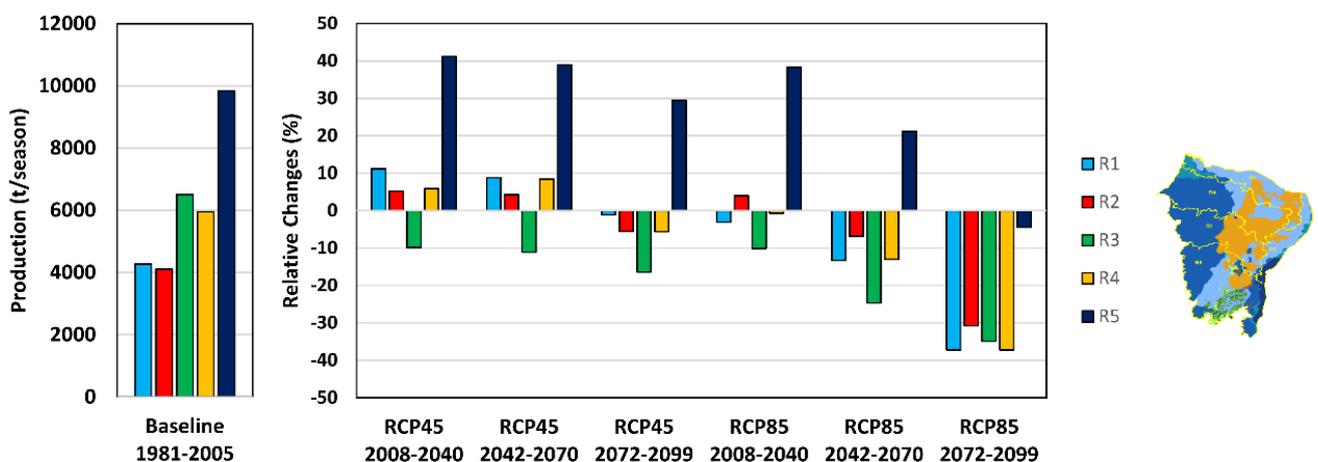


Figure 1 Total maize production estimated using 2015 rainfed planted and irrigated areas for the baseline scenario for the five subregions of the study area (left panel); changes in each future scenario relative to the baseline (right panel). Source: Martins et al. (2019).

The South part of Northeast, represented in Figure 1 by R5, is the more promising region in terms of the expansion of irrigated areas. The RCP4.5 scenarios increased production, although those gains gradually decreased for the most distant future. In the other subregions, there was a slight variation, plus or minus within 10% of the baseline scenario, for all future scenarios except for subregion R3, where the drop in productivity is approximately -16% after 2072. In the worst emission scenarios, such as in RCP8.5, gains in production due to the expansion of irrigated areas were not enough to compensate for the adverse effects of climate change. Since the use of irrigation at a large scale has substantial implications in water availability, Fig. 2 shows the water demand of each of the scenarios, as shown in Fig. 1.

<sup>27</sup> Howard, A.; Bieltto, L.; Hayes, M.; Kleschenko, A.; Caiña, K.; Susnik, A. Expert Team 3.1 Report on Drought. World Meteorological Organization; Commission on Agrometeorology. 2018.

<sup>28</sup> IPEA - Instituto de Pesquisa Econômica Aplicada. Sobre a Agricultura Irrigada no Semiárido: uma análise histórica e atual de diferentes opções de política. Texto para Discussão: 2369. Rio de Janeiro. 2018.

<sup>29</sup> The definition by the Brazilian Family Farming Act (Law n. 11.326) is that it is an agricultural producer which is directly responsible for farm management, using mainly family labor and earn a substantial part of the total family's income from agricultural activities.

<sup>30</sup> Martins, M. A.; Tomasella, J.; Dias, C. G. Maize yield under a changing climate in the Brazilian Northeast: impacts and adaptation. Agricultural Water Management. 2019. <https://doi.org/10.1016/j.agwat.2019.02.011>

<sup>31</sup> Available areas for agriculture considered environmental restrictions, infrastructure and logistics, land tenure, and agricultural aptitude based on soil and topography. The current irrigated area in NEB is approximately 1.3 million ha, and the potential irrigated agricultural expansion is approximately 11% (ANA, 2017).

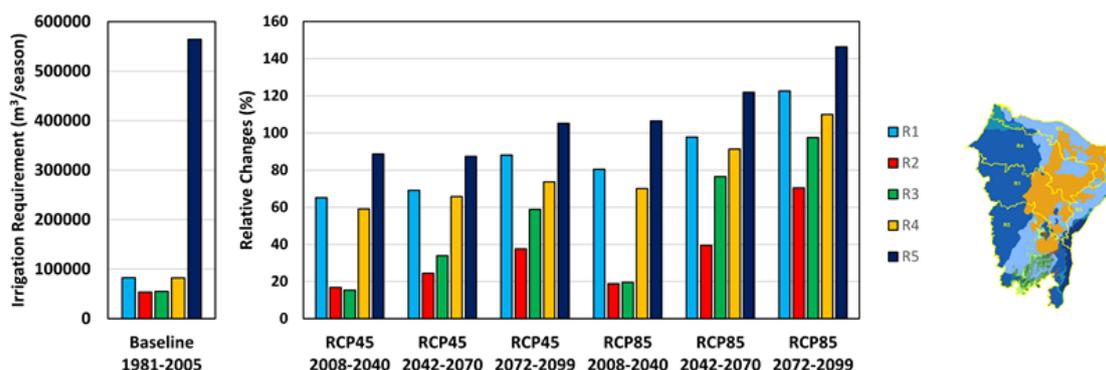


Figure 2 Irrigation requirements estimated using 2015 rainfed planted and irrigated areas for the baseline scenario for the five subregions of the study area (left panel); changes of each future scenario relative to the baseline (right panel). Source: Martins et al. (2019)

Water consumption in subregion 5 was much higher than in the other subregions because it has the largest irrigated areas. It is also in subregion 5 where the highest impact of water demand occurred for future scenarios, with an increase that exceeded 140% compared to the baseline for the most pessimistic scenario. A significant increase in demand was also observed in subregion 1, closely followed by subregion 4. All three regions are mostly located in the semiarid area (yellow-colored in the map), where the most significant expansion of irrigated areas is planned. For the worst-case scenario, even subregion R2 showed significant increases in water demand (~70%). Although the scenario indicated that it would be possible to sustain or even increase levels of production in subregion R5 (Fig. 1), those increases were at the expense of a significant increase in water demand.

For bean, there are no studies on such a level of detail estimating the irrigation requirement under future climate conditions. However, as shown by Follador (2016)<sup>32</sup>, maize, as well as bean, are expected to be negatively impacted by climate change, showing a decrease in viable area and an increase in percentage losses predicted in 2030, concerning the 2009 base year. While maize losses are projected to approximately 50%, the losses in bean production could reach 90% (Figure 3), indicating a more sensitive of bean to future climate and probably a more critical irrigation requirement when compared to maize production.

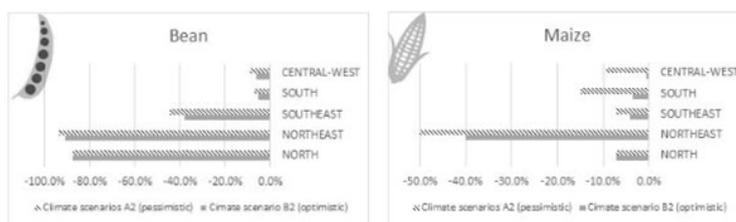


Figure 3 Effects of Climate Change in Crops. Source: Follador, 2016.

Although irrigation practices could contribute to limit crop losses in the future, more efficient water management is needed. Efforts should be directed towards orienting farmers in terms of more efficient irrigation management practices in order to ensure sustainable agricultural practices.

According to climate simulations (HadGEM2-ES and MIROC5 for RCP 4.5 scenario), NEB will experience a further temperature increase of **0.5 °C in the period 2011–2040** compared to a baseline period of 1961–1990.<sup>33</sup> Despite increased precipitation in the summer, the projected annual cycle shows an average annual **reduction of precipitation in the region**. Furthermore, an **increase in number of consecutive dry days** and wide climate variability are common features in these and other simulations for NEB.<sup>34</sup>

<sup>32</sup> Follador, M. Potential impacts of climate change on Brazilian agriculture and economy. 10.13140/RG.2.2.17781.99040. Technical Report, July 2016, CEPAL (ECLAC) Economic Commission for Latin America and the Caribbean - UN

<sup>33</sup> Zhou, SC; et.al. Assessment of Climate Change over South America under RCP 4.5 and 8.5 Downscaling Scenarios. American Journal of Climate Change, v. 03, p. 512-527, 2014.

<sup>34</sup> Lacerda, FF; et.al. Long-term Temperature and Rainfall Trends over Northeast Brazil and Cape Verde. Journal of Earth Science & Climatic Change, v. 06, p. 296, 2015.

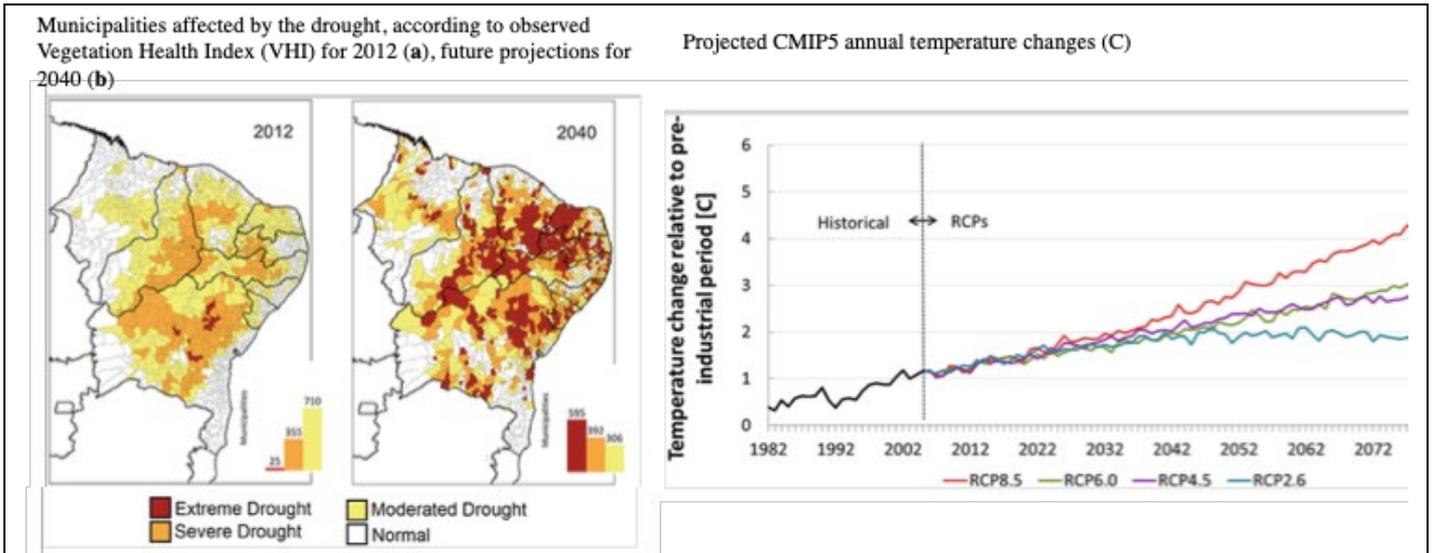


Figure 4. Scenarios for drought and temperature changes in NEB semi-arid<sup>35</sup>

Figure 4 shows that regional warming in NEB is larger than the mean global warming, and thus regional impacts will probably be stronger than global. It is projected that by 2040, municipalities affected by extreme drought will jump from 25 in 2012 to 595 by 2040.

The degree of aridity can be measured by the relationship between precipitation and evapotranspiration. For the Northeast region of Brazil, models warn of an expansion of semi-arid climate areas, particularly in the Northwest of the study region and an increase in aridity in the South-Central region, particularly in those drought-prone inner areas (Figure 5).<sup>36</sup> Family farmers are the most affected by climate change. There is a significant correlation between average precipitation and agricultural production, but statistically, the effect is significantly higher for crops produced by family farmers than average agricultural production. The **average crop area lost due to droughts from 1990 to 2016 was 221,973 hectares per year.**<sup>37</sup>

It is estimated that due to climate change, subsistence foods such as cassava beans and corn can suffer productivity losses up to 5% by 2030 in the Northeast, and some scenarios project that cassava could even disappear from the region.<sup>38</sup> From 2017 to 2030, a 10%-precipitation-reduction scenario could cause an average **annual loss of R\$ 96.7 million in family farmers' agriculture production value.** If rainfall is reduced by 20%, the **annual loss would be R\$ 193.3 million in family farmer's agriculture production value.**<sup>37</sup>

This is particularly relevant considering that current productivity in semi-arid is already low, so any further losses could threaten

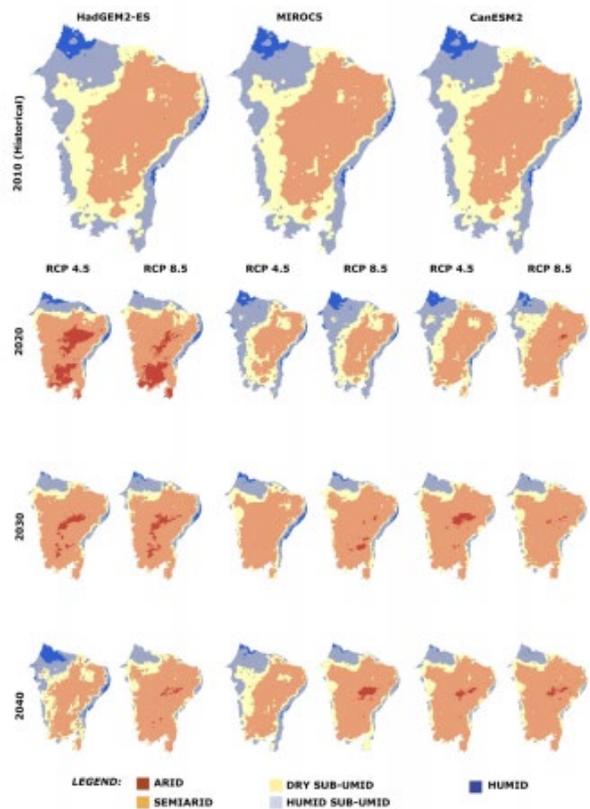


Figure 5: Spatial distribution of the aridity index for the time-slices (from top to down rows) 2010, 2020, 2030 and 2040, estimated using dynamically downscaled scenarios of the HadGemES2 (left column), MIROC5 (middle column), CanESM2 (right column) models, and for the RCP4.5 and RCP8.5 emission scenarios.

35 Marengo, J. A., et al. "Increase Risk of Drought in the Semi-arid Lands of Northeast Brazil Due to Regional Warming above 4 C." Climate change risks in Brazil. Springer, Cham, 2019. 181-200.

36 Vieira, R. M.S.P.; Tomasella, J.; Barbosa, A. A.; Martins, M. A.; Rodriguez, D. A.; Rezende, F.S.; Carriello, F.; Oliveira Santana, M. O. (2020). Desertification risk assessment in Northeast Brazil: Current trends and future scenarios. LAND DEGRADATION & DEVELOPMENT, v. 1, p. 1, 2020.

37 Young, C.E. et Al. Drought in the Brazilian Semi-Arid. Study commissioned by IFAD (please see Annex 2).

38 Machado Filho, H, et al. Mudanças do clima e os impactos na agricultura familiar no Norte e Nordeste do Brasil. Centro Internacional de Políticas para o Crescimento Inclusivo (IPC-IG), Programa das Nações Unidas para o Desenvolvimento (PNUD), Instituto de Pesquisa Econômica Aplicada (Ipea), Fundo Internacional de Desenvolvimento Agrícola (FIDA). 2016

food security in the region with repercussions in both local and national food security. In addition, the **expected climate changes may exacerbate** other environmental problems that already affect family farming in the region: soil degradation, pests, dissemination of diseases and weeds and desertification.

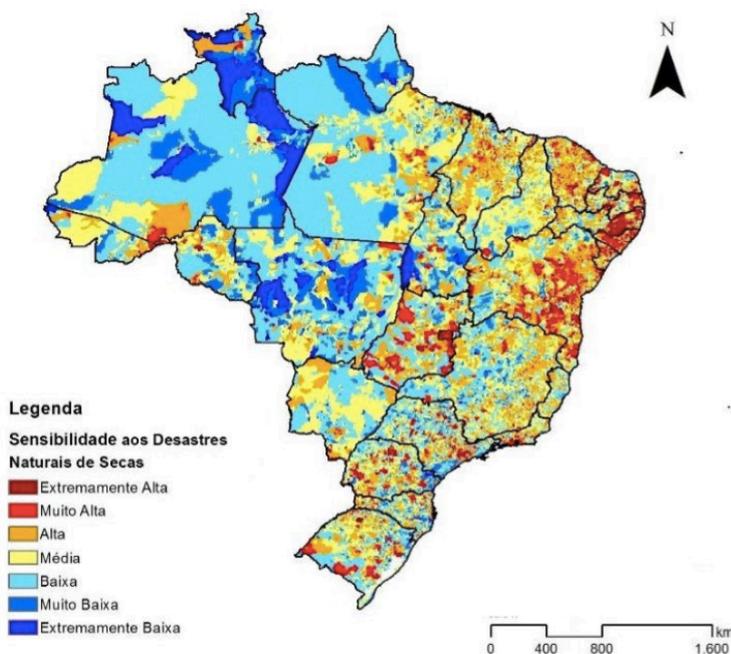
The models indicate that water accessibility will be the critical factor in developing resilience for family farmers in NEB, thus the current project will promote productive practices that increase availability, flow and retention of water in the agricultural system.

Numerous alternative solutions to increase family farmer resilience were discussed considering institutional, informational, regulatory, behavioural, technological, engineering, financial aspects. The following design parameters were developed to guide the selection process to ensure solutions will reduce vulnerability drivers and overcome barriers to change (described in Annex 2. Feasibility Study):

- Low-cost technologies,
- Can be implemented by workforce available to family farmers,
- Provide increased and stable production and income,
- Low environmental impact (within Category B or C),
- Reduces carbon emissions,
- Promotes the inclusion of women, youth and traditional communities, and
- Can be scaled-up.

#### Adaptation needs

Low-income family farmers, the target group of this project, face harsh and difficult conditions for developing productive and sustainable livelihoods. NEB is considered the most vulnerable region to climate change in the country,<sup>39</sup> as shown in Figure 6.



The climate change vulnerabilities are a result of the following sensitivity and adaptive capacity factors that characterize the millions of people in the NEB engaged in family farming and exacerbate the impact of climate change: a) high incidence of poverty and dependency on agroecosystem services and low absorption capacity against prolonged droughts and loss of harvest; b) water scarcity and poor water quality (ground and surface water); c) inadequate productive practices that further degrade the soil; and d) deforestation of the Caatinga Biome depleting the ecosystem services. Superimposing the increases in temperature, droughts and rainfall variability on the pre-existing socioeconomic vulnerabilities places intense pressure on availability / quality of freshwater in the region, translating into losses of arable land, desertification, increased food insecurity, and reduced local economic activities that lower farmers' income and result in rural exodus.

**Figure 6.** Sensitivity to droughts (from top to bottom) Extremely High; Very High; Medium; Low; Very Low; Extremely Low.<sup>39</sup>

<sup>39</sup> WWF and MMA. Índice de Vulnerabilidade aos Desastres Naturais Relacionados às Secas no Contexto da Mudança do Clima. 2017.

### *Emission Sources and Mitigation Potential*

Brazil has the world's sixth largest greenhouse gas (GHG) emissions, releasing 2.3 billion tons of carbon dioxide equivalent (CO<sub>2</sub>e) in 2016, compared with 2.1 billion in 2015. In 2016, emissions were 8.9% higher than 2005, jeopardizing the country's Paris goal of reducing its carbon emissions 37% by 2025 compared to 2005 levels.<sup>40</sup> GHG emissions in Brazil are largely due to forest and grassland conversion, followed by agricultural and fossil fuel combustion. Land-use change and agriculture accounted for 73% of all carbon emitted in 2016.<sup>41</sup>

Total emissions in the states of the Northeast in 2016 accounted for one quarter of Brazil's total emissions (591.4 MtCO<sub>2</sub>e). Land use, land-use change and forestry (LULUCF), with 381.8 MtCO<sub>2</sub>e (65%), was the major cause of emissions, followed by agriculture (with 106.9 MtCO<sub>2</sub>e or 18%) and energy (with 102.7 MtCO<sub>2</sub>e or 17%). Land-use change, specifically deforestation in the Caatinga biome, accounted for almost 5% of the carbon emissions (28.2 MtCO<sub>2</sub>e). With 93.7 MtCO<sub>2</sub>e emitted, enteric fermentation represented 88% of the agricultural emissions and 16% of the emissions in the Northeast. PCRFP will contribute to the national accounting method for GHGs.

Finally, with 102.7 MtCO<sub>2</sub>e emitted, energy-sector emissions in the Northeast are largely caused by fuel production (mostly from timber), energy generation, road transport, and the industrial sub-sector. Renewable biomass from waste material (coconut husk, cashew nut shells as well as wood from sustainably managed forest plantations and agroforestry systems) could be vital to helping these states move towards more renewable sources of energy and halt deforestation of the Caatinga.

### *Scenario without project intervention*

In the initial baseline scenario, the livelihood of family farmers is already under stress, due to long-term degradation of the ecological and production functions of dryland ecosystems in NEB. These conditions result from poverty as well as rising demographic and farming pressures on the basic resources available. The situation is predicted to become even more severe due to climate stressors such as greater rainfall variability with more severe and frequent droughts, together with higher temperatures, offering glimpses of a possible collapse of farming systems that will worsen environmental degradation, increase food and water insecurity, and cause an acute crisis affecting the livelihood of these communities.

An analysis of the problems and trends in these agriculture systems shows that many current practices are not sustainable. To the contrary, these practices leave systems even more vulnerable, threatening the families that depend on them, particularly considering climate change scenarios. There is an urgent need for sweeping changes in the stewardship of semiarid agriculture systems in NEB, to help these communities adapt to predicted future conditions and become more resilient.

### *Related projects/interventions*

There are numerous programs to strengthen family farming in the target region. Some are supported by domestic sources, such as Brazilian Development Bank (BNDES), and others in partnership with international organizations and climate funds.

BNDES supports a large portfolio of family farming, agroecology and water access projects in Brazil, especially in the Northeast. It has supported installation of 24,600 cisterns for production in the NEB states, and an additional 6,800 water cisterns are under implementation. BNDES is a co-financer of the ECOFORTE Program<sup>42</sup>, which supports agroecology, extractivism, and agroecological production networks. It has also supported hundreds of productive units for processing and commercializing agricultural products, mostly in partnership with state governments in the Northeast, and implementation of approximately 3,300 technologies of integrated and sustainable agroecological production and more than 500 small-scale community seed banks.

<sup>40</sup> Carbon Brief, 2018 (carbonbrief.org).

<sup>41</sup> The Greenhouse Gas Emissions and Removals Estimates (SEEG), 2018. Available at: <http://seeg.eco.br>

<sup>42</sup> ECOFORTE is a program of the Brazilian National Policy for Agroecology and Organic Production (PNAPO), which aims to strengthen agroecology networks and organic farming networks throughout the country by providing direct financial support.

IFAD has been operating in the NEB since 1978. The agency's finance portfolio currently totals US\$ 450 million, reaching 350,000 families with six ongoing projects. IFAD has five state-financed projects in Piauí, Ceará, Paraíba, Sergipe, and Bahia. A sixth federal project under implementation (second phase of Dom Helder Câmara Project), covers all states in the region. These projects support the productive structuring of family units through non-reimbursable investments. The beneficiary families receive technical assistance (TA) services for two or three years to strengthen organizational and technical capacities. IFAD-financed projects also support the structuring of cooperatives for building and strengthening processing units with both capacity building and physical investments. These projects also finance installation of water access technologies. Since 2011, IFAD has funded as a grant the Semear International Program for knowledge management, identification of good practices, outreach of results, exchange visits, and publications. In 2018, a grant – Adapting Knowledge for Sustainable Agriculture and Access to Markets Program (AKSAAM) – was implemented in partnership with EMBRAPA.

The Intelligent Agroclimatic Mode (MAIS Program), financed by the Proadapt fund, is rooted in community-based adaptation strategies and helps family farmers develop climate-smart agriculture in the Brazilian Semi-arid. The program has engaged about 650 farmers, increasing their production by 63% and income by 204%. In addition, more than three tons of CO<sub>2</sub> can be offset for each restored pastureland. GEF supports a small-scale project called REDESER (USD 3.9 million) with FAO and MMA to reverse desertification through agroforestry practices and productive systems.

The proposed project will build upon previous work by strengthening and expanding climate-resilient productive models and seedbanks, improving availability of suppliers, valuing the role of women, and building knowledge networks of farmers practicing agriculture adapted to the current and expected climate conditions. It will tap into processing infrastructure from past IFAD projects as well as markets these projected opened. It also takes a fresh look at rural youth and technology, integrating climate-adaptation measures with water management and income generation to improve ecosystem services and support the vulnerable population in overcoming climatic stressors.

## B.2. Theory of change (max. 1000 words, approximately 2 pages plus diagram)

The PCRCP aims to achieve the following goal: If family farmers in the semi-arid NEB transform their productive systems, then they will be able to increase production while improving their autonomous capacity to face the challenges posed by ongoing climate change, because the adoption of climate resilient practices will result in farming systems that perform restored ecosystem functions. These systems will have climate change adaptation and mitigation benefits, increasing and stabilizing family income and food security while incentivizing young generations to stay active in rural activities. The PCRCP will work with the most marginalized and vulnerable groups of the poorest region in Brazil. The partnerships between IFAD, GCF, the Government of Brazil, and BNDES will mobilize resources and disseminate lessons to many levels of government in other regions in Brazil and abroad.

The climate stressors and vulnerability sources (described in section B.1) result in a number of climate change impacts. The predominant farm production of monocultures and top-down application of static technological packages are clearly not resilient to these impacts, as presented in B.1, and are a driver of deforestation and land degradation. Historically, the government response to climate stress in NEB has mainly focused on conventional solutions such as dams, wells, and diversion of waterways. Such investments are expensive, may not reach family farmers or respond to their needs, and do not increase farmer's autonomous capacity to face further climate shocks. Hence, the PCRCP proposes to implement diversified agricultural systems that provide farmers with the knowledge and tools to increase their own resilience at the family and producer's organizations level, allowing the most vulnerable to absorb climatic shocks without overt reliance on large infrastructure projects or external emergency response measures. The selected development pathway responds equally to the climate stressors affecting the region and the socioeconomic context of family farming in NEB. In that context, the socioeconomic criteria used to define the most adequate climate resilient practices are the following: (a) *low-cost*, given the limited capacity farmers have to spend and make investments, (b) can be implemented by *workforce available to family farmers*, (c) provide a guarantee of *acceptable production and income*, (d) *contribute to GHG emission reductions*, (e) have *low or minimal environmental impact* (Category B or C), (f) promote the *inclusion of women, youth and traditional communities*, and (g) can be *scaled up*.

FAO<sup>43</sup> (based on IPCC)<sup>44</sup> classifies practices to improve farmer's climate resiliency into: integrated nutrient management, improved agronomic practices, tillage and residue management, water management, and agroforestry. These practices are often referred to as Climate Resilient Agriculture, and can consist of several methods, arrangements, and technologies. What climate resilient is in one biome or production system may not apply to another. Climate challenges are also varied in any given geography, and adaptation solutions depend on volume of the area and resources available to the farmer. Thus, given the vulnerabilities, ecosystem characteristics and potential changes in climate, climate resilient agriculture for family farmers in the Brazilian semiarid translates into practices that increase availability, flow and retention of water in the system. Pragmatically, it means simultaneous implementation of the following practices and principles, (which are hereby denominated **CRPS**): (i) soil preparation: maintenance of dispersed trees, setting up cradles and natural fertilization; (ii) soil protection: soil cover and biomass production with resilient plant varieties; (iii) water management: capture and storage (both in soil and vegetation), level curves and terraces; (iv) planting: stratification, diversification and densification with herbaceous, shrub and tree species maximizing photosynthetic capacity; (v) management: active pruning and thinning; and (vi) Grazing: pasture rotation, fences and silage. The application of these practices results in significant climate change mitigation benefits. Furthermore, the planting of shrubs and trees, and improvement in soil management results in substantial GHG emission reductions.

While CRPS practices have the potential to yield sustainable land-management benefits, increase production, and significantly reduce GHG emissions, they require a significant change in habits, culture and investments. GCF support will enable farmers to take a longer-term perspective in anticipation of the significant financial, economic and livelihood benefits achievable through the application of crosscutting adaptation and mitigation measures that prevent the decline in production and income that are anticipated to result from the effects of climate change. It responds to the urgency of climate change projections for NEB, and recognizes that for these practices to function effectively as adaptation and mitigation measures, they must be applied as part of a larger-scale program and be calibrated and adjusted based on the specific needs, priorities and cultural context, both at the regional and family-productive-units levels.

These principles are interlinked and their benefits are synergic, meaning they must be implemented together to produce the desired results. Assembling an agricultural system with these elements makes it a water producer, not a consumer, which is the correct approach for a region with low water availability. Table 1 below presents the direct adaptation benefits that each principle provides to the family farmer. In addition, CRPS will provide higher diversity and availability in food, diversity of income streams that can buffer against climate and market shocks as well as induce a net farm output/yield income stability, increase availability of food and incomes, reduce carbon emissions and improve ecosystem services.

**Table 1. Principles and practices of climate-resilient production systems in the Semiarid**

Practices / Adaptation Benefits	Retain soil moisture	Recharge soil moisture	Increase organic matter in soil	Increase photosynthesis	Increase soil carbon	Capture water	Capture humidity in air	Improve microclimate	Reduce erosion
(i) Soil Preparation: Maintenance of dispersed trees, micro-valleys and natural fertilization	X		X	X				X	X
(ii) Soil Protection: Soil cover and biomass production with resilient plant varieties	X		X		X	X	X		X
(iii) Water retention: level curves and terraces		X				X			X
(iv) Planting: Stratification, diversification and densification			X	X		X		X	X
(v) Management: Active pruning and thinning;				X				X	
(vi) Grazing: Pasture rotation and fences.			X	X	X				X

43 Branca G, McCarthy N, Lipper L, Jolejole MC. Climate Smart Agriculture: A Synthesis of Empirical Evidence of Food Security and Mitigation Benefits for Improved Cropland Management. Rome, Italy: Food and Agriculture Organization; 2011, pg. 1–42.

44 IPCC. 2007. Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, Chapter 8-Agriculture. Climate Change 2007: Mitigation. Cambridge, United Kingdom and New York, NY, USA Cambridge University Press.

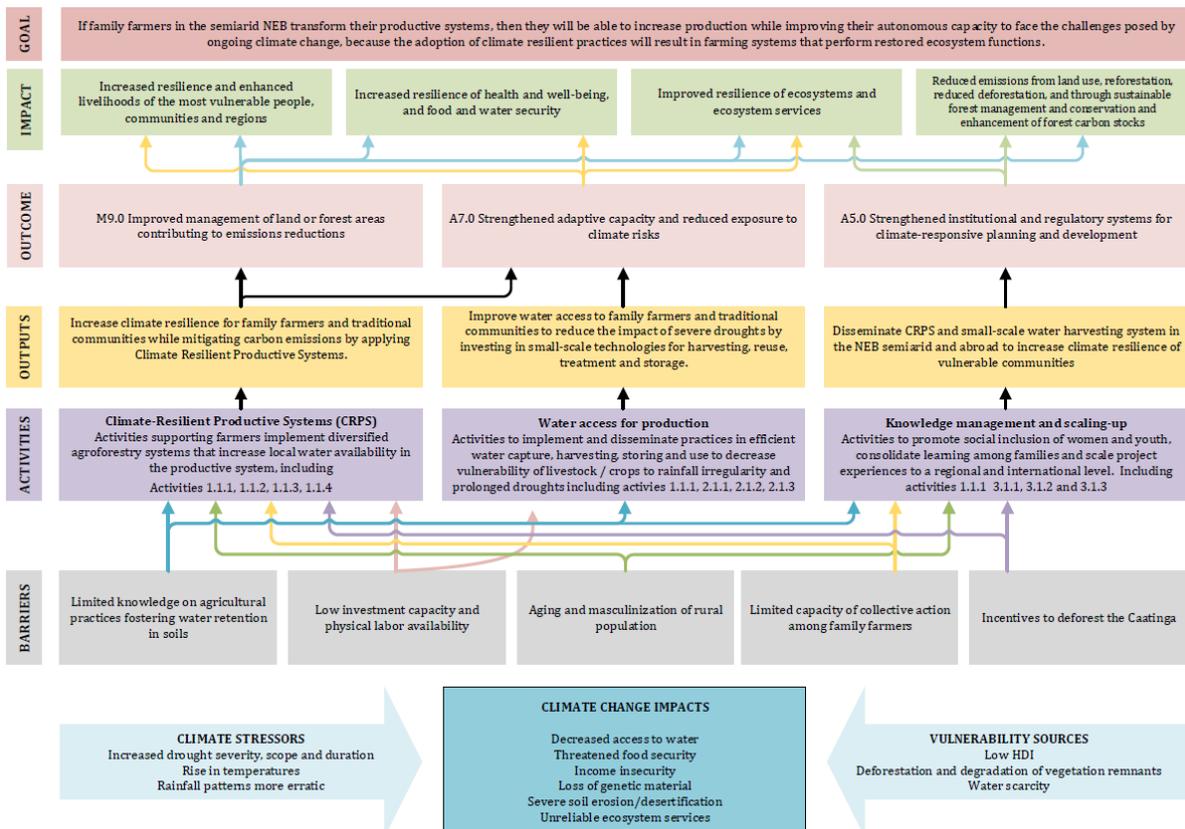
The project will consist of three components that reinforce one another to promote climate resiliency as well as emission mitigation: 1) Climate Resilient Productive Systems (CRPS); 2) Water Access for production; and 3) Knowledge Management and Scaling-Up.

Implementation of diversified agroforestry systems that will increase local water availability in the productive system - **CRPS**-, as proposed under Component 1 (Output 1.1), will influence hydrological conditions across the landscape. The *Caatinga* is a rich productive area, with fertile soils, where temporary streams and wetlands exist, making up a biome with good capacity for agricultural production, provided that adapted vegetation is used, with adequate arrangements and techniques appropriate to the levels of humidity and solar radiation. Activity 1.1.4 will provide a supportive network for farmers to exchange best practices, stimulate entrepreneurship and innovation as well as foster active leadership of women and youth.

The water access solutions proposed in Component 2 (Output 2.1), such as rainwater harvest and storage, if accompanied by the current agricultural model, may be temporarily palliative – subject to severe water loss due to high evapotranspiration from heat and wind – but productivity would remain limited. In fact, water investments in the semiarid must be complemented by soil recovery practices promoted in Component 1, to allow infiltration of rainwater, increase soil biomass rate, create shade and wind shelters to reduce evapotranspiration (which can exceed 2,000 mm/year). The specific flora and fauna in the semiarid have developed a high capacity to access and store water (in roots, trunks, stems and leaves), resulting in a biota capable of supplying more water than needed for growth and reproduction, adding surplus water to the system. The first years of the CRPS implementation are the most vulnerable, so Output 2.1 will increase the availability of water in the system, reducing impacts of droughts, while the system is still fragile.

Knowledge management, policy dialogues, communication, and monitoring and evaluation (M&E) activities under Component 3 (Output 3.1), meanwhile, will allow the investments under Components 1 and 2 to be sustainable and scaled up to other states in the region and dryland areas, including other countries, resulting in the intended paradigm shift in approaches to climate adaptation and mitigation.

**Figure 7. Theory of Change (Source: Developed by IFAD).**



The Theory of Change (TOC) in Figure 4 shows that the project was built considering the existing vulnerabilities as well as potential climate change impacts. The activities were designed to overcome the barriers family farmers face in shifting their agriculture, animal husbandry, and extractive productive activities to one characterized by promotion of dense, stratified and diversified systems (CRPS), farmer-led technology development, and active leadership from women and youth, thereby enabling farmers to build resilience capacities and adapt effectively to the impacts of climate change.

The project's youth and gender transformational focus ensure greater opportunities for women and youth in all three components. Participation of traditional, indigenous and afro-descendant (*quilombola*) communities will also be prioritized.

**B.3. Project/programme description (max. 2000 words, approximately 4 pages)**

Climate stressors aggravate the downward cycle caused by the inadequate practices translating into a decline in productivity, which in turn feeds into social and environmental degradation processes inducing the impoverishment of family farmers and ecosystem services. The partnership between IFAD, GCF, GoB, and BNDES will shift from the predominant current paradigm to one characterized by the promotion of dense, stratified and diversified agricultural systems (CRPS), farmer-led technology development, and active leadership from women and youth. It will mobilize resources and disseminate lessons to many levels of government in other regions of Brazil and abroad. PCRFP will work with existing supply chains in each micro-region, increasing productivity and strengthening resilience, capitalizing existing infrastructure and processing units.

*The project will consist of three complementary and mutually reinforcing components (pictured in the diagram below) to promote climate resiliency as well as emission mitigation: 1. Financing of Climate Resilient Productive Systems (CRPS), 2. Financing of Water Access Practices, and 3. Knowledge Management and Scaling-Up. Selection of the productive systems and water access technology is described in the Feasibility Study (Annex 2). As sole Executing Entity (EE), BNDES will have the final decision making power on project activities including: i) use of funds; (ii) State selection and criteria for Project Areas; (iii) criteria for Final Beneficiaries; (iv) criteria for TRIPs approval; (v) criteria for selection of the PMEL Unit, and (vi) requirements to procure TA teams and other service providers. BNDES will verify the application of the criteria and requirements, and will provide final approval.*

**Figure 8. Diagram of project**



## **COMPONENT 1. Financing of Climate-Resilient Productive Systems (CRPS)**

The main objectives of Component 1 are to provide access to financing to the States to implement diversified agroforestry systems that will increase local water availability in the productive system and empower beneficiaries (especially women and youth leaders) in sustainable management of these systems. Investment strategies have been designed to meet the diverse demands of family farmers, given the range of sizes of land areas, climate-resilient adaptation requirements, target beneficiaries, and productive objectives.

Through the implementation of CRPS and relevant cross-cutting activities, the project will deliver **Output 1.1. Increase climate resilience for family farmers and traditional communities while mitigating carbon emissions by applying CRPS.**

### **Activity 1.1.1. Selection of Project Areas and development of Territorial Resilience Investment Plans (TRIPs)**

Through Activity 1.1.1, the project will select its implementation area and develop Territorial Resilience Investment Plans (TRIPs) which will act as a “master plan” to guide collective and individual eligible practices in components 1 and 2. BNDES will verify the application of the eligibility criteria and requirements, and will provide final approval to the TRIPs.

#### **Sub-activity 1.1.1.1. Develop a baseline study to select project area**

**Step 1. Selection of states and PMEL.** Through a public call, BNDES will conduct a selection of pre-proposals, for both the state-level implementation and the PMEL Unit. At a preliminary stage, the States taking part on the public call prepared by BNDES would be ranked through an in-depth analysis based on the following established criteria:

- (i) verification of borrowing capacity;
- (ii) state qualification;
- (iii) verification of counterpart capacity (including required co-financing from States);
- (iv) incidence of rural poverty;
- (v) climate vulnerability index and historical exposure to drought;
- (vi) food and nutritional security index;
- (vii) water quality and availability;

It is expected that States with prior IFAD project experience or other similar implemented projects may present greater implementation project capacity and increased readiness. Two to four States will be pre-selected as eligible to present a State Proposal (Consulta prévia eletrônica) to the Executing Entity (EE) – BNDES. Through the “Consulta prévia eletrônica” the project proposal will be formally submitted to BNDES. The document is the basis to verify the eligibility of the proposals pursuant to BNDES’ Operational Policies and the PIM and does not constitute a promise of financing.

Similarly, the institutions/organizations that participate in the competitive public call to support BNDES through implementation of activities of PMEL Unit (under component 3) would be ranked through an analysis based mainly on the following criteria, and the pre-selected ones will present a consultation letter to the EE that will be thoroughly analysed by BNDES technical team and will be subject to the approval of BNDES Board of Directors:

- (i) client qualification;
- (ii) experience with knowledge management and south-south and triangular cooperation;
- (iii) experience with similar projects and themes as envisaged in components 1 and 2; and
- (iv) experience with implementation of similar budget.

#### **Step 2 – Confirmation of states and PMEL Unit – analysis and approval of the Project Proposal (Consulta prévia eletrônica).**

For both processes, BNDES will publish all the instructions and selection criteria for the formulation of consultation letters and in collaboration with IFAD will promote a workshop or similar event to present the PCRFP. This proposal qualification and selection will follow BNDES’ internal objectives, functions, policies, and procedures, which include a thorough technical analysis. The project analysis will be subject to BNDES Board of Directors approval before the

signature of the agreements with the states and sub-grant agreement with the PMEL's organization. The final selection process will involve IFAD's no objection.

The consultation letter (Consulta prévia eletrônica) to be submitted by pre-selected states will include, among others, information on states qualification and experience, governance and implementation arrangements, geographical targeting, priority activities and key targets to be achieved, duly aligned with the targeting criteria, intervention approach and logframe indicators of the PCRPs, selected municipalities, as well as compliance with applicable legislation. The relationship between the activities to be funded with the loan and grant proceeds to be provided to the States and the results for components 1, 2 and 3 will mirror exactly the relationship for the overall project for components 1, 2 and 3. Each one must proportionally mirror all components of the PCRPs. Therefore, state projects will differ mainly in the definition of territories and geographic areas (and thus also in overall size), as well as the specificities that may arise from the environmental characteristics of those territories. This design will also be part of the Consulta prévia eletrônica that will be submitted by States to BNDES.

**Step 2.1 Define project area in each selected state.** During the preparation of the State's proposal, the municipalities within states will be ranked through an analysis based on the following criteria: (i) rural poverty incidence; (ii) climate vulnerability index and historical exposure to drought; (iii) food and nutritional security index; and (iv) water quality / availability. Technical Assistance (TA) will be selected per area, with one technical assistance professional serving an average of four communities (total of about 140 families) over a three-year period for Component 1 activities and two-year period for Component 2 activities. This step will occur during the preparation of the State's proposal.

**Step 3. Select beneficiary groups.** As defined in the PIM (Annex 21), in the beginning of the implementation phase at state level, each state will propose the beneficiary groups, focusing on those with the greatest climatic, socioeconomic and environmental vulnerability.<sup>45</sup> A baseline survey will be conducted to collect information on agricultural production, herds, local climate, water availability, gender issues, and nutrition, among others of the target population. Priority will be awarded to marginalized groups, youth, and women. Participation is not mandatory, so public awareness campaigns (see activity 3.1.1) and stakeholder engagement (Annex 7) are necessary. For indigenous peoples' communities, the project will also follow Indigenous People's Planning Framework (IPPF) plan as presented in Annex 6.

**Sub-activity 1.1.1.2. Develop TRIPs.** TRIPs are the planning tool for all the eligible activities proposed under Components 1 and 2. They include investments, resources, capacity building, and other initiatives to achieve the objectives. Each TRIP will cover an average of four territorially contiguous communities. To implement TRIPs, selected states will provide non-reimbursable funds (grants) to community organizations/associations. Final beneficiaries will only access such grants through community organizations/associations. The sub-grant agreements<sup>46</sup> will be signed by the States with community organizations and associations; with which IFAD has in-depth experience with its operations and accountability. Final beneficiaries will provide 10% in-kind contribution of the total TRIP and this will be captured in the sub-grant agreement. Technical assistance (TA) teams will be contracted by the States to design TRIPs with full involvement of beneficiaries based on the Manual for Designing Productive Investment and Business Plans. "TA teams" are private or public service providers to be selected and procured by the states, following the guidelines of BNDES. Under component 1, four types of Investments in Systems of Agroforestry (ISAs) will be considered for: families (ISA Família), backyard gardens (ISA Quintais), communities (ISA Coletivo), schools (ISA Escola) as well as a pilot on Bio saline agriculture.<sup>47</sup> Once completed, the TRIPs will be submitted by the SIU for validation and evaluation of the state-level Consultative Council and then will be submitted for final approval by the states to BNDES. This mechanism will ensure greater involvement, participation and empowerment.<sup>48</sup>

#### **Activity 1.1.2. Financing of CRPS in family farms and backyard gardens**

Through activity 1.1.2, financing will be provided for the implementation of CRPS in Family farms and in backyard gardens. Investments will receive TA for development, implementation, and initial monitoring.

45 These selection criteria will be applied: (i) the environmental precariousness rate of its property (signs of deforestation, erosion, and soil degradation); (ii) food and nutritional insecurity rates (malnutrition and chronic degenerative diseases); and (iii) tangible effects of drought and level of access to quality water.

46 The exact legal instrument to be used will be defined by each state according to the applicable local law

47 A methodology developed by IFAD with support from the knowledge management SEMEAR International Program (PSI).

48 Each state may set up a Consultative Council to, among other activities: evaluate and validate the TRIPs presented, ensure their quality, in the various relevant scopes (alignment with program objectives, feasibility, etc.). This body may request additional information, recommend improvements, and provide first-level approval or rejection of proposals for final approval of BNDES (see section B4).

#### **Sub-activity 1.1.2.1. Implement CRPS in family farms**

Objective: Reduce vulnerability of production to droughts and increase income, developing a progressive culture of multiple sustainable uses of productive areas.

Selection criteria: Target beneficiary families (sub-activity 1.1.1.1) that already have water for production.

Investments (ISA Familia): Resources to implement the CRPS.<sup>49</sup>

Area: 31,000 plots with an average of 1/2 hectare each (total 15,500 hectares)

#### **Sub-activity 1.1.2.2. Implement backyard gardens using CRPS**

Objective: Develop irrigated, diverse and productive backyards in conjunction with activities in Component 2, applying CRPS principles to reduce families' food and nutrition insecurity from droughts, increase access to nutritious food as well as value and strengthen the role of women in production.

Selection criteria: Beneficiary group families (sub-activity 1.1.1.1) that don't have water for production. Same beneficiaries that will receive water access investments in Component 2.

Investments (ISA Quintais): Resources to implement CRPS.

Area: 36,000 gardens with an average size of about 1/5 hectare each (7,500 hectares expected)

#### **Activity 1.1.3. Financing of Collective Resilient Investments**

The funds for collective investments are also non-reimbursable and will follow the same co-funding and TA as individual investment in Activity 1.1.2.

#### **Sub-activity 1.1.3.1. Implement Collective Areas Sustainable Management (CASM)**

With increasing population and land use in the Semiarid, there is a real threat that these communities could gradually deplete the Caatinga, mainly due to timber extraction for firewood and overgrazing.

Objective: The main objective is to improve the ecosystem services provided by the Caatinga, such as micro-climate regulation, carbon sequestration and fixation, pest and disease control, provision of water, decomposition of waste, natural pollination of crops and other plants, and provision of raw materials (timber, seeds, nuts, fruits, etc.). The system will stabilize and, if possible, increase the supply of forage. The enhanced ecosystem services help ensure that the community will be the main stakeholders in the conservation and recovery of the system in which they live in.

New options for income generation are needed, especially for women and youth, and the increase of forage for the herd, so that the animals gain more weight and compensate for possible loss of income due to the herd's reduction. It is possible to develop a slow and progressive culture of multiple and sustainable uses of the Caatinga and reduce extensive grazing, while increasing income, encouraging family succession, and conservation and recovery of the ecosystem services offered by the Caatinga.

Selection criteria: Communities that have a collective use area of around 500 hectares or more.

Undertakings:

- Recover degraded areas using CRPS;
- Decrease timber demand by implementing eco-efficient stoves and biodigesters;
- Increase supply and efficient use of water for production;
- Structure community seedbanks and nurseries;
- Promote low-impact productive activities in collective areas (e.g., beekeeping).
- Strengthening community governance of access and sustainable use of the areas.

Area: 60 CASM with an average size of 600 hectares each (total 36,000 hectares).

Investments (ISA Coletivo): Tools and materials for implementing CRPS, nurseries, eco-efficient stoves and biodigesters.

#### **Sub-activity 1.1.3.2. Implement CRPS in Schools**

Rural schools are where young people, children of farming families, acquire knowledge on various subjects, such as rural life and agricultural production. The project will seek to enable these educational institutions to work on CRPS, rational use of water for production, renewable energies, and other climate resilience practices. Selected "rural schools"

<sup>49</sup> Seeds, seedlings, fertilizers, equipment rental or purchase, irrigation systems, tools, fences, etc.

(in their own name and account) will be the final beneficiaries/recipients of the grant funding to be provided by the states under this sub-activity.

**Objective:** Enable rural educational institutions for youth to experiment and teach CRPS, rational use of water for production, renewable energies, and other resilience practices to students. Target the cooks who prepare school meals, encouraging them to use native fruits and vegetables, reinforcing children's food and nutritional security.

**Selection criteria:** Rural schools within a range of the target areas (sub-activity 1.1.1.1). Preference will be awarded to Family Agriculture Schools (EFAs).

**Undertakings:**

- CRPS teaching and experimentation;
- Development and maintenance of nurseries and seedbanks;
- Promotion of entrepreneurship in CRPS; and
- Training for cooks and students on the nutritional value of native fruits and vegetables to diversify and enrich diets.

**Area:** 1,000 schools (100 families per school) with 1/10 hectare each (total 100,000 families and 100 hectares).

**Investments (ISA Escola):** Resources to implement the CRPS, such as seeds, seedlings, organic fertilizers, equipment rental or purchase, irrigation systems, tools, fences, nurseries, training materials, computers, etc.

#### **Sub-activity 1.1.3.3. Test productive models of Bio saline agriculture**

In the Semiarid, brackish or salty groundwater is common. Around 25% of wells have freshwater (< 500 mg/l TDS<sup>50</sup>), 33% are brackish (501–1,500 mg/l TDS), and 42% salty (>1,500 mg/l TDS).<sup>51</sup> An estimated 75% of the wells in the Semiarid are unfit for human consumption. There are over 500 desalination units operating in NEB, which produce residual water that currently accumulates in evaporation tanks with no productive use.

**Objective:** Develop pilot testing of productive activities using effluent from the desalination process.

**Selection criteria:** Communities benefitted from collective desalination systems.

**Undertakings:** Fish breeding and irrigation of halophyte plants in small areas.<sup>52</sup>

**Investment:** Fish, tanks, irrigation equipment, resources to implement the CRPS, soil laboratory tests, etc.

**Number of bio-saline production systems:** 24 bio-saline system each irrigating 1 hectare and benefiting 50 families (total 1200 families and 24 hectares).

#### **Activity 1.1.4. Build a Farmers Network and Promote local entrepreneurship for products and services that support family farming**

To facilitate the replication of CRPS, support will be provided: i) TA teams will build a territory-based intervention strategy identifying properties demonstrating exemplary experiences of CRPS and water access technologies and building a network to exchange these good practices; and ii) Small grants and business management support to microenterprises that innovate and produce specific tools and equipment to facilitate the implementation of CRPS.

**Sub-activity 1.1.4.1. Build a Farmers Network;** the following tools will be used:

**Task 1.1.4.1.1. Train Farmers;** TA teams will train interested farmers and young promoters in CRPS principles and practices, water access technologies and gender-transformational approaches (see Annex 8), appropriate for indigenous and traditional communities (Annex 6) and that attract youth.

In addition, farmers who already implement aspects of CRPS will be invited to be farmer-trainers. Their selection will not be limited by the criteria of target group or property size. They can have several roles in the project; from integrating TA teams, allowing visits to their farms as demonstration plots, or participating in local farmer network, trainings and workshops. The Project will ensure both women and men become farmer-trainers.

**Task 1.1.4.1.2. Hold exchange visits;** an important source of practical information and knowledge sharing. They involve organizing a group of farmers to visit another farmer or group. Although usually the visit is done to a 'more advanced'

<sup>50</sup> TDS – Total dissolved solids.

<sup>51</sup> MME-CPRM-SERVIÇO-GEOLÓGICO-DO-BRASIL. *Projeto Cadastro da Infra-Estrutura Hídrica do Nordeste. Relatório Preliminar - 1ª Etapa - 225.000 km<sup>2</sup> - Versão Beta*. Brasília: MME-CPRM-Serviço-Geológico-do-Brasil. Available at:

[https://www.cprm.gov.br/publique/media/hidrologia/m\\_apas\\_publicacoes/cadastramento\\_fontes\\_semiarido\\_brasileiro.pdf](https://www.cprm.gov.br/publique/media/hidrologia/m_apas_publicacoes/cadastramento_fontes_semiarido_brasileiro.pdf), 2003.

<sup>52</sup> Hoffman and Shannon, 1985

group, it is not a one-way process, because visitors discuss and comment what is being observed. These initiatives are often more effective than courses or lectures on the same topics due to language similarity and experience of real-life situations. Farmers from 5000 medium-sized farms (at least 5 hectares) located in the project's region will be invited to participate in the exchange visits. There will be an active participation of Young Communicators participating in these exchanges (sub-activity 3.1.1.1). Messaging apps are widely used in Brazil and can be applied to bridge communication gaps in farming communities. TA can create and manage online social-media tools to share experiences on specific topics and solve problems promptly. These tools can further the sharing of the knowledge learned in the exchange visits.

**Sub-activity 1.1.4.2. Promote local entrepreneurship for products and services that support family farming**

Most small-scale products and tools available to farmers are directed towards traditional large-scale monoculture, creating a vicious cycle that makes farmers turn to non-resilient production practices. Specialized small-scale equipment and mechanization can make farmers more productive and able to add value to their production.

The few scattered farmers who dare challenge the model must develop or adapt their own tools. During visits to Bahia and Pernambuco, the design team witnessed several examples of these innovations: forage palm chopper and feeder, long-arm pruning shears, wood chipper, and low-tech water reuse facility, among others. This thriving creativity and potential demand face high barriers to their widespread use. Microentrepreneurs in this sector are mostly small and lack the management capacity for commercial financing, making efforts to scale up or even start their businesses nearly impossible. Their innovations usually never go beyond their plot.

With greater access to capital – especially capital with management assistance and sustainability conditions tied to it – microentrepreneurs with businesses that have a direct impact on climate resilient agricultural production can scale up their operations and influence family farmers beyond the project's direct beneficiaries to improve their practices. A dynamic business environment can also attract youth.

The project will support investment in small-scale mechanization<sup>53</sup> of microenterprises that provide services or products for improving family farmers' CRPS thereby enhancing rural entrepreneurship. Small grants may support microenterprises that innovate and produce specific tools and equipment, nurseries, composting services, apps to manage production, organic fertilizers, pest control, and market platform, etc. These enterprises will also receive business management support by the states through contracted TA teams. The GCF grant will cover the incremental costs associated with higher-than-average screening, evaluation and technical assistance costs of the fund's investments. The small grants to microenterprises will be provided by states under specific legal agreements to microenterprises selected through a competitive process, following BNDES approval of the criteria.

Expected results of **Component 1** include:

- 575 TRIPs designed and approved;
- 31,000 families benefiting from Family Farms Investments and TA;
- 36,000 families benefiting from backyard gardens investments and TA;
- 1,000 schools teaching CRPS;
- 1,800 families from 60 communities benefiting from CASM;
- 540 eco-efficient stoves installed;
- 540 bio digesters built;
- 540 income-generating and resilient production-based activities in collective areas;
- 1,200 families benefiting from 24 bio-saline productive systems;
- 5,000 medium-sized (at least 5-hectare) productive units participating in farmers networks;
- 550 TA and farmer trainers trained;
- 24,000 farmers participate in exchange events / workshops;
- 84,124 hectares under sustainable management;
- 11 MtCO<sub>2e</sub> emissions reduced; and
- 70 micro enterprises supported to supply small-scale equipment for CRPS.

<sup>53</sup> According to Brazilian Law, "microenterprise" is defined as a company with annual gross revenue of less than R\$ 360,000.

## **COMPONENT 2. Financing of Water access practices for production**

The purpose of this component is to disseminate practices in efficient water capture, harvesting, storing and use to decrease vulnerability of livestock / crops to rainfall irregularity and prolonged droughts. All investments in this component will be financed as determined in the TRIPs for beneficiary groups (described in Activity 1.1.1.).

Component 2 beneficiaries are selected from a pool of families that will implement backyard gardens (described in Sub-activity 1.1.2.2) but do not have water for production. Irrigation in small plots allows diversified production, mainly with fruits and vegetables, for family consumption and to sell surpluses. The TA provided to the beneficiaries will focus on addressing issues of efficient water management, good irrigation practices, techniques for limiting evapotranspiration, and precautions to prevent soil salinization. All pumping systems will use renewable energy (photovoltaic or wind).

All water infrastructure methodologies selected in the PCRPs are widely disseminated in NEB and are extremely simple to build, known in Brazil as “social technologies”. Construction of the water infrastructure technologies listed below is usually carried out by trained community masons, beneficiary families, and their neighbours with oversight from TA teams.<sup>54</sup> In addition to creating an activity for local workers, it also ensures future maintenance of the cisterns without relying on outside services. Technical training and training in water management will be systematically provided in association with the construction process. For further description of these technologies, see Feasibility Study in Annex 2.

Through the use of water technologies, the project will deliver **Output 2.1 Improve water access to family farmers and traditional communities to reduce the impact of severe droughts by investing in small-scale technologies for harvesting, reuse, treatment and storage.**

### **Activity 2.1.1. Financing of boardwalk cisterns for backyard gardens<sup>55</sup>**

**Investment:** Materials to construct cisterns; irrigation equipment; tools and materials for implementing CRPS. Construction of a plate tank with storage capacity of 52 m<sup>3</sup>, coupled with a 200 m<sup>2</sup> concrete water-catchment area (boardwalk or *calçada*).

**Application:** Irrigate small plots to support short-cycle crops (mainly vegetables) during dry season. The role of women in this production is fundamental. Impact on family food security and nutrition are significant.

**Total:** 20,000 cisterns.

### **Activity 2.1.2. Financing of eligible social technologies to increase water availability in periods of drought**

#### **Sub-activity 2.1.2.1. Build small farm ponds<sup>56</sup>**

**Investment:** Small-width deeply excavated reservoirs that store at least 500 m<sup>3</sup> of rainwater to reduce evaporation and retain water for longer periods.

**Application:** Irrigate plots and support short-cycle crops during dry season.

**Total:** 500 farm ponds.

#### **Sub-activity 2.1.2.2. Construct small groundwater storage basins**

**Investment:** Construction of small underground dams through a transversal blocking system along temporary streams and river banks, with flexible plastic sheeting lining a trench (from surface to rock or impermeable layer).

**Application:** Capable of irrigating larger areas and storing a significant quantity of water for several months.

**Area:** 500 small underground dams.

### **Activity 2.1.3. Financing of treatment and reuse systems for household wastewater**

For rural families, untreated water represents risks to the environment, soil, and human health. Only 27% of the NEB population (mostly in urban areas) has access to sewage collection and treatment.<sup>57</sup> The treatment systems selected use simple and affordable technology based on cycling water and nutrients for food production. These technologies

<sup>54</sup> The same technique has been used for construction of cisterns in the One Million Cisterns Program.

<sup>55</sup> Sistema Calçada - Instruction regulated by Law number 12.873, dated October 24, 2013. Decree number 8.038 of July 4, 2013 and Ordinance number 130 of November 14, 2013.

<sup>56</sup> Instruction regulated by Law 12.873 of 24 October 2013, Decree number 8.038, of 4 July 2013 and Ordinance number 130, of 14 November 2013.

<sup>57</sup> Instituto Trata Brasil, see: <http://www.tratabrasil.org.br/saneamento/principais-estatisticas/no-brasil/esgoto>

adapt forms of rural sanitation to the household level and contribute significantly to sanitary improvement of environmental and living conditions of beneficiary families.

**Sub-activity 2.1.3.1. Financing of systems for grey water reuse**

Investment: Construction of treatment system consists of filtering grey water residues through physical and biological mechanisms, in which organic matter is biodegraded by microorganisms and earthworms.

Application: Irrigate small plots, such as backyard gardens and nurseries.

Area: 10,000 greywater treatment systems irrigating 1/5-hectare plots (2000 hectares).

**Sub-activity 2.1.3.2. Financing of green septic tanks**

Investment: Construction of evapotranspiration tank (or green septic tank). Anaerobic digestion, which occurs in septic bed, consumes organic matter from household waste in the root zone of the plants.

Application: Can irrigate trees (usually banana trees, which are part of the treatment systems) and non-edible plants.

Area: 5,000 blackwater treatment systems irrigating 0.05-hectare plots (250 hectares).

Expected results of **Component 2** include:

- 20,000 cisterns with walkway;
- 500 trench barriers;
- 500 small underground dams;
- 10,000 greywater reuse systems;
- 5,000 blackwater treatment systems.

**Component 3. Knowledge management and scaling-up**

Component 3 supports and expands on the activities in Components 1 and 2. The activities described below will be explored in the project so that information flows serve both to consolidate learning among families who will experience new approaches in CRPS and water access as well as to scale to a regional and international level the adaptation and mitigation measures that the project will propel. Strategies developed will drive upscaling and deliver **Output 3.1 CRPS and small-scale water harvesting systems disseminated in the NEB semiarid and abroad to increase climate resilience of vulnerable communities**.

Part of Component 3 (activity 3.1.2 - sub-activities 3.1.2.1, 3.1.2.2, and sub-activity 3.1.3.1.) will be conducted through the establishment of the Planning, Monitoring, Evaluating, and Learning Unit ("PMEL Unit"). The PMEL Unit will be selected by BNDES through an open selection process followed by the submission of a consultation letter (Consulta prévia eletrônica), which will be subject to analysis and approval by BNDES according to its internal procedures. The PMEL Unit will not provide sub-grants to final beneficiaries. Additionally, the States, through the SIUs, will conduct activity 3.1.1 – sub-activities 3.1.1.1., 3.1.1.2 and 3.1.3.2 of Component 3, following BNDES guidelines.

**Activity 3.1.1. Raise awareness and build capacities of women, youth and traditional communities**

This activity combines several strategies: i) highlight the leading role of youth and women as 'knowledge managers and generators' and 'local talents'; ii) consolidate laboratories for learning, exchange and replication of sustainable practices in communities through a set of printed and audiovisual materials; iii) facilitate dynamic M&E of socio-environmental impacts, which will be registered in materials that allow effective influence in spaces dedicated to public policy making.

**Sub-activity 3.1.1.1. Develop a young communicators network**

A total of 414 young people will be selected to participate in a media resource empowerment program focusing on successful experiences in accessing water resources and CRPS. In addition to being responsible for registering activities and facilitating production of audiovisual and printed materials, Young Communicators (YCs) will act as "social mobilizers", fulfilling a crucial role in social organization processes.

Another important initiative in which YCs will take part, together with the farmers' network (see activity 4.1), is the construction of a participatory monitoring model with audiovisual resources.

Local and regional exchanges between YCs will be promoted. YC will work closely with TA teams and community-based partner organizations. Each will receive a scholarship through a "learning grant" and have access to equipment (mobile phones and notebook computers).

#### **Sub-activity 3.1.1.2. Strengthen capacity for women, youth, and traditional communities**

All educational activities (workshops, courses, exchanges, etc.) will follow a "learn by doing" approach that explores experimentation of alternative technologies and information exchange among community members. Given that women, youth, and traditional communities tend to be on the margin of community-based organizing efforts, the project will prioritize capacity-building opportunities targeting these groups.

(i) **Rural women:** The project strengthens rural women's capacities as part of a comprehensive environmental education program that explores the connections between feminism, women's rights, the Semiarid region biomes, agroecology, and food and nutritional security.

(ii) **Youth:** In addition to YC networks, youth will be involved in short-term professional courses with a focus on diversity of production systems and CRPS. The youth will then be incorporated in TA teams and serve as liaisons with families.

(iii) **Traditional communities:** Implementation of sensitivity trainings for TA professionals in issues of race and ethnicity, with a focus on methodological approaches and instruments that address the relationship these communities have with natural resources and land management techniques. The second line of action involves conducting case studies in traditional communities.

#### **Activity 3.1.2. Drive scaling-up, unlock policy barriers and experiment with CRPS and resilience participatory monitoring model**

##### **Sub-activity 3.1.2.1. Promote south-south cooperation**

Another aspect of this project involves developing capacities by sharing knowledge, skills, resources and technologies among countries through the construction of a more horizontal relationship of solidarity than the classic "North-South" cooperation. At the start of implementation, the exchange sites inside and outside Brazil and the prioritized systematization methods will be identified. IFAD is currently implementing the grant Dryland Adaptation Knowledge Initiative (DAKI,) which will pave the way for the project implementation, among other activities, will develop distance learning online platform in foreign languages and this tool could be used in case trips cannot materialize. At the start of implementation, the project will define the exchange sites inside and outside Brazil, the method of interaction (online or in person) and the systematization methods. In addition to TA team members, farmers will be invited to participate. The project will invest in construction of a database cataloguing the practices and technologies for proper management of natural resources that have been identified in these different contexts.

##### **Sub-activity 3.1.2.2. Facilitate discussions to unlock policy barriers**

The National Forest Code requires farmers in the Northeast to preserve 20% of their land as legal reserve. Family farmers, however, can perform certain productive activities in their legal reserves such as agroforestry and beekeeping. The Forest Code anticipates that States could implement a legal reserve quota (CRA) market, where farmers that preserve above their required 20% could sell their quotas. Several policies that are constraining family farmer's CRPS were identified during project design. The most notable include: i) lack of an Environmental Reserve Quota (CRA in Portuguese) market; and ii) norms and regulations preventing family farmers from accessing markets.

As recommended by the World Bank,<sup>58</sup> establishing the CRA market could provide additional incentives for family farmers to increase the area covered by the climate-resilient agriculture principles laid out in the project. A CRA credit produced on a beneficiary's property could be used to offset a legal reserve (RL) debt on another property within the same biome, preferably in the same state. The RL debts represent obligations acquired by any given farmer that can be efficiently offset by environmental improvements produced by smallholder farmers with CRPS, thereby generating a transfer payment from the RL offender to the smallholders. Implementing a state CRA could create a market for forested lands, adding monetary value to a preserved Caatinga. Given the high costs of restoration/reforestation in the Caatinga and the climate-resilient agriculture principles laid out in the project, exchange of CRAs could become an

<sup>58</sup> The World Bank, June 2017. Brazil's INDC Restoration and Reforestation Target, Analysis of INDC Land-use Targets. Report No. AUS19554.

effective way to facilitate Forest Code compliance, meeting NDC targets and preventing deforestation of surplus native vegetation.<sup>59</sup>

The Committee on World Food Security and FAO (2016) recommend that governments employ public policy to support family farmers with respect to issues such as pricing policies, public procurement, food safety and standards, and appropriate credit and infrastructure. Family farmers in Brazil are affected by top-down imposition of food safety standards designed to respond to large-scale mechanized and standardized food production for commodities and large distribution channels. As a consequence of these entry barriers, family farmers revert to informal markets with lower demand and prices.

The project will facilitate discussions in forums on marketing and market access for family agriculture. The proposal is to take advantage of existing organizational structures, reinforce them and create new ones. These working groups should involve a broad set of stakeholders (e.g., project beneficiaries, NGOs, private and public sectors) and develop a roadmap to implement the CRA markets and improve regulatory conditions for family farmers' access to markets. It will also commission research on targeted policy and regulatory issues.

To qualify the inputs made in these forums on public policy, materials (publications and videos) will be produced that present results of the actions undertaken, in accordance with the progress indicators used in the M&E system. These publications – that present concrete social, environmental and economic results of transitioning to a model of family farmer CRPS – can influence public opinion, which in turn can contribute to the “scaling up” process.

#### **Sub-activity 3.1.2.3. Experiment with CRPS and resilience participatory monitoring model**

Since transition to CRPS is gradual and its social / economic / environmental impact not immediately perceived, a monitoring methodology is needed that demonstrates and gives visibility to transformations promoted during implementation. Systematization processes will be published and subsidize political advocacy processes, reaching external stakeholders, such as public managers and institutions working on related topics.

#### **Activity 3.1.3. Plan, Monitor, Evaluate and Learn (PMEL)**

An independent closing evaluation and mid-term review is part of the project. Activities will be developed at national and state level as follows:

**Sub-activity 3.1.3.1. PMEL at National level**, undertakings include: building-up an information platform based on systematizations and innovation experiences, 12 GIS evaluations (4 at start-up, 4 at midterm and 4 at completion), contracting yearly M&E, IT and Communications services, collecting data and information for preparing the Project Completion Report, carrying out M&E meetings and planning workshops (one per year) and elaborating 4 Studies, Systematizations and other Knowledge Management products (2 at mid-term and 2 at completion).

**Sub-activity 3.1.3.2. PMEL at State level**, undertakings include: 12 Studies, systematizations and other Knowledge Management products (4 per State), 21 planning workshops, 21 M&E meetings and 21 Territorial Committee Meetings (1 per year per State). It also involves elaborating the baseline study, mid-term review and impact evaluation including the PRO-WEAI and MDDW Studies<sup>60</sup>. Finally, the M&E system at the State level includes 3 more State-specific studies.

More details in Annex 11.

#### **Expected results of Component 3:**

- 54 workshops for young social communicators;
- 100 systematizing workshops;
- 9 state exchanges;
- 36 regional exchanges;
- 70 newsletters and informative reports produced;
- 360 territorial meeting for women;
- 12 exchange programs for women;
- 27 training workshops of gender experts;
- 243 training workshops for youth;

<sup>59</sup> The project was designed assuming that the legal reserve markets will not be in place. Thus, there will be no impact of the project if the policy fails to be implemented.

<sup>60</sup> The Project-level Women's Empowerment in Agriculture Index (pro-WEAI) and Minimum Dietary Diversity for Women (MDD-W) indicators studies will be developed together with the baseline and completion studies.

- 414 youth benefited with scholarships and communication equipment;
- 300 training workshops for women about sustainable technologies;
- 4 national learning routes;
- 3 international learning routes - LAC and Africa;
- 8 thematic studies.

**Project management**

The project management structure and project governance is described in section B.4 and the PIM (Annex 21).

**B.4. Implementation arrangements (max. 1500 words, approximately 3 pages plus diagrams)**

The institutional arrangements aim at simultaneously providing cohesion for the project and guaranteeing operational independence for the participating states, while ensuring that BNDES is the Executing Entity. They result from ample consultations with state governments, local stakeholders including civil society, and relevant national authorities, including the National Designated Authority (NDA) in the Ministry of Economy (ME), Ministry of Citizenship (MC), Ministry of Regional Development (MRD), Ministry of Agriculture, Livestock and Food Supply (MAPA) as well as BNDES. The main legal agreements will be the Funded Activity Agreement (FAA) between the GCF and IFAD; the Financing Agreement (FA) between IFAD and BNDES; the state level agreements between BNDES and selected state governments, and the sub-grant agreements between the states and final beneficiaries; and the sub-grant agreement between BNDES and the PMEL for implementation of part of component 3. IFAD will only make disbursements to BNDES (EE).

BNDES will enter into a single financial agreement with each selected state which will include loan and grant part of the financing. States will only provide sub-grants to final beneficiaries. All states are required to finance the entire envelope of eligible activities encompassed in the FP and will therefore be required to access all funding sources and financial instruments offered by in the proportions set out in the Term Sheet. The total amount of financing per state will vary according to the size of the state and total beneficiaries, as well as the fiscal and execution capacity of each state as expressed in the “Consulta prévia eletrônica” described below. Final beneficiaries (who will enter into sub-grant agreement with the states to receive the relevant funding) will be “associations”, “organizations”, “schools”, or “producer’s organizations and associations” that are based or operate within the targeted selected communities.

The Central Project Management Unit (CPMU) will be placed within BNDES to monitor implementation, compile physical and financial information, report to IFAD and be overall accountable. As sole Executing Entity (EE), BNDES will have the final decision making power on project activities including: i) use of funds; (ii) State selection and criteria for Project Areas; (iii) criteria for Final Beneficiaries; (iv) criteria for TRIPs approval; (v) criteria for selection of the PMEL Unit, and (vi) requirements to procure TA teams and other service providers. BNDES will verify the application of the criteria and requirements, and will provide final approval.

Each eligible state, pre-selected through a public call, will prepare a Consultation Letter, describing the project, (Consulta prévia eletrônica) for submission to BNDES, which will include governance arrangements, geographical targeting, priority activities and key targets to be achieved, duly aligned with the targeting criteria, intervention approach and logframe indicators of the PCR, selected municipalities, targets, and compliance with applicable legislation, among other relevant information. The state-level project is subject to analysis by the technical team and approval by BNDES Board of Directors, following the bank’s internal rules and procedures.

Once a State-level sub-project is approved by BNDES and the State level agreement between BNDES and the State is signed, a State-level Implementing Unit (SIU), will be set up to support procurement, financial management, evaluation and monitoring at state level. Each state will implement its state level financing agreement with BNDES and comply with IFAD policies on procurement, financial management, auditing, monitoring, eligibility, and anticorruption, as well as requirements defined by BNDES in its co-financing policy. The state level financing agreement will be consistent with arrangements established in the Financing Agreement (entered between IFAD and BNDES in respect to both the GCF and IFAD funding) and comply with

its provisions. Before granting the no-objection to the subsidiary agreements, IFAD will conduct a financial management assessment of the corresponding SIU to ensure that the appropriate financial management arrangements are in place.

The SIUs will be based within the state secretaries responsible for family farming and, whenever possible, states will build upon pre-existing operational structures of IFAD-supported projects. The TORs and selection of key SIU team members, as well as selection of support consultants, will follow the criteria defined by IFAD and BNDES in the Project Implementation Manual (PIM). Both the CPMU and SIUs will establish multi-stakeholder committees for guidance (CPMU’s Advisory Committee and State Level Consultative Committee), composition and responsibilities are further described in table 4 below.

Figure 9. Project management structure

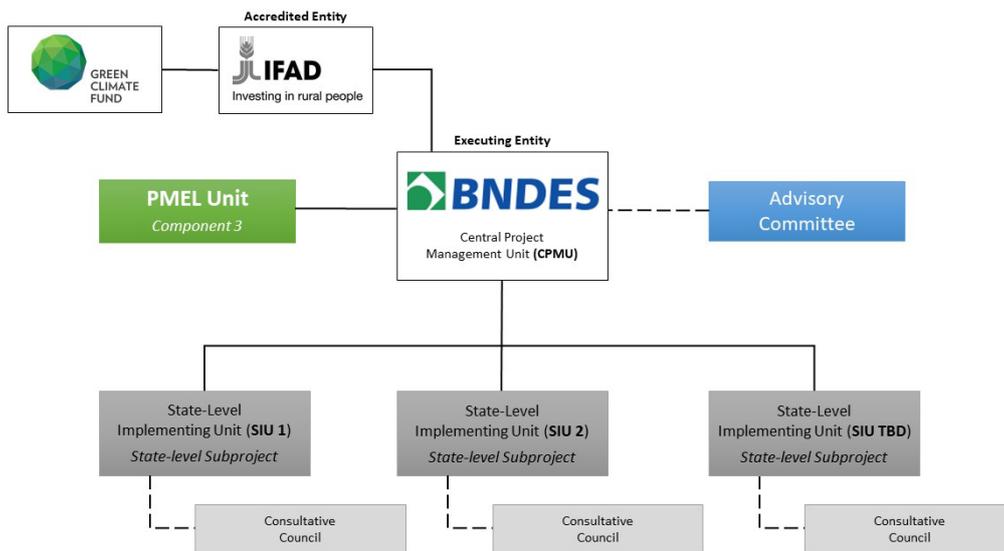


Table 4. Institutional governance

ARRANGEMENT	COMPOSITION	RESPONSIBILITIES
IFAD	IFAD team headed by Country Director	Produces the GCF’s Annual Performance Reports on the basis of the progress reports received from BNDES; Carries out the supervision (includes the findings of the field supervision missions), mid-term, implementation support and final review missions, and reports as necessary; Reports to the GCF; Conducts prior reviews and issues no-objections.
Central Project Management Unit (CPMU)	BNDES team headed by Project Coordinator	Housed in the Executing Entity (EE), it has final decision making power. Executes the overall project and coordinates state-level implementation and PMEL Unit in line with the PIM; Oversees, guides and evaluates project execution; Approves the state-level and PMEL AWPBs; Guides the PMEL and SIUs on implementation, including AWPBs, operational issues and reporting; Submits AWPBs, including procurement plans, and physical and financial progress reports for the overall project to IFAD; Performs financial management, accounting, engages auditors and submits audit reports to IFAD, relative to the activities of the overall Project; Submits Withdrawal Applications to IFAD; Requests IFAD no-objections as defined in the PIM; Proposes changes to the project design based on implementation experience and external circumstances (including the project’s logical framework and the PIM).

<p><b>State-Level Implementing Units (SIUs)</b></p> <p>State-level subproject</p>	<p>Subproject teams headed by Subproject Manager</p>	<p>Implements <b>Components 1 and 2, Activity 3.1.1, and Sub-activities 3.1.2.3 and 3.1.3.2</b> at state level in line with the PIM and the guidance of CPMU; TRIPS first level approval; Perform financial management, procurement and contract management; and provide full access to and collaboration with the project auditors; Submit Withdrawal Applications to BNDES; Submit requests for no-objections to BNDES, for passing on to IFAD; Ensure procurement is compatible with the Project's social and environmental safeguards; Submits AWPBs, including procurement plans, and physical and financial progress reports for the subprojects to BNDES; Ensure that contractors are familiar with GCF, IFAD and BNDES policies, norms and procedures to: (i) avoid ineligible expenditure and delays in projects implementation; (ii) protect the assets of the project; Develop TOR and cost estimates, technical specifications and budgets; Conduct analysis of quotations, technical and financial proposals; Prepare price calculation maps, reports of portfolio, technical and financial evaluation; and Manages respective contracts provided for procurement and contracting plan.</p>
<p><b>PMEL Unit</b></p>	<p>Planning, Monitoring, Evaluating, and Learning Unit headed by PMEL Manager</p>	<p>Implements <b>Sub-activities 3.1.2.1, 3.1.2.2, 3.1.3.1</b> in line with the PIM and the guidance of CPMU. Perform financial management, procurement and contract management; and provide full access to and collaboration with the project auditors; Submit requests for no-objections to BNDES, for passing on to IFAD; Ensure procurement is compatible with the Project's social and environmental safeguards; Submits AWPBs, including procurement plans, and physical and financial progress reports for the subprojects to BNDES; Ensure that contractors are familiar with GCF, IFAD and BNDES policies, norms and procedures to: (i) avoid ineligible expenditure and delays in projects implementation; (ii) protect the assets of the project; Develop TOR and cost estimates, technical specifications and budgets; Conduct analysis of quotations, technical and financial proposals; Prepare price calculation maps, reports of portfolio, technical and financial evaluation; and Manages respective contracts provided for procurement and contracting plan.</p>
<p><b>Advisory Committee</b></p>	<p>Representatives from the NDA, federal government, civil society, participating states, BNDES</p>	<p>Contribute to project efficiency, integration with other programs / policies, and achievement of expected results. Advises on general direction of project execution; and Promotes integration and alignment with other government projects, programs and policies.</p>
<p><b>Consultative Councils</b></p>	<p>Representatives of State Administration, beneficiaries and civil society</p>	<p>Contribute to attainment of objectives, transparency and equity. Reinforce participation of beneficiaries and civil society representatives (including indigenous peoples) in addition to representatives from state secretariats. Review the subproject's AWPB. Assess activities and procedures of the SIU; Review technical-administrative, economic-financial and operational information related to SIUs; and Integrates and aligns with other state projects, programs and actions Evaluate and validate TRIPs for SIU first level approval</p>

**Flow of funds and disbursement arrangements:** Project operations will be in compliance with the Financing Agreement, IFAD General Conditions for Agricultural Development Financing and its disbursements, financial reporting and audit procedures, as well as with BNDES regulations for financing state entities. GCF grant and loan, and IFAD loans will be made available to BNDES under one financing agreement covering grant and loan instruments, and including a sovereign guarantee agreement<sup>61</sup>. IFAD Client Portal will be the online platform used by BNDES to submit requests for disbursements to IFAD. IFAD standard disbursement procedures will be applicable to both GCF and IFAD financing:

(1) Advance/replenishment. BNDES will maintain designated accounts for each financial instrument to receive GCF (as per A.10) and IFAD funds, which will then be channelled to the States and PMEL operating accounts. The currency of the designated account will depend on the currency selected for the financial instruments. The operating accounts at State level will be managed by the SIUs. IFAD will establish the amount of the advance for each financing instrument on the basis of approximately 9 months of average expenditures (indicatively). Funds will then be replenished following the presentation of withdrawal applications and relevant supporting documentation of eligible expenditures.

(2) Direct payment. BNDES may also request IFAD to directly pay providers for amounts higher than the equivalent of USD 100,000.

<sup>61</sup> GCF and IFAD loans will benefit from a sovereign guarantee by the Federal Government as approved by COFIEIX Resolution No. 01/0137, of September 17, 2019 (doc. SEI 5638739).

Further details and disbursement procedures will be included in the Letter to the Borrower (LTB) and Disbursement Handbook, which will be prepared by IFAD and sent to the BNDES (Borrower) upon signature of the Financing Agreement.

The financing from BNDES to the states will also be under one single financing agreement covering GCF, IFAD, and BNDES financing, including both loan and grant instruments, and which will include the requirement of the state to provide its counterpart contribution. For the states, BNDES may advance resources and make successive replenishments through the presentation of evidence of expenditures, following its institutional financing procedures, the Project Implementation Manual, and in compliance with IFAD requirements. The flow of funds arrangements between BNDES and the states will be established in the State level Agreements. The SIU operating accounts at State level will also receive counterpart funds directly from BNDES.

The states in turn will exclusively have sub-grant agreements with the community associations, organization, or participating schools (final beneficiaries). The states transfer funds to legally constituted beneficiary associations and organizations bank account under a specific sub-grant agreement with the final beneficiary. Additionally, TA teams will be contracted by the states following BNDES guidelines, through open selection process and competition (procurement) to implement TA work. The same procedure is applicable for all TA under components 1, 2 and 3 to be implemented by States under the State level Financing Agreement.

In addition, a non-reimbursable grant will be provided to the selected PMEL Unit to support BNDES with the implementation of Sub-activities 3.1.2.1, 3.1.2.2, 3.1.3.1.

**IFAD project financial supervision and midterm review.** Project supervision will be carried out directly by IFAD, independent from other national control and oversight bodies. From the financial perspective, it will consist of onsite supervisory missions, which will assess financial management arrangements, identify areas requiring improvement, fiduciary risks, and corresponding mitigating measures. Financial supervision will also be conducted through office reviews of periodic financial and annual consolidated audit reports.

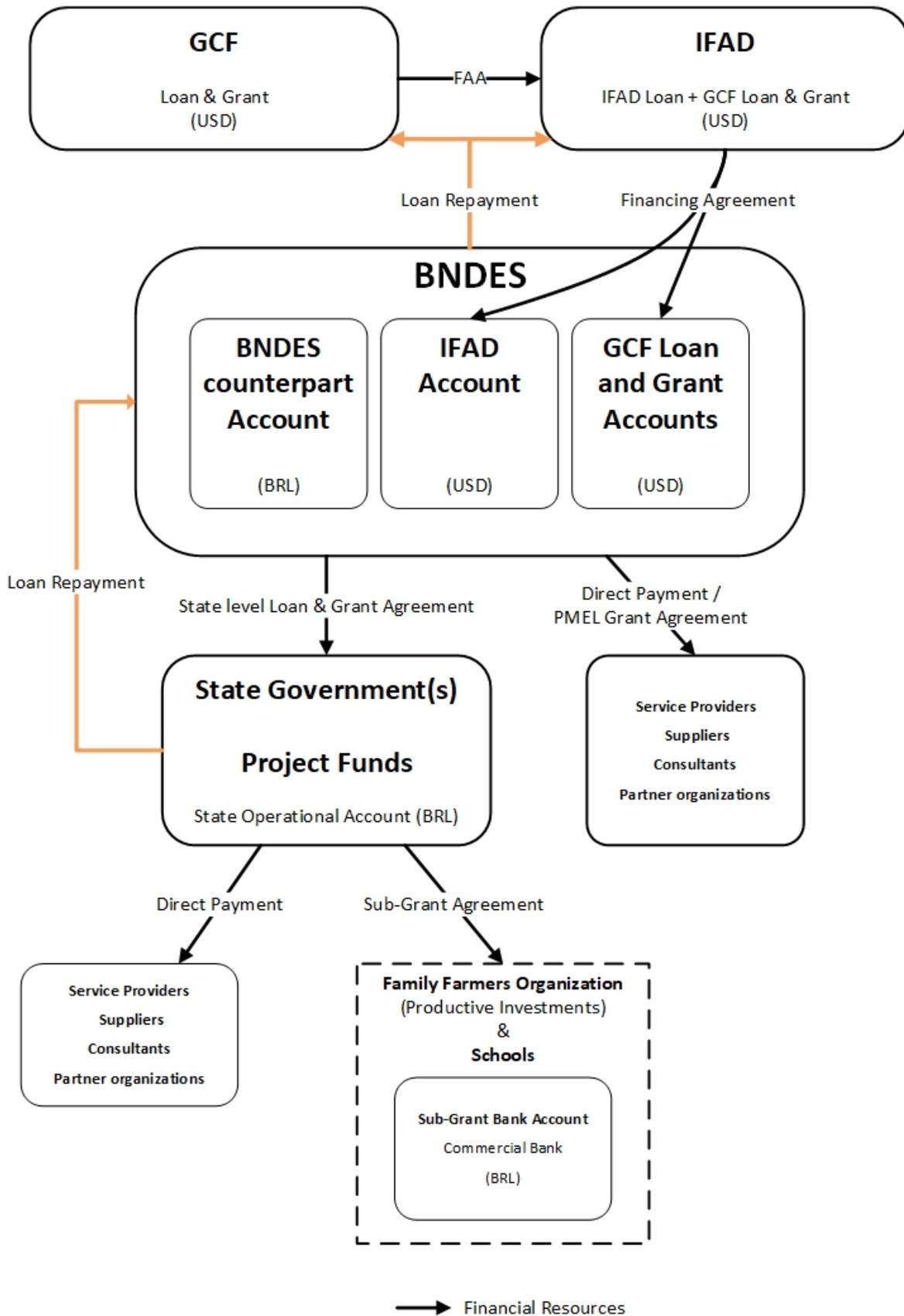
There will be a midterm review of the project, which will evaluate: (i) progress in relation to achievement of results and disbursement performance; (ii) effectiveness of the institutional and financial arrangements; (iii) the financial procedures manual, suggesting revisions and updates; (iv) the results of execution and financial management of the states; and (v) achievement of AWPBs.

In an on-desk role, IFAD will conduct prior reviews of the initial bidding process for each of the planned method in each state and of those that exceed the resource margin set forth in the procurement plan. During supervisory, support and mid-term review missions, IFAD will analyse, through sampling, the subsequent tenders. Annual audits should be considered mainly to analyse sampling of biddings processes not verified by IFAD in its missions to have a greater scope of execution verification. All IFAD reviews, as well as the audits, should be guided by the IFAD procurement policy and the fight against fraud, corruption and eligibility.

To ensure the executing entity (BNDES) has sufficiently strong financial management systems and oversight to manage, control and report the project's finances adequately to ensure that resources are used economically and efficiently for the intended purpose (in line with IFAD's financial management assessment guidelines), IFAD conducted a financial management assessment (FMA) at BNDES, in particular in the financial division and public management and sustainability division, which will be responsible for project coordination.

In terms of state-related risks, BNDES will use its expertise for credit evaluation considering the states' payment and implementation capacity. BNDES may seek sovereign guarantees, as extended to GCF and IFAD loans, for the state level project operation.

Figure 10. Flow of Funds



### B.5. Justification for GCF funding request (max. 1000 words, approximately 2 pages)

PCRP is anchored in the Brazilian NDC's goal to establish sustainable and climate change-resilient agriculture. It works in alignment with national initiatives for sustainable and low carbon emission agricultural development (ABC Plan).

GCF resources contribute to the economic sustainability of PCRP and leverage additional sources of funding towards climate finance. The high risks perceived for both climate change and highly vulnerable groups funding in the targeted region (northeast semiarid) requires GCF funding to leverage investments, which are non-existent in the current scenario. The share of resources that commercial banks and institutional investors allocate to project financing in the region has remained limited and concentrated on refinancing projects already underway. Although private capital could be deployed to climate resilient agriculture projects, the anticipated returns are insufficient to attract private investors and, in addition, the target population cannot afford to take on debt.

Availability of Climate change and development investment is facing huge challenges in the country. The most recent IMF Country Report<sup>62</sup> and Working Paper<sup>63</sup> for Brazil, highlight both the fiscal deterioration in the country since 2014 (where 2015-16 economic recession deepened fiscal deficits) and the country's current exposure to debt sustainability risks (due to the increased Nonfinancial Public Sector Gross Debt from 60% of GDP in 2013 to 88% of GDP in 2018). In addition to this, a constitutional spending rule was introduced in 2016 setting a decline of about 0.5 percentage points of GDP annually in federal government expenditure in 2019–24, which could reduce the current public budget available for climate change in the upcoming years.

The fiscal situation is even worse at the subnational level<sup>64</sup>: high debt levels (that represents around 30% of total public sector net debt<sup>65</sup>), liquidity pressures and accumulation of large payment arrears and (in several Northeastern states) the inability to pay public wages are some of the critical financial problems justifying the level of concessionality contained in the current proposal.

Brazil implemented an important tool to finance climate change: the Amazon Fund. A global initiative managed by BNDES to fight deforestation in the Amazon, the Amazon Fund has received donations of over USD 1 billion from foreign governments. Yet, resource requirement to meet NDCs are estimated in the range of USD 300 billion (approximately 1% of the annual GDP), significantly above the current investment level.<sup>66</sup> The Amazon Fund will cover 0.3% of the climate change financing required. Other international programs target different purposes or regions, but few address the *Caatinga*. BNDES offers the following products for climate change and poverty alleviation: a) non-reimbursable funding (Social Fund and Amazon Fund); and b) reimbursable funding (National Climate Fund, PRONAF and FINEM Environment) for the private sector. BNDES loans to states are usually applied to infrastructure projects, which have a higher internal rate of return (IRR) than the proposed project. The concessionality of GCF grant and loan financing enables BNDES to offer an innovative financial product to states that specifically targets the people that are most vulnerable to climate change in Brazil, supporting them to transition to a climate-resilient production system. Within this group, the project will be able to target women, youth and traditional communities (indigenous, quilombola and *fundo de pasto*); these group are the most vulnerable to climate-related risk, endure extreme conditions of poverty, lack access to the labour market, and have no permanent income sources.

The GCF grant of USD 34 million will focus on activities to implement CRPS (Component 1) as well as Knowledge Management and Scaling activities (Component 3).<sup>67</sup> The project addresses a key constraint to adaptation and emission reduction in agricultural production in Brazil: the lack of information and technical assistance for promoting climate-resilient agriculture practices. The project's knowledge management component will promote identification, systematization and public awareness of CRPS. Proposed exchanges will enable sharing of lessons learned among farmers. Rural schools will work on testing climate-resilient practices, technical assistance teams will have access to a

<sup>62</sup> IMF Country report 19/242. Article IV Consultation (July, 2019)

<sup>63</sup> IMF Working Paper 19/236 (November, 2019). Doing More with Less: How Can Brazil Foster Development while Pursuing Fiscal Consolidation? Prepared by Valentina Flamini and Mauricio Soto. Authorized for distribution by Antonio Splimbergo

<sup>64</sup> IMF post: Bringing Brazil's States Back to Financial Health (October, 2019)

<sup>65</sup> <https://www.bcb.gov.br/en/legacy?url=https:%2F%2Fwww.bcb.gov.br%2Fingles%2Fnotecon3-i.asp>

<sup>66</sup> Brazil Country Program for the GCF (prepared in March 2018).

<sup>67</sup> (i) Component 1: for individual family farms – USD 28.58 million (100% of total cost), (ii) for backyard gardens – USD 1.95 million (10.6% of total cost) ii) Component 3: Knowledge management – USD 3.97 million (39% of total component's costs).

plethora of adaptation solutions and entrepreneurs will provide services, machinery and tools to ease labour intensity. Both the states and project's beneficiaries will benefit from the grant to motivate a transition to climate-resilient production.

With the GCF funding, the project unlocks the potential for replication and scaling up in NEB and in other developing countries facing similar challenges, thus facilitating a paradigm shift. By fostering South-South cooperation (SSC), the project gains in effectiveness and scale, enhancing its contributions to the implementation of the 2030 Agenda goals and for leaving no one behind.

The GCF loan of USD 65 million will be the main funding supporting CRPS investment plans in Component 1 for individual family farmers, schools and collective areas.<sup>68</sup> It will also partially support the water technologies needed in Component 2 to shift towards a CRPS.<sup>69</sup> The loan element is aligned with priorities for indebtedness and eligible criteria established by national government (COFIEX of the Ministry of Economy). The GCF loan interest rate is lower compared to domestic interest rates and provides grace period and tenor's benefits. Without the GCF concessional loan, the cost of funding would be significantly higher and would undermine the project's economic viability. With GCF support, the project leaves locked-in development paths and uses an innovative approach in the designing of climate-resilient production systems. This is only possible bringing together stakeholders and knowledge from various sectors, as well as merging IFAD, BNDES and GCF financing.

Key obstacles identified in investment and indebtedness of the recipient that justify the current blend of GCF funding in the targeted region include:

- Rising level of public indebtedness and fiscal imbalances at national and subnational levels;
- Weak investment and deteriorated local credit market;
- Lack of long-term investment drivers and high intermediation costs; and
- High interest rates and spread practiced in Brazil.

## B.6. Exit strategy and sustainability (max. 500 words, approximately 1 page)

The long-term strategy for rural areas of the Brazilian semiarid builds on the extensive experiences and lessons learned from previous BNDES<sup>70</sup> and IFAD<sup>71</sup> projects that focused on strengthening family agriculture and climate-friendly social technologies in the targeted area. Building on this solid foundation, the project's results will be sustainable beyond the project period.

The project's following design elements contribute to project sustainability, durability, and scalability after development assistance has been finalized:

- **Institutional strengthening and capacity building:** The project will build capacity of family farmers to assess, plan, adopt and use climate-resilient agriculture / water management practices.
- **Local solutions:** Investments in local microenterprises that produce tools, equipment and other innovations for climate-resilient production will ensure local solutions are valued.
- **Multi-stakeholder engagement:**<sup>72</sup> The project was designed and will be implemented with active community, civil society, local and national government participation. This collective building helps ensure lasting impacts. Effectively managed partnerships with selected partners at international, national and local levels enable the project to: i) focus on partners' complementarities and comparative advantages; ii) strengthen capacity to address agricultural issues effectively and efficiently; and iii) leverage resources to scale up successful approaches.
- **Engagement of BNDES:** BNDES is a strategic partner whose commitment and experiences will add value to the entire project cycle and maximize attainment of project goals. BNDES has a national influence and capacity to

<sup>68</sup> Component 1 (i) individual – USD 13.7 million (GCF covers 75% of total cost); (ii) Schools – USD 3.68 million (100% of total cost); and (iii) Natural Resource Management in Collective Plans – USD 5.16 million (100% of total cost).

<sup>69</sup> Component 2: (i) Cisterns – USD 28.49 million (40% of total cost); and (ii) Re-use of grey and black water systems – USD 13.97 million (70% of total cost).

<sup>70</sup> BNDES's Social Fund is currently investing in family farming development programs in seven Northeast states and has already funded 24,000 cisterns and 3300 social technologies for agroecological production in the region.

<sup>71</sup> IFAD is currently implementing 6 projects supporting the productive structuring of family farming and social water-access technologies, covering 11 states, 9 of which are located in NEB.

<sup>72</sup> IFAD's Strategic Framework 2011–2015 includes effective partnerships and resource mobilization as one of eight principles of engagement ([https://www.ifad.org/documents/38714170/39132730/sf\\_summary\\_e.pdf/c76021bc-a3de-4563-adcf-eddfbb9a6e16](https://www.ifad.org/documents/38714170/39132730/sf_summary_e.pdf/c76021bc-a3de-4563-adcf-eddfbb9a6e16)).

mobilize resources, disseminate lessons learned to other bank programs and include CRPS projects in its lending portfolio.

- **Voice in public policy dialogue:** Advocacy to improve access to markets and establish CRA markets will ensure that the sustainable gains are maintained beyond implementation.
- **Women and youth empowerment:** These groups' leadership is promoted across most project activities. The young communicators network, for example, engages youth to register, experiment, and build awareness of the CRPS practices. Women leadership will be fostered through the conversion of local women into knowledge managers.
- **Knowledge building by lessons learned from project implementation process:** A monitoring and evaluation (M&E) system and database are developed in such a way that M&E can operate in real time from the start of project implementation. Outreach actions will use a range of methods and platforms, such as capacity-building sessions, learning, and knowledge sharing events and workshops, as well as multiple media outlets. The sharing of lessons learned fosters development effectiveness and allows implementation of CRPS system to be scaled up in existing *Caatinga*.
- **Self-reliance through climate-resilient productive systems (CRPS) and cost-effective interventions:** CRPS shifts the way family farmers manage soil and water resources in the post-project scenario. The project concentrates on cost-effective technologies that will be built and operated by the families and communities themselves with locally available materials.
- **Rural microenterprises:** The project will stimulate development of tools, equipment and services geared towards CRPS to improve labour conditions in the field.
- **Fostering South-South cooperation:** The project also engages in South-South cooperation for sharing knowledge and lessons learned with farmers living under similar climate stress in other developing countries.
- **Exit Plan.** To sustain the interventions and scaling up pathways after the end of the project, the PCRFP project team will develop an exit plan in the penultimate year of implementation which will focus on building beneficiaries' capacities to manage the investments, hand-over of data and responsibilities for maintenance of infrastructure (e.g. of databases) to relevant authorities, and compile results and lessons learned and finalization and systematisation of knowledge products.

The exit strategy relies on the project's success in improving participants' livelihood and fostering an enabling environment supportive of climate-resilient agricultural production.

C. FINANCING INFORMATION						
C.1. Total financing						
(a) Requested GCF funding (i + ii + iii + iv + v + vi + vii)		Total amount			Currency	
		99.5			million USD (\$)	
GCF financial instrument		Amount	Tenor	Grace period	Pricing	
(i)	Senior loans	65	20 years	5 years	0.75 %	
(ii)	Subordinated loans	Enter amount	Enter years	Enter years	Enter %	
(iii)	Equity	Enter amount	Enter years		Enter % equity return	
(iv)	Guarantees	Enter amount				
(v)	Reimbursable grants	Enter amount				
(vi)	Grants	34.5				
(vii)	Result-based payments	Enter amount				
(b) Co-financing information		Total amount			Currency	
		103			million USD (\$)	
Name of institution	Financial instrument	Amount	Currency	Tenor & grace	Pricing <sup>73</sup>	Seniority
IFAD	Senior Loans	30	million USD (\$)	Maturity period: maximum 35 years Grace period: maximum 10 years Average maturity period: maximum 20 years	Variable interest rate Option of fixed or variable spread	pari passu
BNDES	Senior Loans	59.28	million USD (\$)	Enter years Enter years	Enter%	Options
Participating States	Non-reimbursable funds (In-cash/kind)	13.72	million USD (\$)	Enter years Enter years	Enter%	Options
Click here to enter text.	Options	Enter amount	Options	Enter years Enter years	Enter%	Options
(c) Total financing (c) = (a)+(b)		Amount			Currency	
		202.5			million USD (\$)	
(d) Other financing arrangements and contributions (max. 250 words, approximately 0.5 page)		IFAD and GCF loans would benefit from a sovereign guarantee indicated in COFIEX Resolution No. 01/0137, of September 17, 2019 (doc. SEI 5638739), which allows the operation to go forward and seek Senate approval once it is structured. The project expects to mobilize approximately 15 million USD of in kind, as parallel financing from beneficiary groups.				

<sup>73</sup> For details on the pricing of IFAD's and BNDES' Co-financing, please refer to the term sheet.

## C.2. Financing by component

The GCF will finance the costs of mitigation as well as transition to CRPS in Component 1 (70.5% of the component's total cost) and water access in Component 2 (41.7% of the component's cost). It will also cover 30.7% of Component 3 with respect to Knowledge Management and Scaling-up. Allocation of its total contribution (USD 99.5 million) will be: 54.2% to Component 1 (USD 53.93 million), 42.6% to Component 2 (USD 42.44 million), 3% to Component 3 (USD 2.89 million) and 0.2% to SIU (USD 0.2 million).

GCF loan (USD 65 million) will target the following activities in support of CRPS and water access required to adapt productive systems:

- Component 1 for: i) backyard gardens (USD 13.73 million) (75% of total cost); ii) schools (USD 3.67 million) (90% of total cost); iii) CASM (USD 5.16 million) (90% of total cost);
- Component 2 for: i) Boardwalk cisterns (USD 28.47 million) (40% of total cost); and ii) household wastewater treatment and reuse (USD 13.97 million) (70% of total cost).

GCF grant (USD 34.5 million) will cover CRPS in Component 1 and key support activities in Component 3:

- Component 1 for: i) family farms (USD 28.34 million) (90% of total cost); ii) backyard gardens (USD 1.95 million) (10.6% of total cost); and support to rural entrepreneurship (USD 1.08 million);
- Component 3 for: scaling up and sharing (USD 2.89 million) (31% of total component's costs).
- SIU for audits (USD 0.24 million)

Component	Output	Indicative cost	GCF financing		Co-financing		
			Amount	Financial Instrument	Amount	Financial Instrument	Name of Institutions
1. Climate Resilient Productive Systems (CRPS)	Output 1.1. Increase climate resilience for family farmers and traditional communities while mitigating carbon emissions by applying CRPS.	76 478 311	31 369 547	Grants	5 509 667	Senior Loans	BNDES
			22 559 564	Senior Loans	17 039 532	Senior Loans	IFAD
2. Water Access for production	Output 2.1. Improve water access to family farmers and traditional communities to reduce the impact of severe droughts by investing in small-scale technologies for harvesting, reuse, treatment and storage.	101 803 245	42 440 436	Senior Loans	47 600 500	Senior Loans	BNDES
					11 762 310	Senior Loans	IFAD
3. Knowledge Management and Scaling Up	Output 3.1. CRPS and small-scale water harvesting system disseminated in the NEB semi-arid and abroad to increase climate resilience of vulnerable communities.	9 441 911	2 891 912	Grants	5 351 841	Senior Loans	BNDES
					1 198 158	Senior Loans	IFAD
Project Management		14 776 533	238 541	Grants	819,639	Senior Loans	BNDES
					13,718,354	Non-reimbursable funds (In-cash/kind)	Participating States
<b>Indicative total cost (USD)</b>		202 500 000	99 500 000		103 000 000		

Under the current financial scenario, BNDES, the States, and the Private sector efforts are not enough considering the investment needed in climate change mitigation and adaptation in Northeast Brazil. Furthermore, the targeted final beneficiaries do not have access to finance with formal banks and building resilience to climate change is not the unique priority in terms of investments for them. Availability of Climate change and development investment is facing large challenges in the country. IMF Country Report and Working Paper for Brazil highlight both the fiscal deterioration in the country since 2014 (where 2015-16 economic recession deepened fiscal deficits) and the country's current exposure to debt sustainability risks (due to the increased Nonfinancial Public Sector Gross Debt from 60% of GDP in 2013 to 88% of GDP in 2018). In addition to this, a constitutional spending rule was introduced in 2016 setting a decline of about 0.5 percentage points of GDP annually in federal government expenditure in 2019–24, which could reduce the current public budget available for climate change in the upcoming years.

While the fiscal situation at subnational level -high debt levels (around 30% of total public sector net debt), liquidity pressures and accumulation of large payment arrears and (in several Northeastern states) the inability to pay public wages are some of the critical financial problems- could justify the need for a 100% grant, a blended financing with loans and grants was discussed and agreed with federal and state level governments as suitable concessional terms. The definition of grant amounts and allocation followed a two tier approach: to i) ensure the States and the project targets the most vulnerable populations to climate change in the Northeast Region, which would typically be marginalized due to financial capacities, and ii) derisk the investment and promote buy in of long term adaptation and mitigation measures that are typically overlooked when analysed from a traditional cost/benefit perspective. These two factors are considered essential to achieve a paradigm shift.

Grant funds are required primarily under component 1 (88%) to finance uptake of CRPS in family farms and backyard gardens. The remaining 12% of GCF grant element is needed to finance 100% of other key selected activities including local entrepreneurship to support family farming (Sub-activity 1.1.4.2), south-south cooperation and policy dialogue (Sub-activities 3.1.2.1 and 3.1.2.2), key planning and knowledge management activities at the national level (Activity 3.1.3) and Audits. For those, the grant element is key in making viable and attractive investments in these areas for the States. The Economic and Financial analysis provide justification of each investment's profitability.

### C.3 Capacity building and technology development/transfer (max. 250 words, approximately 0.5 page)

C.3.1 Does GCF funding finance capacity building activities? Yes  No

C.3.2. Does GCF funding finance technology development/transfer? Yes  No

Total GCF financing for capacity building and technology development/transfer is estimated at USD 531,510 and USD 57,606,340 respectively (Total USD 58,137,849) or 58% of the total GCF funding. Technology development/transfer in Component 1 involves technologies to implement diversified agroforestry systems -CRPS- in family farms, backyard gardens, schools and biosaline agriculture schemes (USD 53.73 million). In Component 2, Technology development/transfer includes Cisterns and other Water access social technologies that will be promoted (USD 3.87 million). Capacity building financed by GCF (USD 0.5 million) concerns Component 3 – Activities 3.1.1.1 (Youth communicators network) and 3.1.2.1 (Learning routes). The following Table identifies expected Capacity Building and Technology transfer financing in each component from the total budget and GCF.

Table 5: Financing for Capacity Building and Technology Development/Transfer

	Total Cost				GCF Financing					
	Total Amount	Capacity Building	%	Tech. Dev / Transfer	%	Total Amount	Capacity Building	%	Tech. Dev / Transfer	%
<b>Component 1</b>	\$ 76 478 311	\$ 21 097 131	28	\$ 55 318 756	72	\$ 53 929 112	\$ 198 197	0.4	\$ 53 730 915	99.6
<b>Component 2</b>	\$ 101 803 245	\$ 17 753 216	17	\$ 84 050 029	83	\$ 42 440 436	\$ -	-	\$ 3 875 425	9
<b>Component 3</b>	\$ 9 441 911	\$ 2 645 329	28	\$ -	-	\$ 2 891 912	\$ 333 312	12	\$ -	-
<b>SIU</b>	\$ 14 776 533	\$ -	-	\$ -	-	\$ 238 541	\$ -	-	\$ -	-
<b>Total</b>	\$ 202 500 000	\$ 41 495 676	20	\$ 139 368 785	69	\$ 99 500 000	\$ 531 510	1	\$ 57 606 340	58

## D. EXPECTED PERFORMANCE AGAINST INVESTMENT CRITERIA

This section refers to the performance of the project/programme against the investment criteria as set out in the GCF's [Initial Investment Framework](#).

### D.1. Impact potential (max. 500 words, approximately 1 page)

The project will contribute to five Adaptation and three Mitigation Fund Level Objectives and Results.

#### Adaptation (A1, A2, A4, A5, and A7)

Water is considered to be the limiting factor for agricultural and animal husbandry in the Semiarid. The water debate should focus not on its absence but on how to preserve water during the rainy season so that it can cover demand during the rest of the year. Component 2 presents water-harvesting techniques that have been applied in the semiarid. These technologies will be implemented to shift the culture of production in NEB towards CRPS, so that infiltration can occur naturally, making springs perennial and promoting a biological water reserve in the soil, roots and leaves of specialized vegetation. Studies<sup>74, 75, 76</sup> suggest that stratified systems are more resilient to extreme climate conditions than annual crops and tree-crop monocultures since they have several mechanisms to reduce the impact of drought (buffering of humidity, reduced air/soil temperature extremes, and windbreaks and shelter belts to slow wind speed and reduce water loss from evapotranspiration, etc.). Stratified, diversified and densified cultivation increases the land's photosynthetic capacity and therefore the volume of biomass per cultivated area, increasing water circulation and promoting improvement in the microclimate.<sup>77</sup> Plants are combined into a system capable of photosynthesis throughout the year, thus constantly producing biomass and accumulating water. It is important to reinforce this process with active management, the entire system sprouts vigorously generating becoming resistant to the drought period.

The project expects the following adaptation benefits:

- 1 million people (40% women and 50% youth) will benefit from adoption of diversified, climate-resilient livelihood options (fisheries, agriculture, tourism, etc.), accounting for 3.7% of the total rural Northeast population;
- 53,600 households will have food security (during drought periods) (assuming 80% success rate);
- 28,800 will have water available for production (assuming 80% success rate);
- 36,000 hectares of Caatinga ecosystem will be protected and strengthened in response to climate variability and change;
- Working groups will be operational to strengthen institutional and regulatory systems for climate-responsive planning and development;
- 75,000 vulnerable households will use tools, instruments, strategies and activities to respond to climate change and variability;
- 26,800 households with increased production and earnings.

The outreach and emission reduction benefits of the project are summarized below:

Table 2 – Summary of direct and indirect beneficiaries

Activity	Direct Beneficiary	Indirect Beneficiary
Activity 1.1.2. Implement CRPS in family farms and backyard gardens	31,000 families in family farms 36,000 families in backyard gardens. Assuming an average family size of 4 people per family  <b>268,000 beneficiaries</b>	Indirect beneficiaries where not calculated per activity.
Activity 1.1.3. Implement Collective Resilient Investments	1,800 families from 60 communities 1,000 schools with an average of 100 families per school	PCRPF will influence changes in state legislation, school curricula, stimulate enterprises, and develop a business model

74 Mamede, M & Araújo, Francisca. (2008). Effects of slash and burn practices on a soil seed bank of Caatinga vegetation in Northeastern Brazil. *Journal of Arid Environments*, 72, 458-470. 10.1016/j.jaridenv.2007.07.014.  
75 Branca, Giacomo, et al. "Climate-smart agriculture: a synthesis of empirical evidence of food security and mitigation benefits from improved cropland management." *Mitigation of climate change in agriculture series 3* (2011): 1-42.

76 Miccolis, A., et al. "Restauração Ecológica com Sistemas Agroflorestais." Centro Internacional de pesquisa agroflorestal. ICRAF: Brasília (2016).

77 Lasco, Rodel D., Rafaela Jane P. Delfino, and Marya Laya O. Espaldon. "Agroforestry systems: helping smallholders adapt to climate risks while mitigating climate change." *Wiley Interdisciplinary Reviews: Climate Change* 5:6 (2014): 825-833.

	1,200 families benefiting from 24 bio-saline productive systems; Assuming an average family size of 4 people per family <b>412,000 beneficiaries</b>	based on agroforestry for the semiarid which could, conservatively, benefit indirectly 10% of the rural population in the Northeast Brazil.  According to the latest census of IBGE the rural population in NEB was 14.760.704.
Activity 1.1.4. Build a Farmers Network and Promote local entrepreneurship for products and services that support family farming	24,000 farmers participate in exchange events / workshops 5,000 middle size farmers participate in farmers network Assuming an average family size of 4 people per family 70 microenterprise each with an average of 3 employees – 210 beneficiaries. <b>116,840 beneficiaries</b>	
Activity 3.1.1. Raise awareness and build capacities of women, youth and traditional communities	300 trainings for women with an average of 25 women per training (7,500 women) 360 workshops and meetings with an average of 25 participants (9,000 women) 243 trainings for youths with an average of 20 youths each Assuming an average family size of 4 people per family <b>85,440 beneficiaries</b>	
Activity 3.1.2. Drive scaling-up, unlock policy barriers and experiment with CRPS and resilience participatory monitoring model	Newsletters, communication materials and informative reports disseminating innovative solutions will reach and influence directly an audience of 29,430 families (300 families per municipality approximately) (117.720 beneficiaries) Assuming an average family size of 4 people per family <b>117,720 beneficiaries</b>	
<b>TOTAL</b>	<b>1,000,000 direct beneficiaries</b>	
Component 2 was not included in the calculation of beneficiaries to avoid overlap.		

### Mitigation (M4, M6 and M9)

The project will contribute to the shift to low-emission sustainable development pathways by reducing emissions from land use, deforestation, forest degradation, and through sustainable forest management and conservation and enhancement of forest carbon stocks. CRPS principles and practices will eliminate the slash-and-burn method of land clearing and increase biomass production and carbon sequestration.

To implement the CRPS proposed to reduce free-roaming livestock, fodder storage and pasture rotation will be promoted. Stratified systems with trees can provide benefits to ruminant farms, since trees can be sources of shade and shelter, improving productivity by reducing heat stress in tropical climates. Some tree species also produce leaves and pods that are highly palatable to animals and available during the dry season when pastures are of low nutritional quality. Native trees of the Caatinga improve weight gain and milk production.<sup>78</sup> Well-managed pastures can improve the ecosystem services provided by the Caatinga, such as micro-climate regulation, carbon sequestration / fixation, pest and disease control, provisioning of water, decomposition of wastes, natural pollination of crops and other plants, and provisioning of raw materials (such as timber, oil seeds, and fruits).

The project's estimated outcomes include:

- At least 24,800 households reportedly adopting environmentally sustainable and climate-resilient technologies and practices (assuming 80% success rate);
- 268,000 climate information products / services are used in decision-making in climate-sensitive sectors;

<sup>78</sup> Araújo Filho, J. A. Manejo pastoril sustentável da caatinga. Recife, PE: Projeto Dom Helder Camara, 2013. 200 p.

- At least 40% of the families benefited report increased production;
- 84,124 hectares of land under improved and effective management, helping reduce CO<sub>2</sub> emission.
- Total carbon balance of the project ranges between -11 266 144 tCO<sub>2</sub>eq and -11 797 804 tCO<sub>2</sub>eq over the 20 years period.

Table 3 - GHG emission reductions per activity

Activity	Results	GHG emissions (20 year lifetime)	GHG emissions (8 year project lifetime)
1.1.2 Implement CRPS in family farms and backyard gardens	23,000 hectares	4 861 260	1 994 504
Activity 1.1.3. Implement Collective Resilient Investments	36,124 hectares	1 082 030	432 812
	540 eco-efficient stoves and 540 bio digesters	87 838	35 135
Activity 1.1.4 Build a Farmers Network and Promote local entrepreneurship for products and services that support family farming	25,000 hectares	5 283 978	2 113 591
Total land management		11 227 268	4 620 022
Total renewable energy		87 838	35 135
<b>TOTAL</b>		<b>11 315 106</b>	<b>4 655 157</b>

Additional expected outcomes concerning other relevant economic, financial and productive indicators (example: increase in economic / financial benefits, household income, family-farm sales, etc.), are presented in Annex 3 (Economic and Financial Analysis) and in Section E (Logical Framework).

## D.2. Paradigm shift potential (max. 500 words, approximately 1 page)

- *Potential for scaling up and replication*

The project will scale up diverse agroforestry systems using CRPS directly reaching 250,000 family farmers (approximately 1 million beneficiaries). The project entails a strong partnership with civil society, critical in terms of grass root demand for upscaling of activities. In addition, the involvement of key federal partners (Ministry of Agriculture, Ministry of Citizenship, and Ministry of Environment) and the private sector creates optimal conditions for upscaling. Activities under Component 3 create conditions for scaling up and driving a paradigm shift to the entire Semiarid, potentially reaching 1.5 million rural families<sup>79</sup> (approximately 6 million beneficiaries) as well as farmers from other drylands in Latin America (e.g., Gran Chaco, Central American Dry Corridor). The successful implementation of CRPS will lead to a scaling up at state level and beyond the selected sites after project implementation. BNDES will have a key role in scaling up through future financing of operations in Brazil at the federal, state and municipal levels. BNDES can apply lessons learned from the project to its credit lines to farmers in other Brazilian biomes, enabling replication on national scale. BNDES also has means to encourage rural entrepreneurs to provide tools and services beyond the Semiarid, a potential market of over 4 million family farmers (about 16 million beneficiaries).

- *Potential for knowledge sharing and learning*

One of the project's guiding principles is outreach of innovative methods and technologies through CRPS. The project will promote knowledge exchanges, inspired by popular education, to propagate successful experiences and foster innovation. CRPS initiatives will be compiled in a database, a web portal and a set of materials that provide good practices for fostering climate resilience in several parts of NEB, Latin America, and Africa.

- *Contribution to creation of an enabling environment*

The project will promote self-reliance of the family farmers and traditional communities by introducing potential commercial varieties which will complement the staples they already plant, creating an agroforestry system that can

<sup>79</sup> Data from the 2006 Agricultural Census (IBGE) show that there were over 1.5 million households in the Semiarid. Based on this data, it is estimated that there are currently about 1.75 million family establishments in the region. [INSA/IBGE]. Estabelecimentos agropecuários do semiárido brasileiro (Censo 2006). Campina Grande: INSA/SIGSAB. Available at: [http://sigsab.insa.gov.br/static/themes/v1/ib/elfinder/Arquivos/Publica/C3%A7%C3%B5es/Estabelecimentos%20agropecu%C3%A1rios%20do%20Semi%C3%A1rido\\_S%C3%ADnese%20\(2006\).pdf](http://sigsab.insa.gov.br/static/themes/v1/ib/elfinder/Arquivos/Publica/C3%A7%C3%B5es/Estabelecimentos%20agropecu%C3%A1rios%20do%20Semi%C3%A1rido_S%C3%ADnese%20(2006).pdf). 3 p. 2014.]

provide its own inputs and that are less water dependent. The project creates an enabling environment for coordination among stakeholders, stimulating complementarities between public and private sectors in implementation of CRPS. Technical assistance will improve the capacity and knowledge of public and private rural advisory agencies, rural organizations, and farmers. Supported seed banks and nurseries should feed the continuity of planted systems and favour their dissemination while increasing their self-reliance. Since program activities help develop new tools and equipment for CRPS management and lower their costs, local companies will be able to access the market and rural credit programs, consolidating expansion of diversified agroforestry system that will increase local water availability in the productive system.

- *Contribution to the regulatory framework and policies*

The project will help Brazil achieve its NDC and targets of the Low-carbon Agriculture Program (ABC). CRPS principles are a viable option for smallholders to fulfil their legal obligations under the Brazilian Forest Code (FC). The project will support beneficiaries to resolve the obstacles they face (e.g., lack of technical support and incomplete fiduciary documentation) to fully comply with the national regulatory framework. The FC establishes Environmental Reserve Quotas (CRA)<sup>80</sup>, a market mechanism of offsetting that can be an effective conservation tool rewarding farmers who sequester carbon or avoid deforestation emissions<sup>81</sup>. The project will contribute to development of a local roadmap for implementing the CRA market. All participating families will also obtain the CAR, an instrument that is crucial for implementation of the Forest Code.

- *Overall contribution to climate-resilient development pathways consistent with relevant national climate change adaptation strategies and plans*

The project will promote a shift from the predominant monoculture and top-down application of technological packages to promotion of farmer-led technology development of diversified system that are less water dependent. More efficient water management linked to restoration of vegetation cover will produce valuable synergies for carbon sequestration, crop yields, and land management, providing independence for family farmers and positive impact on livelihood of beneficiaries. Farming adaptation results should enable a paradigm shift not only among farmers but also technical advisory services.

### **D.3. Sustainable development (max. 500 words, approximately 1 page)**

IFAD's core mission is to enable rural poor people – who are the most vulnerable to climate change – to overcome poverty themselves. The project will enable the transition of 1 million people (smallholder farmers and their families) to increase their resilience in a climate-extreme environment, through improved CRPS and water access. It will also create employment opportunities, as local economies are fostered and stimulated by its investments, and will promote rural entrepreneurship activities. An indirect but long-term macro-level economic benefit from the project will be its contribution to food security and self-sufficiency. Reducing farming households' vulnerability will also reduce the likelihood of such households needing relief assistance or safety net pay-outs.

Ecosystem restoration through CRPS offers compelling synergies between climate-change mitigation and adaptation, small-scale farmers become more resilient through more efficient water use, soil conservation, improved microclimate, increased soil water content, control of pests and diseases, improved farm productivity, beekeeping, and providing greater thermal comfort for animals, all while sequestering carbon at the same time. In addition, this approach helps preserve the Caatinga ecosystem by increasing organic matter and thus decreasing demand for timber; improves pastoral management by adjusting stock rates; improves management of native vegetation; applies rational forest management through selective logging, regrowth management, and redistribution of nutrients in the agro-ecosystem. It also diversifies production, increases land productivity and improves income and quality of life for farmers and their families. The system works for the protection of springs (riparian) and reduction of water losses to provide sustained access to water.

The project will ensure youth and women's participation in community decision-making, as this modus operandi is central to IFAD's operations and support for policy dialogue and South-South cooperation.

<sup>80</sup> Each Forest Reserve Credit represents one hectare (1 ha) of forest Legal Reserve, in addition to the amount required by law to be maintained in any given rural property.  
<sup>81</sup> The CRA market can potentially reduce the country's overall Legal Reserve 'debt' by 56%.

All measurable benefits arise from addressing problems such as: (i) decrease in income resulting from increased costs of forage purchases when a climate change event occurs; (ii) decreased productivity due to growing pressure on native grazing; and (iii) expansion of degraded lands and unsustainable practices.

Quantitative economic co-benefits include:

- At least 15% increase in vulnerable households' income as a result of CRPS contributing to poverty alleviation in the region.
- At least 23,000 hectares of degraded or monoculture lands transitioned into diversified and integrated CRPS models.
- 36,000 vulnerable farmers benefiting from increased water access.
- Estimated increase in local fruit production of 78,000 tons after a 10-year period, improving local population's access to fresh fruits / vegetables and consumption / nutrition levels.
- 70 local microenterprises strengthened, generating 200 local jobs for rural youths to support resilient productive family farming.
- Families in collective areas diversify their income sources with other income-generating activities and also reduce timber extraction.
- 67,000 family farms participating in CRPS reaching an increase in biomass production of at least 50,000 kg/ha after a 10-year period.
- At least 1,080 smallholder households saving R\$ 80–104 per month in firewood purchases due to implementation of efficient and ecological systems (stoves and bio-digesters).
- At least 36,000 hectares of collective areas with reduced CO<sub>2</sub> emissions and improved livelihood of the families.

Qualitative benefits rely on (i) social-capital enhancement and improved cohesion to increase empowerment in targeted groups; and (ii) improvements in food security, nutrition and health by increasing self-consumption of more in-farm natural fruits and vegetables.

- *Gender-transformational development impact*

The gender assessment revealed that women have less access than men to both tangible productive resources (land, credit, housing, and basic services) and intangible resources (education, technical assistance, political participation). The project will promote gender equality by providing access for rural women to the productive resources needed for agricultural development. The project will build women's leadership skills, foster their participation in decision-making processes, and assist women in accessing credit and technology for production and commercialization.

Gender transformative considerations will be mainstreamed into all training associated with project implementation. 40% of TA hired to perform services in communities must be women, which will facilitate greater leadership of the female population in the project. In the courses, meetings and exchanges, there will be an effort to maintain equity between men and women in the target beneficiaries. The project will ensure that at least 40% of family farms will have women and youth in their implementation cycle.

The educational approach adopted in local workshops and territorial meetings between women farmers will be inspired by 'feminist pedagogy', and its main objective is to foster a broad process of Environmental Education, seeking connections between feminism, women's rights, the Caatinga Biome's specificities and agroecological principles.

The Project's gender focus will ensure better opportunities for women and youth in all three components. These implementation measures ensure that 400.000 women (40% of total beneficiaries) to have access to project benefits.

The full gender assessment and project-level gender action plan is provided in Annex 8.

#### D.4. Needs of recipient (max. 500 words, approximately 1 page)

- *Vulnerability of the country and/or specific vulnerable groups, including gender aspects (for adaptation only)*

Although Climate Change Vulnerability Index (CCVI) classifies Brazil's risk as medium<sup>82</sup>, the Brazilian Semi-arid is the most vulnerable region in South America, exposed to an average annual temperature increase of 4°–6° C.<sup>83</sup> If current trends are confirmed, the region will become arid by 2050. The targeted area has a high incidence of long and severe droughts; the most recent drought cycle lasted approximately five years (2011–2016). Approximately 200,000 km<sup>2</sup> (20% of the region, with 1,262 municipalities) is highly susceptible to desertification; 34 million people live there<sup>84</sup>. In the context of global warming, communities' crucial dependence on crops raises the regional vulnerability index, which can spike to extreme or high-risk levels.

The project targets the most vulnerable groups to climate change in the country (rural women, youth and traditional communities of the Semi-arid), enabling expansion and diversification of income-generating activities. Women are particularly vulnerable to reduced food or water supplies. Traditional communities (indigenous, *fundo de pasto* and quilombola) are also highly exposed, particularly to land-tenure insecurity, because most of them lack legal titles or recognition of their communal lands.

- *Economic and social development level of the country and the affected population*

Although Brazil is classified as an upper-middle-income economy (2017 per capita earning of USD 8,580, poverty levels are alarming, and the country has one of the world's highest inequality rates.<sup>85</sup> From 2014 to 2017, poverty has increased by 33%, soaring to 11.18% of Brazilians (23.3 million people).<sup>86</sup> The target area is the world's most populous dryland<sup>87</sup> and the local population is among the poorest in the country –59.1% of all Brazilians in extreme poverty live in the Northeast (9.61 million people), and the region encompasses 32.7% of municipalities with very high food and nutritional vulnerability (a total of 52 municipalities)<sup>88</sup>. Family farmers of the Semi-arid face pressing economic and social development challenges, including severe limitations in income, access to credit, food, and water security.

- *The absence of alternative sources of financing*

Bridging the existing investment gaps will be critical to ensure Brazil's transition to climate-friendly and resilient development pathways<sup>89</sup>. As presented in greater detail in Section B5, key obstacles were identified creating the absence of tailored funding for climate change adaptation and mitigation in highly vulnerable rural areas in the Northeast Semi-arid: i) rising level of public indebtedness and fiscal imbalances at national and subnational levels; ii) weak investment and deteriorated local credit market; iii) high perceived funding risks for highly vulnerable groups in the targeted region; iv) lack of long-term investment drivers and high intermediation costs; and iv) high interest rates. The current project will address these obstacles with a financial instrument (composed by a blend of grant and loan that leverages public and private funds, enabling new investments in climate change-related projects.

- *Need for strengthening institutions and implementation capacity*

This project will play a crucial role in strengthening local, regional and national institutions for education, research and extension, and regulation on strategies for promoting climate adaptation and resilience in the agricultural sector. TA will be provided to small farmers' organizations and schools, introducing new concepts and skills linked to environmental sustainability. These initiatives will reinforce linkages among implementing agencies and organizations of the Northeast, leveraging comparative advantages of each partner to maximize mitigation and adaptation benefits, as well as other co-benefits (Section D3). Besides, South-South cooperation will facilitate knowledge-sharing among other developing countries.

82 CAF (2014). Vulnerability Index to climate change in the Latin American and Caribbean Region. Available at: <http://scioteca.caf.com/bitstream/handle/123456789/509/caf-vulnerability-index-climate-change.pdf>

83 IPCC (2014). Central and South America. In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. In: Barros VR et al. (Eds), Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, United Kingdom, and New York, NY, USA, p. 1499-1566.

84 Vieira, R. D. S. P., Tomasella, J., Alvalá, R. C. S., Sestini, M. F., Alfonso, A. G., Rodriguez, D. A., ... & De Oliveira, S. B. P. (2015). Identifying areas susceptible to desertification in the Brazilian Northeast. *Solid Earth*, 6(1), 347-360.

85 Alvaredo, F., Chancel, L., Piketty, T., Saez, E., & Zucman, G. (Eds.). (2018). *World inequality report 2018*. Belknap Press of Harvard University Press.

86 Based on statistics of the Continuous National Household Sample Survey (PNAD), 2004 to 2014, extreme poverty reduction surpassed 63%. Neri, Marcelo (2018). Qual foi o impacto da crise sobre a pobreza e a distribuição de renda? FGV Social. Available at: [https://www.cps.fgv.br/cps/bd/docs/NOTA-CURTA-Pobreza-Destigualdade-a-Crise-Recente\\_FGV\\_Social\\_Neri.pdf](https://www.cps.fgv.br/cps/bd/docs/NOTA-CURTA-Pobreza-Destigualdade-a-Crise-Recente_FGV_Social_Neri.pdf).

87 Marengo, J. A. (2008) Vulnerabilidade, impactos e adaptação à mudança do clima no semi-árido do Brasil, *Parcerias Estratégicas*, 27, 149–75, 2008. Available at: [http://seer.cge.org.br/index.php/parcerias\\_estrategicas/article/viewFile/329/323%20%20C2%A0](http://seer.cge.org.br/index.php/parcerias_estrategicas/article/viewFile/329/323%20%20C2%A0).

88 IBGE (2017). Pesquisa Nacional por Amostra de Domicílios Contínua (PNAD).

89 OECD (2017). Financing Climate Futures. Available at: <http://www.oecd.org/environment/environment-development/Financing-Climate-Futures-NDB-Brazil-South-Africa.pdf>.

#### D.5. Country ownership (max. 500 words, approximately 1 page)

The proposed project is included in GCF's national strategy, and it adheres to these strategic foundations and investment areas: adaptation based on ecosystems and water security; resilience and sustainability of indigenous and traditional communities; restoration, conservation and reforestation; low carbon agriculture, and adaptation of the productive process. Another of the strategy's key priorities is water security.

Brazil has an overarching national climate-change policy, which paves the way to implementation of adaptation and mitigation measures by the three federative government layers: federal, state and municipal. The National Policy supports the national voluntary commitment of reducing GHG emissions by 36.1% to 38.9% in relation to the projected emissions, until 2020. Regarding specific REDD+ actions, Brazil has the commitment to stabilize emissions at 2005 levels for the *Caatinga* biome.

In the Nationally Determined Contribution (NDC), Brazil emphasizes that adaptation is considered a fundamental element to tackle the effects of climate change. Social considerations are at the core of Brazil's adaptation strategy, focusing on the need to protect vulnerable populations from the negative effects of climate change and enhance resilience.

In this context, the country developed a National Adaptation Plan (NAP) and put forward cross-sector adaptation strategies to address the wide range of risks caused by climate change. The NAP has also set guidelines to implement adaptive measures to improve climate resilience in 11 sectors and themes. The sectors that are the most closely related to our project objectives are: Agriculture, Water Resources, Vulnerable Populations, Food and Nutritional Security and Biodiversity and Ecosystems. The main national governance mechanism is the National Strategic within the Inter-ministerial Committee of Climate Change. At the beginning of project implementation, the Executing Entity will contact the Inter-ministerial Committee of Climate Change to present the project and liaise with federal and state implementation governance bodies for each of the sectorial programs identified.

The NDC supports strengthening the Low Carbon Agriculture Program (ABC) as a key strategy for sustainable agriculture development and commits to restoring 15 million hectares of degraded pasturelands, enhancing 5 million hectares of integrated cropland/livestock/forestry systems and restoring and reforesting 12 million hectares of forests by 2030. The ABC plan is one of the sectorial plans devised under the national climate-change policy. Its overall objectives include: 1) reduce greenhouse gas emissions in agriculture; 2) improve efficient use of natural resources; 3) increase resilience of production systems and rural communities; and 4) promote adaptation to climate change in the sector.

Brazil has also been reviewing environmental regulation of private rural areas to reduce deforestation and promote sustainable land use practices. The Forest Code was reviewed and updated in 2012, and Law No. 12.651/2012 reinforces Brazil's commitment to protect native vegetation and the integrity of the climate system by setting restrictions on use of native-vegetation areas on private properties: Permanent Preservation Areas (APP) and Legal Reserves (RL), as defined by the law, must be maintained by landholders with native vegetation at a proportion of 20% at *Caatinga* Biome. The Forest Code also included responsibilities for environmental liabilities through a mandatory registration on the Rural Environmental Registry (CAR) for all rural landholdings (Article. 29, Law No. 12.651/2012).

Beyond the Forest Code revision in 2012, a series of advances in environmental policies and laws has occurred over the last 20 years. Recently the National Policy for the Recovery of Native Vegetation (PROVEG) was launched with the challenge of implementing the Forest Code in a total area of at least 12 million hectares by 31 December 2030.

The additional Recovery of Native Vegetation Plan (PLANAVEG), launched through Inter-ministerial Ordinance No. 230, dated November 14, 2017 will support the continuation of the implementation of the Forest Code, providing incentives to smallholders, indigenous peoples and traditional communities, having as a basis the information from the National Rural Environmental Registry System (SICAR).

The Brazilian Biomes Environmental Monitoring Program is aligned with the objectives of the ENREDD+ and will deliver the enhancement and improvement of systems and monitoring protocols – particularly for the extra-Amazonian biomes – necessary for achieving the desired national scale combat to deforestation and forest degradation and to foster forest recover using the National Climate Change Fund.

Nevertheless, Brazil has been advancing on setting an enabling environment for country's priorities for low-emission and climate-resilient development, and recently has had its first successful and exclusive approval of payment for US\$ 96 million for reducing deforestation, degradation or emissions through other REDD+ activities such as conservation, sustainable management of forests or enhancement of carbon stocks (e.g. ecosystem restoration).

#### D.6. Efficiency and effectiveness (max. 500 words, approximately 1 page)

##### Financial structure justification and profitability indicators

As discussed in Section B5, under the current scenario of climate funding in Brazil, the project would not be profitable for the country or the states without GCF funding. Given the current fiscal situation and level of national and subnational indebtedness, the financial elements were particularly proposed to render the project viable. With the project, both the states and the Union will be benefiting from concessionality in terms of interest rates, which would lead to a viable investment project, considering contribution of the GCF grant element. Consequently, the proposed financial elements were selected to render the project viable. With the current level of grant and loan element required, the project's profitability would reach 10.04%. Without the GCF grant element and without GCF funding at all, the project would not be profitable (IRR: 9.39% in the first case and 5.84% in the second).

##### Benchmarks

Latin America is a scarcely populated continent, thus costs per beneficiary tend to be higher than other developing regions. Table 6 below compares the PCRFP with other GCF rural development projects in the region. Considering GCF finance portion only, the efficiency is 99 UDS/beneficiary. Even considering the entire cost, PCRFP lies within the higher effectiveness range of rural adaptation projects in the region.

Table 6. Project Benchmark

Projects	PCRFP Brazil	PROEZA Paraguay	CFAVCP Cambodia	Guatemala	Be Resilient Belize	RECLIMA El Salvador
Date of approval	TBD	March 2018	March 2018	November 2019	March 2019	September 2018
Direct Beneficiaries	1,000,000	87,210	390,000	132,000	30,000	225,000
Annual Emissions	550,140 t CO <sub>2</sub> eq <sup>90</sup>	262,267 tCO <sub>2</sub> eq	35,000 tCO <sub>2</sub> eq	NA	NA	210,842 tCO <sub>2</sub> eq
EIRR	19.77%		16.13%		-	
NPV	US\$ 152 Million		US\$ 133,543		-	
Effectiveness of GCF Adaptation Investment (USD GCF/Beneficiary)	USD 99.5/beneficiary	USD 288/beneficiary	USD 102/beneficiary	USD 166/beneficiary	USD 266/beneficiary	USD 159/beneficiary
Effectiveness of GCF Mitigation Investment (USD/ tCO <sub>2</sub> reduced)	USD18 / tCO <sub>2</sub> eq	USD 96 / tCO <sub>2</sub> eq	USD 1142 /tCO <sub>2</sub> eq	NA	NA	USD 169/ tCO <sub>2</sub> eq
Total Cost (USD millions)	202.5	90.3	141.39	37.6	20	127.7
GCF funding (USD Million)	65 Million loan 34.5 Million grant	25.1 Million grant	10 Million loan 30 Million grant	22 million grants	1.9 million loan 6.1 million grant	35.8 Million grant

##### Financial profitability indicators

Financial analysis (Annex 3) allows understanding, based on behavioural hypothesis and parameters, if potential beneficiaries will be motivated to take the risks and make the investments required by the project. It simulates the

<sup>90</sup> Please see detailed calculations in Annex 22 – FAO GHG appraisal report

incentives and benefits (at the individual level or in groups) to ensure beneficiaries will have the means to take on the project's proposal. The analysis uses a realistic approach by making assumptions on the delays in adopting technologies and drop-out rates for entrepreneurship initiatives.

Nine models were developed to simulate impacts for each type of intervention on each targeted group of beneficiaries. There are nine models to illustrate the range of activities that could be developed by the targeted beneficiaries. All models progressively involve beneficiaries from year 1 to 6 (leaving the last two years for completion of the activities). Only in year 8 will 100% of benefits be considered. However, 75% success rate is applied while aggregating to illustrate the case when beneficiaries get lower impacts or if dismiss the project's proposal during the first 4 years.

A detailed explanation for the typologies and assumptions made in models is presented in Annex 3. It includes technical descriptions and the breakdown year per year of quantities and value with and without project to get the financial profitability indicators presented in the tables below. Overall, the financial analysis shows positive Net Present Values (NPV), Financial Internal Rate of Returns going beyond the cut-off rate and Benefit-Costs ratio higher than 1, so all models are considered profitable, with IRR rates ranging from 10% to 39% depending on the supported activity, and net present values (NPV) at the 10% discount rate varying from R\$ 2.322 to R\$ 40,000. The following list summarizes profitability indicators for all the financial models.

**Table 7. Profitability indicators per model**

Model	IRR	NPV	Ratio B/C
Item	%	\$R	N°
Model 1a- CRPS for vegetables and fruit trees 1- Grey Water Reuse	19.0%	5,734	1.96
Model 1b- CRPS for vegetables and fruit trees 2- Other Water infrastructure	39.0%	33,958	2.21
Model 1c- CRPS for vegetables and fruit trees 3- Cisterns	28.7%	27,054	2.18
Model 2a- CRPS for forage production and CRPS diversification in degraded Caatinga 1	14.0%	7,268	1.27
Model 2b- CRPS Forage production and diversification in degraded Caatinga lands 2	11.3%	2,322	1.43
Model 3a- CRPS for forage production and diversification in palm monoculture 1	18.8%	11,224	1.29
Model 3b- CRPS for forage production and diversification in palm monoculture 2	25.3%	40,018	1.55
Model 4- Micro entrepreneur Business development	10.0%	39,521	1.16
Model 5- Bee-keeping	35.1%	219,941	2.89

### Economic profitability indicators

Economic analysis considers all the costs and benefits of the Project (with economic prices to calculate total economic costs). It allows evaluating the global efficiency in management resources for the government and society. The analysis is made by aggregating the farm models using economic prices and adding externalities (that will be represented in this case by the environmental benefits from avoiding CO2 emissions). It was calculated over the period of 20 years and at a shadow discount rate of 10%<sup>91</sup>. To incorporate the results in the economic analysis all prices have been calculated applying conversion factors for imported tradable goods, exported goods and labour. No market distortions are supposed to affect non-tradable goods.

Economic Internal Rate of Return is estimated at 19.77% while the NPV reaches US\$ 152 million. Summary of the project's economic profitability indicators:

<b>NPV@10%</b> <b>(R\$ million)</b>	R\$ 684
<b>NPV@10%</b> <b>(US\$ millions)</b>	US\$ 152
<b>EIRR (%)</b>	19.77
<b>B/C Ratio</b>	3.18

<sup>91</sup> Taking into account 10 year bonds yields for the country (between 9 and 10%).

A sensitivity analysis was carried out assuming different risk scenarios. These include an increase in project costs (10%, 20% and 50%), a reduction in project benefits (10%, 20% and 50%), delay in project benefits (1 and 2 years) and the occurrence of climate change extreme events (every 2, 3 and 4 years). The project is assumed to be profitable and resilient as it supports most of the tested scenarios as an increase in costs up to 30% or a reduce in benefits of 30%. Even in a case of a mixed increment in costs up to 20% and reduction in benefits up to 20%. In these cases, the NPV remains in positive range. The project would not be profitable in a case of a mixed cost increase of 20% and a benefit reduction up to 30%. Besides, nine sources of benefits equally contributing to total project's benefits have been identified. This serves to demonstrate that the project is well diversified and not highly exposed to price or sectorial risks. Detailed assumptions and calculations are attached in Annex 2 and 3.

## E. LOGICAL FRAMEWORK

This section refers to the project/programme's logical framework in accordance with the GCF's [Performance Measurement Frameworks](#) under the [Results Management Framework](#) to which the project/programme contributes as a whole, including in respect of any co-financing.

### E.1. Paradigm shift objectives

Please select the appropriated expected result. For cross-cutting proposals, tick both.

- Shift to low-emission sustainable development pathways  
 Increased climate resilient sustainable development

### E.2. Core indicator targets

Provide specific numerical values for the GCF core indicators to be achieved by the project/programme. Methodologies for the calculations should be provided. This should be consistent with the information provided in section A.

E.2.1. Expected tonnes of carbon dioxide equivalent (t CO <sub>2</sub> eq) to be reduced or avoided (mitigation and cross-cutting only)	Annual	550,140 t CO <sub>2</sub> eq
	Lifetime	Between -11 266 144 tCO <sub>2</sub> eq and -11 797 804 tCO <sub>2</sub> eq
E.2.2. Estimated cost per t CO <sub>2</sub> eq, defined as total investment cost / expected lifetime emission reductions (mitigation and cross-cutting only)	(a) Total project financing	<u>202,500,000</u> USD
	(b) Requested GCF amount	<u>99,500,000</u> USD
	(c) Expected lifetime emission reductions	<u>11 M</u> t CO <sub>2</sub> eq
	<b>(d) Estimated cost per t CO<sub>2</sub>eq (d = a / c)</b>	<u>18</u> Choose an item. / t CO <sub>2</sub> eq
	<b>(e) Estimated GCF cost per t CO<sub>2</sub>eq removed (e = b / c)</b>	<u>9</u> Choose an item. / t CO <sub>2</sub> eq
E.2.3. Expected volume of finance to be leveraged by the proposed project/programme as a result of the Fund's financing, disaggregated by public and private sources (mitigation and cross-cutting only)	(f) Total finance leveraged	<u>103,000,000</u> USD
	(g) Public source co-financed	<u>103,000,000</u> USD
	(h) Private source finance leveraged	___ Choose an item.
	<b>(i) Total Leverage ratio (i = f / b)</b>	<u>1.04</u>
	(j) Public source co-financing ratio (j = g / b)	<u>1.04</u>
	(k) Private source leverage ratio (k = h / b)	___
E.2.4. Expected total number of direct and indirect beneficiaries, (disaggregated by sex)	Direct	600,000 males and 400,000 females
	Indirect	780,000 males and 720,000 females (using percentages of the NEB rural population 52% male and 48% female)
E.2.5. Number of beneficiaries relative to total population (disaggregated by sex)	Direct	0.3% male 0.2% female
	Indirect	0.36% male 0.33% female

E.3. Fund-level impacts						
Expected Results	Indicator	Means of Verification (MoV)	Baseline	Target		Assumptions
				Mid-term	Final	
A1.0 Increased resilience and enhanced livelihoods of the most vulnerable people, communities and regions	A1.2 Number of males and females benefiting from the adoption of diversified, climate resilient livelihood options (including fisheries, agriculture, tourism, etc.)	Geo-referencing, and resilience scorecard at baseline, mid-term and completion surveys.	N/A	Male 240,000  Female 160,000	Male 600,000  Female 400,000	<p>Activity 1.1.2 268,000 beneficiaries consisting of:</p> <ul style="list-style-type: none"> <li>• 31,000 families in family farms</li> <li>• 36,000 families in backyard gardens.</li> </ul> <p>Activity 1.1.3 412,000 beneficiaries consisting of:</p> <ul style="list-style-type: none"> <li>• 1,800 families from 60 communities</li> <li>• 1,000 schools with an average of 100 families per school</li> <li>• 1,200 families benefiting from 24 bio-saline productive systems;</li> </ul> <p>Activity 1.1.4 116,840 beneficiaries consisting of:</p> <ul style="list-style-type: none"> <li>• 24,000 farmers participate in exchange events / workshops</li> <li>• 5,000 middle size farmers participate in farmers network</li> <li>• 70 microenterprise each with an average of 3 employees – 210 beneficiaries.</li> </ul> <p>Activity 3.1.1 85,440 beneficiaries consisting of:</p> <ul style="list-style-type: none"> <li>• 300 trainings for women with an average of 25 women per training (7,500 women)</li> <li>• 360 workshops and meetings with an average of 25 participants (9,000 women)</li> <li>• 243 trainings for youths with an average of 20 youths each</li> </ul> <p>Activity 3.1.2 • 117,720 beneficiaries consisting of: Newsletters, communication materials and informative reports disseminating innovative solutions will reach and influence directly an audience of 29,430 families (300 families per municipality approximately) (117.720 beneficiaries)</p> <ul style="list-style-type: none"> <li>• Assuming an average family size of 4 people per family and 60% male and 40% female.</li> </ul> <p>Total of 1,000,000 direct beneficiaries</p>
A2.0 Increased resilience of health and well-being, and food and water security	A2.2 Number of food secure households (in areas/periods at risk of climate change impacts)	Resilience scorecard at baseline, mid-term and completion surveys.	2,414 households led by women  13,668 households led by men <sup>92</sup>	4,663 Households led by women  26,425 households led by men	8,040 households led by women  45,560 households led by men	<p>Diversification strategies are effective and taken up by family farmers, including through backyards gardens.</p> <p>Food security is defined according to FAO (2006)</p>

<sup>92</sup> The exact baseline of food insecure households will be determined in the baseline survey upon selection of participating states. A conservative initial estimate is presented based on the project targeting policy. The project will target municipalities in which at least 70% of the population is registered in the Cadastro Unico (earning less than or equal to 50% of the minimum income). The conservative estimate assumes that the maximum allowable target population not registered in the Cadastro Unico (30%) is food secure.

<i>A4.0 Improved resilience of ecosystems and ecosystem services</i>	<i>A4.1 Coverage/scale of ecosystems protected and strengthened in response to climate variability and change</i>	Studies of satellite imagery in areas with recovered vegetation <sup>93</sup> . Mid-term and completion surveys.	N/A	CRPS in family farms and backyard gardens 11,500 ha  Collective Resilient Investments 15,000 ha  Farmers Network 7,150 ha	CRPS in family farms and backyard gardens 23,000 ha  Collective Resilient Investments 36,124 ha  Farmers Network 25,000 ha	Widespread uptake of CRPS together with sufficient water access / availability allow for measurable impact of ecosystem services.
<i>M3.0 Reduced emissions from buildings, cities, industries and appliances</i>	<i>M3.1 Tonnes of carbon dioxide equivalent (t CO<sub>2</sub> eq) reduced or avoided - buildings, cities, industries, and appliances</i>	Ex ACT monitoring tool progress reports, Supervision missions.	N/A	-17,567 tCO <sub>2e</sub>	- 35,135 tCO <sub>2e</sub>	Methodology described in Annex 22, page 19 and 20.  Annual emission reduction: 4.07 tCO <sub>2e</sub> per appliance per year  20 year project lifetime emission reduction: 87,938 tCO <sub>2e</sub>
<i>M4.0 Reduced emissions from land use, reforestation, reduced deforestation, and through sustainable forest management and conservation and enhancement of forest carbon stocks</i>	<i>M4.1 Tonnes of carbon dioxide equivalent (t CO<sub>2</sub> eq) reduced or avoided (including increased removals) - forest and land use</i>	Ex ACT monitoring tool progress reports, Geo-referencing and studies of satellite imagery; diagnostic soil studies.	N/A	-2.3 MtCO <sub>2e</sub>	-4.6MtCO <sub>2e</sub>	FAO EX-ACT Methodology is applied described in Annex 22.  Annual emission reductions: -6.7 tCO <sub>2e</sub> per hectare per year  20 year project lifetime emission reductions: 11,266,014 tCO <sub>2e</sub> eq

**E.4. Fund-level outcomes**

Expected Outcomes	Indicator	Means of Verification (MoV)	Baseline	Target		Assumptions
				Mid-term)	Final	
A5.0 Strengthened institutional and regulatory systems for climate-responsive planning and development	<i>A5.2 Number and level of effective coordination mechanisms</i>	Coordination mechanism published, Supervision, and completion Study.	No coordination mechanism exists for sanitary regulations specific for family farmers  No coordination mechanism exists for legal reserve credit  Mechanisms exist for domestic violence, but implementation is weak in the rural area	1 mechanism implemented and partially effective for sanitary regulations specific for family farmers  1 mechanism implemented but not operational for legal reserve credit  1 mechanism enhanced to treat domestic violence, in the rural areas	1 mechanism implemented and effective for sanitary regulations specific for family farmers  1 mechanism implemented and partially effective for legal reserve credit  1 mechanism enhanced to treat domestic violence, in the rural areas	
A7.0 Strengthened adaptive capacity and reduced exposure to climate risks	<i>A7.1 Use by vulnerable households, communities, businesses and public-sector services of Fund-</i>	Resilience scorecard at baselined and completion survey, Geo-referencing and satellite imagery. Mid-term	0 households apply CRPS practices and principles.	30,000 households have adopted at least one strategy to respond to climate change	75,000 households have adopted at least one strategy to respond to climate change	Sustained interest, uptake and referral of project tools by family farmers.

<sup>93</sup> A repository for satellite imagery and studies developed will be established and accessible at DATA.IFAD

	<i>supported tools instruments, strategies and activities to respond to climate change and variability</i>	and completion survey				
M7.0 Lower energy intensity of buildings, cities, industries and appliances	<i>M7.1 Energy intensity/improved efficiency of buildings, cities, industries and appliances as a result of Fund support</i>	Resilience scorecard at baselined and completion survey, supervisions missions.	Persistent use of wood, coal and LPG stoves contributing to deforestation.	236 520 kwh of Biogas production replacing fuelwood extraction and combustion emissions	473 040 kwh of Biogas production replacing fuelwood extraction and combustion emissions	Methodology described in Annex 22.
M9.0 Improved management of land or forest areas contributing to emissions reductions	<i>M9.1 Hectares of land or forests under improved and effective management that contributes to CO2 emission reductions</i>	Normalized difference vegetation index (NDVI), Geo-referencing and satellite imagery. Mid-term and completion survey	N/A	15,000 ha of Caatinga dry forests will be improved through the introduction of live fences, pasture rotation and silage as well as an improved management of shrubs and dry forests through live fences.  7,150 ha of Baja-caatinga pastures with declining productivity will be converted into silvopastoral system.  11,500 Mono-culture crops will be converted into CRPS.	36,000 ha of Caatinga dry forests will be improved through the introduction of live fences, pasture rotation and silage as well as an improved management of shrubs and dry forests through live fences.  25,000 ha of Baja-caatinga pastures with declining productivity will be converted into silvopastoral system.  23,000 Mono-culture crops will be converted into CRPS.	CRPS are adopted and sustained throughout NEB, reducing impact of droughts.

### E.5. Project/programme performance indicators

Expected Results	Indicator	Means of Verification (MoV)	Baseline	Target		Assumptions
				Mid-term	Final	
<b>Output 1.1.</b> <i>Increase climate resilience for family farmers and traditional communities while mitigating carbon emissions by applying CRPS.</i>	Families with increased resilience score through adoption of CRPS  (by sex and age; 40% women and 50% youth)	Resilience scorecard, tracking of PMEL <sup>94</sup> system, field sampling verification	0	68,000	170,000	Farmers will adopt and sustain CRPS correctly at sufficient scale to yield benefits of improve fertility, increase water availability which will in turn increase resilience of the families and their income as well as overall environmental and ecosystem service provision.
	Reduced agricultural losses during drought periods by applying CRPS as compared to the 2010-2020 baseline.  (measured at the municipal level, reported as project aggregate)	Resilience scorecard at baselined and completion survey, municipal reports on agricultural yield, productivity and losses.	0	4% reduction in losses during drought periods.	8% reduction in losses during drought periods.	
	Hectares of land implementing agroforestry, backyard gardens, collective pasture management, using CRPS	Normalized difference vegetation index (NDVI), Geo-referencing and satellite imagery. Mid-term and	0	33,650	84,000	Families will benefit from the diverse production yields of CRPS and incorporate

<sup>94</sup> Project Planning, Monitoring Evaluation and Learning System (PMEL).

		completion survey				these nutritional ingredients in their diets.
	Increased soil moisture (%) during the dry season by applying CRPS	Diagnostic soil studies measuring soil water content and plant available water (PAW)	0	4%	10%	
	Households receiving productive investments report increased production. Disaggregated by sex of head of household	Baseline, mid-term and completion surveys	0	10,720	26,800	
	Percentage of individuals demonstrating an improvement in empowerment (IFAD CI IE.2.1)	Project-level women's empowerment index (pro-WEAI) at baseline and completion	0	0	70%	
	People provided with climate information services (IFAD CI 3.1.2)	Resilience scorecard, tracking of PMEL system and supervision missions.	0	49,600	124,000	
	Percentage of women, 15-49 years of age, who consume at least 5 out of 10 food groups (MDD-W) (IFAD CI 1.2.8)	Minimum Dietary Diversity-Women indicator at baseline and completion	0	0	75%	
	Number of persons/households reporting adoption of environmentally sustainable and climate-resilient technologies and practices (IFAD CI 3.2.2)	Tracking of PMEL system and supervision missions.	0	9,920	24,800	
	People trained in production practices and/or technologies. (IFAD CI 1.1.4) (by sex and age; 40% women and 50% youth)	Tracking of PMEL system and supervision missions.	0	Male 5,760 Female 3,840	Male 14,400 Female 9,600	
	Number of micro-enterprises that develop tools and services for CRPS.	PMEL Team tracking of investments, and supervision missions.	0	28	70	
<p><b>Output 2.1</b></p> <p><i>Improve water access to family farmers and traditional communities to reduce the impact of severe droughts by investing in small-scale technologies for harvesting, reuse, treatment and storage.</i></p>	Families with increased resilience score through adoption rainwater harvest and storage (by sex and age; 40% women and 50% youth)	Tracking of PMEL system, geo referencing of infrastructure and satellite imagery, and supervision missions.	0	8,400	21,000	There will be enough rainwater during implementation of the PCRFP so that these water harvesting systems can irrigate the CRPS.
	Rural households that report a reduction in the water shortfall in relation to the production requirements (IFAD CI 1.2.3)	Resilience scorecard at baseline, mid-term and completion.	0	11,520	28,800	
	Number of hectares of farmland with water-related infrastructure built/rehabilitated (IFAD CI 1.1.2)	Tracking of PMEL system, geo referencing of infrastructure and satellite imagery, and supervision missions.	0	1,800 ha	4,500 ha	
	Number of families with improved health by installing green septic systems and greywater reuse.	Tracking of PMEL system, geo referencing of infrastructure and satellite imagery, and supervision missions.	0	6,000	15,000	

<b>Output 3.1</b>  <i>CRPS and small-scale water harvesting systems disseminated in the NEB semi-arid and abroad to increase climate resilience of vulnerable communities.</i>	Number of women, youth and traditional community members who report increased capacity and applying their knowledge	Inputs from SIU Gender, Youth and Ethnicity team, progress reports; supervisions missions	0	3,600	9,000	<p>Women, youth and traditional community members will be motivated and participate in the training programs.</p> <p>Institutional arrangements will be developed for other states and dryland regions to implement CRPS.</p>
	Number of young communicators who report using social communication tools to register and systematize activities developed in communities.	Inputs from SIU Gender, Youth and Ethnicity team, progress reports; supervisions missions	0	166	414	
	Use of climate information products/services in decision-making in climate sensitive sectors	Resilience scorecard, baseline and completion survey.	0	107,200	268,000	
	Scale up locations (national and international) adopting CRPS and small-scale water harvesting technologies due to SSTC	Progress reports, learning route publications, and supervision missions.	0	3	7	
	Number of policy changes that boost family farmers' inclusion and income.	Progress reports and supervision missions.	0	1	3	
	Percentage of Financial / physical execution of the AWPB.	Progress and financial reports; supervision missions.	0	-	>75%	

**E.6. Activities**

Activity	Description	Sub-activities	Deliverables
<b>Activity 1.1.1.</b> Selection of project areas and development of Territorial Resilience Investment Plans ("TRIPs")	Selection of communities to receive investments.	Develop a baseline study to select project area	State proposals, one study per state to select project area
	Design of TRIPs with full involvement of selected communities.	Design and approve TRIPs	575 TRIPs
<b>Activity 1.1.2</b> Financing of CRPS in family farms and backyard gardens	Application of productive activities following the six principles and practices of CRPS in family farms, not only to increase resilience but also to contribute to increase families' production, efficiency and nutrition.	<ul style="list-style-type: none"> <li>- Implement CRPS in Family Farms</li> <li>- Provide TA for implementation</li> </ul>	31,000 families benefited 15,500 hectares with CRPS
	Application of productive activities following the six principles and practices of CRPS in backyard gardens, not only to increase resilience but also to contribute to increase families' production, efficiency and nutrition and encourage women's leadership.	<ul style="list-style-type: none"> <li>- Implement CRPS in BYGs in conjunction with activities in Component 2;</li> <li>- Provide TA for implementation</li> </ul>	Male 86,400  Female 57,000  Persons provided with targeted support to improve their nutrition (IFAD CI 1.1.8)  7,500 hectares with backyard gardens using CRPS
<b>Activity 1.1.3</b> Financing of Collective Resilient Investments	Implement Collective Areas Sustainable Management (CASM) to Improve the ecosystem services provided by the Caatinga, such as microclimate regulation, carbon capture, sequestration and fixation, pest and disease control, water supply, waste decomposition, natural pollination of crops and other plants, and supply of raw	<ul style="list-style-type: none"> <li>- Recover degraded areas using CRPS;</li> <li>- Increase supply and efficient use of water for production;</li> <li>- Structure community seedbanks and nurseries;</li> <li>- Promote low-impact productive activities in collective areas (e.g. beekeeping).</li> <li>- TA</li> </ul>	1,800 families benefited 36,124 hectares

	materials (e.g. wood, oilseeds and fruits)		
	Implement biodigestors and ecoefficient stoves in CASM	<ul style="list-style-type: none"> <li>- Train local communities (specially women) on techniques to build biodigestors and ecostoves.</li> <li>- Provide TA for implementation and training in maintenace</li> </ul>	540 biodigestors and 540 ecostoves implemented
	Implementation of climate-resilient agricultural practices in schools.	<ul style="list-style-type: none"> <li>- CRPS teaching and experimentation;</li> <li>- Development and maintenance of nurseries and seedbanks;</li> <li>- Promotion of entrepreneurship in CRPS; and</li> <li>- Trainings cooks and students on the nutritional value of native fruits and vegetables to diversify and enrich diets</li> <li>- TA</li> </ul>	1,000 schools benefited 100 hectares
	Implementation of Biosaline agriculture practices in communities with installed desalination devices.	<ul style="list-style-type: none"> <li>- Fish breeding;</li> <li>- Irrigation of halophyte plants in small areas</li> </ul>	1,200 families benefited 24 hectares
<b>Activity 1.1.4</b> Build a Farmers Network and Promote local entrepreneurship for products and services that support family farming	Farmers' network is built by providing technical assistance training. Farmer Trainers are trained to enhance their knowledge on CRPS, water access and gender/youth/traditional communities' sensitive approach).  Farmers participate in workshops and visits to improve their knowledge in productive practices and new technologies.	<ul style="list-style-type: none"> <li>-Training sessions</li> <li>- Exchanges carried out at local and regional levels;</li> <li>- Workshops and training for family farmers and community leaders promoted</li> </ul>	550 professionals trained 24,000 participants 25,000 hectares
	Promotion of entrepreneurship in CRPS		70 microenterprises supported
<b>Activity 2.1.1</b> Financing of boardwalk cisterns for backyard gardens	Build rainwater reservoir to produce food, forage, seedlings and/or animal water consumption.	<ul style="list-style-type: none"> <li>- Building cisterns with community participation;</li> <li>- Irrigation systems</li> <li>- TA</li> </ul>	20,000 cisterns and irrigation systems
<b>Activity 2.1.2</b> Financing of eligible social technologies to increase water availability in periods of drought	Build small farm ponds to Irrigate plots and support short-cycle crops during dry season.	<ul style="list-style-type: none"> <li>- Building trench barriers with community participation;</li> <li>- Irrigation systems</li> <li>- TA</li> </ul>	trench barriers and irrigation systems
	Groundwater Storage. Build small underground dams to store water to produce food, seedlings, forage and/or animal water consumption.	<ul style="list-style-type: none"> <li>- Building underground dams with community participation;</li> <li>- Irrigation systems</li> <li>- TA</li> </ul>	500 small underground dams and irrigation systems
<b>Activity 2.1.3</b> Financing of treatment and reuse systems for household wastewater	Greywater reuse. Water treatment systems that allow greater water availability for food production.	<ul style="list-style-type: none"> <li>- Building greywater treatment systems with community participation;</li> <li>- Irrigation systems</li> <li>- TA</li> </ul>	10,000 treatment and irrigation systems
	Blackwater treatment. Biological treatment of sewage and biomass production	<ul style="list-style-type: none"> <li>- Build wastewater biological treatment systems with community participation;</li> <li>-TA</li> </ul>	5,000 treatment systems
<b>Activity 3.1.1</b> Raise awareness and build capacities of women, youth and traditional communities	Young communicators use social communication tools to register and systematize actions developed in communities.	<ul style="list-style-type: none"> <li>-Workshops for youth communicators;</li> <li>- Inter-state exchange visits;</li> <li>-Inter-regional exchange visits;</li> <li>- Training for youth;</li> <li>-Learning scholarships for youth.</li> </ul>	414 young communicators
	Events for the inclusion of women and traditional communities in processes of decision-making and knowledge-sharing of sustainable technologies.	<ul style="list-style-type: none"> <li>-Training for Women on sustainable technologies;</li> <li>- Workshops and meetings for Women;</li> <li>- Exchange visits for women;</li> <li>- Training for TA in Gender approach, race and ethnicity;</li> <li>- Compilation of Case Studies</li> </ul>	699 events promoted and 3 case studies developed

		Childcare support activities	
<b>Activity 3.1.2</b> Drive scaling-up, unlock policy barriers and experiment with CRPS and resilience participatory monitoring model	SSTC - Capacity building through the exchange of knowledge, skills, resources and technologies across countries.	- National Learning Route / Exchange-Visit; - International Learning Route / Exchange visit (LAC); - International Learning Route / Exchange Visit (Africa)	7 events promoted
	Actions for influencing and disseminating public policies with the goal to support CRPS in family farms.	- Thematic studies; - Forums and Meetings at local, state and federal levels	8 studies and 103 events carried out 3 working group moderators
	Building a monitoring methodology that can be applied with CRPS demonstrations in each territory, allowing a clear visualization of socio-environmental transformations that will occur during the intervention period.		108 events
<b>Activity 3.1.3</b> Plan, Monitor, Evaluate and Learn	Technical activities for projects' follow-up, monitoring results and publicizing good practices at national level.	- National Impact Evaluation; - GIS Evaluations; -Planning and Communication Services; - M&E Services; - Planning Workshops; -Studies and other KM products. - Compilation of Studies and other KM products; - Planning Workshops; -Territorial Committee Meetings; - M&E Meetings	75 documents elaborated or events carried out
	Including baseline and impact evaluation surveys.		
	Technical activities for projects' follow-up, monitoring results and publicizing good practices at state level.	State specific studies, territorial committee meetings, KM products.	32 documents elaborated

### E.7. Monitoring, reporting and evaluation arrangements (max. 500 words, 1 page)

PCRP aims to increase production while improving the most vulnerable peoples 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)

The main MRE tools of the Program and Projects are:

The **Logical Framework** integrates three levels of indicators: impact (based on results of Impact Assessment Studies), result and process (Project advances). The last two types are based on the results of actions in the field and support the rethinking and realigning of strategies and activities. The M&E system is sensitive to gender and generation; thus, whenever possible, these data will be disaggregated.

**Baseline and Completion studies** will be developed for an objective comparison of implementation progress and adequate measurement of projects impact and results related to the Project's expected outcomes. 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; 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. Research questionnaire will follow the model IFAD applies for its Projects in Brazil, adapted to cover other expected impacts as per proposal.

The project will **monitor changes in the resilience capacities of farming families** considering 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. The resilience questionnaire and scorecard may be adjusted by the PMEL in consultation with project stakeholders at project start-up and will be completed as part of the baseline survey, at midterm and at project completion. The resilience scorecard will 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.

**M&E using Geographic Information System (GIS)**, including vegetation cover and ecological quality combined with monitoring of rainfall and temperatures, demonstrates vegetation recovery and is an input to calculate carbon sequestration. To analyse the restoration of recovered areas, the following ecological indicators will be monitored: canopy and soil cover, regenerating density, and number of regenerating species. This analysis extrapolates the limits of the intervention areas, evaluating the spillover effect of project actions. Vegetation recovery will be monitored every three years and studies should be preferably performed during/after the rain season. These studies will be implemented in partnerships with expert institutes or instruments, such as GEO-BNDES, the National Institute of Space Research (INPE), MapBiomass, in addition to specific consultancies.

A **quantitative systematization of interventions by thematic area** informs the Project M&E unit of the most immediate impacts on households in terms of resilience capacities, income and food security in short to medium term. These activities are articulated with other Project components and include specialists of different areas - Race, Ethnicity, Gender, and Youth. Results of learning exchanges will also be systematized and reported. At least 3 thematic systematizations will happen throughout the project execution period.

**Participatory and qualitative evaluation of results.** The CPMU through PMEL will hold participatory meetings and develop a monitoring methodology with the participation of youth communicators. M&E data will be used to communicate Project's results to the media, governments and partners. Outcomes of exchanges and learning initiatives will also be published as part of the Project Knowledge and Results Management.

**Technical Progress Reports (TPR).** State Projects will submit TPRs each semester with detailed descriptions activities by component and subcomponent. TPR informs to what extent implemented activities promoted progress in reaching the goals set in the Project design and Annual Operational Plan.

Detailed information on MRE activities is presented in Annex 11.

## F. RISK ASSESSMENT AND MANAGEMENT

### F.1. Risk factors and mitigations measures (max. 3 pages)

Overall, considering the mitigating measures described below, the level of impacts of the project risks is medium/low with a medium/low probability. The main risk of the project is the capacity of the state agents to assembly qualified human resources to implement the activities proposed – both in terms of project management and technical assistance. Activities were incorporated throughout the project to mitigate this risk. Other risks identified are lack of interest among potential beneficiaries due to little awareness of CRPS, fiduciary risks and financial guarantees risk.

#### Selected Risk Factor 1

Category	Probability	Impact
Technical and operational	Medium	Medium

#### Description

There may be a lack of interest among potential beneficiaries to shift production to adopt CRPS principles.

#### Mitigation Measure(s)

Field visits have shown that farming families are generally aware of the problems they endure to produce in the face of recurring crisis, such as the severe droughts of recent years. They are interested in finding solutions to their various problems, starting with those related to agricultural production. For some families, the poverty condition may be an obstacle to their full participation in Project activities. The project is aware of this challenge, and will work with the family's immediate needs such as food security.

The knowledge of CRPS is not widespread in local communities. An awareness campaign during the development of TRIPs is necessary to engage families and community groups in the development. During the project, exchange visits, in which family farmers will have the opportunity to meet others already working with these systems, will be crucial instruments to raise awareness and mobilize families. TA will encourage families to start small, implementing CRPS in restricted areas and expand as the CRPS produces benefits and family farmers can compare the new productive system with traditional ones.

The water harvesting and storage technologies implemented by the Project are widely known and accepted by families in NEB, which also can stimulate project participation. The mitigation measures discussed will reduce the occurrence probability of this risk to low.

#### Selected Risk Factor 2

Category	Probability	Impact
Governance	Low	Medium

#### Description

There is a risk of project delays, mainly in the first years, for four main reasons: i) absence of complete teams in the State level Project Implementing Units (SIU), ii) lack of knowledge of the project's operative functioning by these teams, iii) turnover of key personnel, implementing agencies and governments, and iv) poor coordination.

#### Mitigation Measure(s)

Priority will be awarded for states which have past IFAD projects and are experienced in setting up SIU and TA teams. SIUs need to expedite the hiring of procurement, contract, monitoring, and financial teams as soon as the Project execution starts. Once projects become effective, IFAD and BNDES should receive the names of team members (state servants), the Terms of Reference (TOR) to hire supporting consultants and should train teams in the required thematic areas. The Procurement Plan (Annex 10) includes draft TORs of the key positions to speed contracting processes.

The risk that the agencies involved in project implementation have limited qualified human resources will be mitigated in various ways. The project will be careful to hire qualified and experienced staff through a rigorous selection process. There will also be an effort to train these officials, seeking to strengthen their qualifications. Contracted TA providers

will carry out operational activities in the communities, and the recruitment process should ensure the staff's qualifications. An intensive training cycle is planned for the beginning of the project. Courses will be taught by professionals of recognized knowledge, or organizations such as EMBRAPA, or Federal Universities.

The turnover of key project personnel can be considered of low risk if mitigated by an appropriate selection of professionals with training and experience, as well as by ensuring a fair and reliable remuneration for performed activities. The selection of key team consultants should follow IFAD guidelines on qualifications and the contractual arrangements IFAD allows, such as time contracts for consultant activities with monthly, measurable and reliable payments.

The use of implementing agencies is a high risk for project execution because, in general, their regulations conflict with specific aspects of the activities necessary for efficient and transparent services. As a mitigation strategy, SIUs should be strengthened to carry out direct execution, empowering teams with specific training conducted by IFAD with the participation of state attorneys and representatives of interested parties. In adoption of the Executing Entity, it is essential to ensure compliance with IFAD and BNDES guidelines in the contracts and provide specific training to support implementation.

Considering that advisory and consultative councils with broad participation will be installed, there is a medium risk of lack of coordination and conflicting mandates, among government agencies, non-governmental organizations and the private sector, interrupting project activities. Nevertheless, States have a long history of executing projects financed by external sources with the active participation of several stakeholders in councils.

The project is fully aligned with Brazil's National Adaptation Plan and contributes to its Sectoral Policies in Agriculture, Water Resources, Vulnerable Populations, Food and Nutritional Security and Biodiversity and Ecosystems. State level groups to coordinate the implementation of the plan, which in practice are led by state agriculture secretaries. In the beginning of the project implementation, the Executing Entity will contact the Inter-ministerial Committee of Climate Change to present the project and liaise with federal and state implementation governance bodies for each of the sectorial programs identified above in order to ensure institutional support.

At the project level and lessons learned, it has been found that establishment of agreements with international technical cooperation agencies, due to limitations of their rules, has generated impacts in the agility of meeting the needs of IFAD projects. Mitigation of this vulnerability will be done by strengthening direct execution (SIU team conducting bidding procedures and contracts), alignment with BNDES (Executing Entity) and training organizations that carry out projects.

Selected Risk Factor 3		
Category	Probability	Impact
Credit	Low	Medium
Description		
BNDES credit funds available for financing states do not present a significant risk, because it is backed by the bank's financial stability. The counterpart to be invested may originate from: i) BNDES financeable funds available through credit to the states, which will allow permanent liquidity; and (ii) each state's own funds, which may suffer eventual lapses of contributions, especially in the first quarter of each year, and then normalize due to the state's revenue collection (increasing after the month of March). Because expenses do not happen at the same pace, however, these months will be covered by other funding.		
Mitigation Measure(s)		
In each state project, the contracted counterpart is guaranteed by law and presents a relatively low risk due to the financing schedule, bringing a permanent flow of resources. In project implementation, risk will be leveraged by additional counterparts from the final beneficiaries. They will contribute using economically measurable goods and services with low assigned risk.		

Regarding the impact of COVID 19, while the pandemic is still unfolding, it is clear that States finances have been heavily affected. While states contribute with a small proportion of the project's budget with their own counterpart financing, for the recurrent costs of SIU, they have to enter into an agreement with BNDES accepting the project financing terms. . While all states in NEB have expressed an interest in the project, the reality is that the agreements will only be feasible in states with a fiscal capacity to borrow. In 2020, 4 states are in this capacity and it is expected that a minimum of 2 states, yet probably more, will be in such a capacity in 2021/2022 as the project is contracted at state level. This is why it is important for the project to define the State only at start of implementation, as state credit rating (and capacity to borrow) varies from year to year.

**Selected Risk Factor 4**

Category	Probability	Impact
Legal	Low	Medium

Description

Approximately one-third of the Northeast farmers do not own their lands and are in the situation of tenants, partners or squatters. Traditional communities (quilombolas, indigenous and "*fundo de pasto*") are usually found in this situation. Most of them do not have ownership titles, which may hinder some types of investments in certain areas.

Mitigation Measure(s)

In selection of beneficiary families and activities (Component 1 or 2), the question of the modality of access to land and the available area will be considered. In the case of traditional communities (particularly quilombola and those working in collective areas), the modality of land access will be particularly detailed. TA teams will prepare a specific action plan to define: 1) investments that can be safely carried out; 2) type of support that could contribute to greater land security (e.g., in the case of quilombola communities, support for recognition of the official status of their territories by the Palmares Foundation); and 3) obtaining the Rural Environmental Registry (CAR).

## G. GCF POLICIES AND STANDARDS

### G.1. Environmental and social risk assessment (max. 750 words, approximately 1.5 pages)

The project is categorized by IFAD as a Category B since it may have some adverse environmental and/or social impacts on human populations or environmentally significant areas, but the impacts are: (i) less adverse than those for category A; (ii) site specific and few are irreversible in nature; and (iii) readily remedied by appropriate preventive actions and/or mitigation measures. Category B projects require an ESMP, which is incorporated in the Social, Environmental and Climate Assessment Procedures (SECAP)<sup>95</sup> review note showing the output from the environmental and social analysis presented in Annex 6.

The due diligence process categorized the project based on an evaluation procedure and a standardized questionnaire that provides information on the likelihood, frequency, intensity, manageability, duration and reversibility determining that the type of risk and the significance of potential impacts were low (or medium in few cases) as indicated in the identification of risks and impacts table. The project will not finance any activities that may generate significant adverse environmental and social risks and impacts.

The potential impacts are insignificant, site specific, reversible in nature, and can be readily remedied by appropriate preventive actions and/or mitigation measures. The project aims to increase the economic, social, and environmental resilience of poor family farmers by promoting CRPS and small-scale water access. Due to the nature of project activities, it is expected that all negative environmental impact can be prevented. The screening of the PCRPs has been conducted on a preliminary basis at the project concept stage for consideration at the Operational Strategy and Policy Guidance Committee (OSC) review stage, and then finalized in advance of the quality enhancement review. The assessment process involves a review and approval of project documentation by IFAD's Executive Board and BNDES as part of the project cycle approval process. In all the steps, a number of internal and external evaluators provided inputs and peer review of the process.

The project does not envisage any adverse social impact. A complete set of activities, including a free and prior informed consultation (FPIC) plan, has been developed (see Annex 6) to ensure indigenous people's participation in project development and to prevent any potential conflict during implementation.

Table 8 presents a summary of environmental and social impacts by component and output and their respective mitigation measures.

**Table 8. Environmental and social impacts and mitigation measures per component and output.**

Activity	Impacts	Mitigation measures
<b>COMPONENT 1</b>		
<b>Activity 1.1.1.</b> Territorial Resilience Investment Plans	Not applicable	Not applicable
<b>Activity 1.1.2.</b> Implement CRPS in family farms and backyard gardens  <b>Activity 1.1.3.</b> Implement Collective Resilient Investments	Soil fertilizers management and disposal	Life cycle management practices will be part of TA for farmers; recycling will be encouraged.
	Greenhouse gas emissions from fertilizers.	The project will reduce use of synthetic fertilizer by increasing biomass production, improving soil health and natural fertilization with CRPS. In addition, organic fertilizers will be preferred.
	Land speculation, forcing poor farmers out of the project areas.	TA teams will prepare an action plan to define the type of support that could contribute to greater land security and attainment of the CAR.
	Potential ecosystems damage to clear land for CRPS.  Erosion from poor soil management practices.	Farmers will receive TA in CRPS. CRPS calls for elimination of slash and burn as a land-clearing method. Soil preparation will be performed by selecting, pruning and maintaining dispersed trees up to optimal density. The biomass removed will serve as soil cover. Soil-preparation

<sup>95</sup> The Social, Environmental and Climate Assessment Procedures (SECAP) is IFAD's main safeguard instrument to enhance the sustainability of results-based country strategic opportunities programmes, country strategy notes, programmes and projects. The risk assessment process recognizes the heterogeneity of responses, given the widely different country and community circumstances. All IFAD projects are required to perform a SECAP.

		activities must be carried out during the dry season, well before the first rainfall. Planting that follows level curves will be encouraged. Line planting will be concave in the longitudinal axis to accommodate the natural humidity of the environment and favour the development of the plantation, creating a micro-valley where the plant root is located.
	Biosaline agriculture increasing salt content in soil.	A soil monitoring plan will be developed, containing period sampling and analysis.
	TA services that are devoid of gender-transformational approaches and exclude female agricultural workers from technical, production-oriented activities.	TA teams will be trained in gender-transformational approaches and will have goal that at least 40% of the participants in their activities will be women.
	Labour conditions and workers safety might not comply with international standards.	National and international safety and security procedure will be required for all workers. Application of guidelines to handle toxic products. Training will be provided to all stakeholders.
<b>Activity 1.1.4.</b> Build a Farmers Network and Promote local entrepreneurship for products and services that support family farming	Not applicable	Not applicable
<b>COMPONENT 2</b>		
<b>Activity 2.1.1.</b> Build boardwalk cisterns for backyard gardens	Water resources and table depletion.	To build a CRPS in degraded and compacted areas, it is necessary to plant in terraces and level curves as well as install artificial capture, storage and filtration system to eliminate runoff and promote forced recharge, and thus improve soil hydration rather than deplete it. These technologies will be implemented to shift the culture of production towards CRPS, so infiltration can occur naturally and promoting a biological water reserve in the roots and leaves of specialized vegetation. A plantation matrix will be constructed with species that photosynthesize during the long dry season, combining plants into a system that can produce biomass and accumulating water all year. At the initial stages biomass to be withdrawn (for forage for animals and food for human consumption) from the system should be the smallest part (1/3), leaving most (2/3) to feed the system itself.
<b>Activity 2.1.2.</b> Implement social technologies to increase water availability in periods of drought	Irrigation can increase salt content of soil.	Period soil sampling, as per established in ESMIP in Annex 6.
<b>Activity 2.1.3.</b> Implement treatment and reuse systems for household wastewater	Soil compaction, erosion, and loss of microbiome in the areas surrounding water infrastructure works.	All workers participating in the construction will be trained in environmental and social safeguards.
	Conflicts over the water use.	No wells will be drilled as part of this project. The project will not interfere with existing streams and springs. A successful project will create an increased water availability in the region.
	Farmers may not segregate and safely store / transport waste from residual construction remnants and biodegradable residues.	Life cycle management practices will be part of farmers' TA; recycling will be encouraged.
	Land speculation forcing poor farmers out of project areas.	TA teams will prepare an action plan to define the type of support that could contribute to greater land security and attainment of the CAR.
	Labour conditions and workers' safety might not meet international standards.	National and international safety and security procedure will be required for all workers. Application of guidelines to handle toxic products. Training will be provided to all stakeholders.

	Irrigation can increase the soil's salt content.	Periodic soil sampling, as established in ESMP in Annex 6. Effluent from treatment plants will not be used for short-cycle plants, but to irrigate trees and long-cycle plants.
	Poor operation of treatment unit may result in contaminated soil.	
	Soil compaction, erosion, and loss of microbiome in areas surrounding water infrastructure works.	All workers participating in construction will be trained in environmental and social safeguards.
	Farmers may not segregate and safely store / transport waste from residual construction remnants and biodegradable residues.	Life cycle management practices will be part of farmer's TA, recycling will be encouraged.
	Land speculation forcing poor farmers out of the project areas.	National and international safety and security procedure will be required for all workers. Application of guidelines to handle toxic products. Training will be provided to all stakeholders.
	Labour conditions and workers' safety might not comply with international standards.	TA teams will prepare an action plan to define the type of support that could contribute to greater land security and attainment of the CAR.

### Grievance and Redress Mechanism (GRM)

IFAD's GRM can be accessed when necessary to manage project-related grievances that cannot be resolved by the project's Executing Entity. The GRM and guidelines will be developed for the project based on IFAD's corporate complaints procedure to receive and facilitate resolution of concerns and complaints with respect to alleged non-compliance of its environmental and social policies and mandatory aspects of its Social, Environmental and Climate Assessment Procedures. The complainants should first bring the matter to the attention of the government or executing entity. However, if the complainants feel they might be subject to retaliation, they may bring the matter straight to IFAD. The regional division will examine the complaint and, if necessary, contact the EE or the governmental body to decide if the complaint is justified. The SIU will establish one or more GRM. Explanation of the GRM process will be included in the capacity-building program and the project will organize consultations to determine the most suitable channel for beneficiaries and stakeholders to communicate their concerns and ideas (see Annex 7). As part of the safeguards performance monitoring, the project will also be responsible for documenting and reporting any grievances received and how they were addressed. The GCF independent Redress Mechanism and the Secretariat's indigenous peoples focal point will be available for assistance at any stage, including before a claim has been made. Further developed in annexes 6 and 7.

### G.2. Gender assessment and action plan (max. 500 words, approximately 1 page)

The gender assessment revealed that women have less access than men to both tangible productive resources (land, credit, housing, and basic services) and intangible resources (education, technical assistance, political participation). The project will promote gender equality by providing access for rural women to the productive resources needed for agricultural development. The project will build women's leadership skills, foster their participation in decision-making processes, and assist women in accessing credit and technology for production and commercialization.

Disasters and climate-change-related crises have been happening more frequently over the last decade, and it is evident that their impacts are disproportionately felt by those socially excluded and living in poverty. Thus, women and children have 14 times more probability of dying in climate-related disasters than men. Moreover, the low resilience of people in the face of climatic, economic and social shocks is exacerbated by inequality. Research indicates that women and young girls living in rural areas of NEB, are the most vulnerable to climate change-related risks in the country (CEPAL 2016). Gender inequality is most clearly exposed in water resources management and further aggravated by erratic climate patterns. Hydrological conditions have been severely altered over the past 10 years, provoking extreme scarcity of water sources due to prolonged droughts, which has increased the need for simple, efficient technologies aimed towards rainwater water harvest and storage that can directly benefit rural women, as well as positively affecting other family and community members. Lack of water is a common factor mentioned by women in the semiarid region

as directly affecting the possibility of diversifying agricultural systems and undertaking projects involving the creation of community gardens or backyard gardening in family plots based on agroecological principles. For this reason, PCRP proposes concrete actions aimed at improving the access to water for agricultural production, as well as the development of climate-resilient agriculture practices – strategic actions which will undoubtedly benefit rural women, especially if their knowledge and talents are channeled into community-based initiatives, which is a major consideration in the methodological approach suggested within the scope of this Project.

In order to address the problem of women's workload and ensure women's direct involvement in technological innovations, the PCRP Gender Action plan prioritizes the creation of strategies that will promote women's engagement in applying labour-saving renewable technologies and sustaining the knowledge management process generated from their use, and directly contribute to shifting gender social relations. Gender transformational considerations will be mainstreamed into all training associated with project implementation. Dissemination of climate information will apply gender transformational considerations, and local governments will be trained to ensure that financial support can flow to activities that meet women's needs. 40% of TA hired to perform services in communities must be women, which will facilitate greater leadership of the female population in the project. In the courses, meetings and exchanges, there will be an effort to maintain equity between men and women in the target beneficiaries. The proportion of 40% of women will be more easily maintained by applying the "cirandas" initiative for childcare during the activities.

The project will ensure that at least 40% of family farms will have women and youth in their implementation cycle. It should be emphasized that partnerships with gender reference organizations should be fostered as a way of facilitating gender mainstreaming with a feminist approach in the AT system, as these organizations can provide methodological approaches that support local and regional processes.

To guarantee women's economic autonomy, a fundamental guideline of the Project will be the promotion of specific training activities that ensure the incorporation of technologies based on the 'learning by doing' pedagogical approach and facilitate the exchange of knowledge aimed at housework organization and care. The educational approach adopted in local workshops and territorial meetings between women farmers will be inspired by 'feminist pedagogy', and its main objective is to foster a broad process of Environmental Education, seeking connections between feminism, women's rights, the Caatinga Biome's specificities and agroecological principles. Additionally, PCRP will prioritize raising awareness on the causes and forms of gender inequality in the rural areas and the necessity of guaranteeing women's participation and ensuring their empowerment in local and regional processes. Youth, Gender and traditional communities' specialists will support SIUs and field support teams in a series of sensitivity training sessions to coordinate gender specific capacity-building activities with women rural workers, and construct mechanisms for gender mainstreaming in the construction of TRIPs. Due to high incidences of violence against women within states in the Northeastern region, which has increased dramatically since the onset of COVID-19, this theme will be a cross-cutting topic in trainings and work carried out by TA teams.

Dissemination of climate information will apply gender transformational considerations, and local governments will be trained to ensure that financial support can flow to activities that meet the needs of women.

The Project's gender transformational focus will ensure better opportunities for women and youth in all three components. These implementation measures will allow:

- 400.000 women (40% of total beneficiaries) to have access to project benefits,

The full gender assessment and project-level gender action plan is provided in Annex 8.

### G.3. Financial management and procurement (max. 500 words, approximately 1 page)

**Financial management (FM):** BNDES, at the Central Project Management Unit (CPMU) will have the overall responsibility, and final decision making power (as included under Activity 1.1.1), for FM and will be appropriately staffed to exercise this responsibility. The main FM functions will be: (i) consolidate the Annual Work Plan and Budget (AWPB); (ii) consolidate financial information for interim reporting and annual financial statements; (iii) monitor liquidity

requirements and prepare and submit withdrawal applications to IFAD; (iv) implement and maintain at central and state level an integrated financial management system or an acceptable alternative arrangement; (v) engage with the Supreme Audit Institution (SAI) to carry out annual audits and submit consolidated audit reports to IFAD or private audit firm hired for this purpose; and (vi) ensure that overall internal controls are effective and that participating states are in compliance with Subsidiary Agreements, the Project Implementation Manual (PIM), and IFAD procurement and FM procedures and requirements. The SIUs' responsibilities will include: (i) prepare the AWPB; (ii) compile interim reports and annual financial statements; (iii) Implement and maintain the integrated financial management system or acceptable alternative arrangement; (iv) ensure that accounting transactions are promptly and accurately registered, bank reconciliations regularly performed, and relevant documentation orderly retained; (v) collaborate with the auditors and provide full access to information and documentation; and (vi) ensure that the internal controls are sound and project activities are carried out in compliance with the Subsidiary Agreements, the PIM, and IFAD procurements and FM procedures and requirements.

**Accounting and reporting:** A common integrated financial management system or an acceptable alternative arrangement will be used at the central and state levels. The system will provide for budgeting, accounting, and reporting in compliance with IFAD requirements, including registration and reporting by source of funding, originating state, component and expenditures, multiple currencies, assets and contract management. Interim financial reports and annual financial statements will be prepared in accordance with the PIM and with IFAD Handbook for Financial Reporting and Auditing. Consolidated Financial Statements will be submitted to IFAD not later than four months after the end of each fiscal year. **Flow of funds:** The flow of funds and disbursement arrangements are described in section B.4 of this document.

**External audit:** The project will be audited annually by the SAI or private audit firm hired for this purpose in accordance with international auditing standards. The consolidated annual audit report, including all sources of funding and participating states, will be submitted to IFAD within six months after the end of the fiscal year.

**Procurement management:** will be carried out through the SIUs with the support of experts in bidding, hiring, and accountability. State Project teams should have technical capacity to prepare and manage contracts, as well as support the formalization, execution, and closure of agreements with beneficiaries. In all procurement and contracting plans (PCP) and their activities, SIUs should use IFAD and BNDES guidelines. Bidding can be award to a partner institution, mainly for recruitment of staff, after analysing institutional capacity to follow IFAD and BNDES bidding guidelines, contractual arrangements, and anti-fraud / corruption policies. To ensure an efficient execution, IFAD will conduct analysis of each project's installed capacity. IFAD will keep track of team selection to ensure that the workforce is satisfactory, review preparation of Project Implementation Manual (PIM), oversee preparation of guidelines and handbooks for bidding commissions to ensure proper project execution, and supervise procurement and contract management. IFAD will also provide training to improve teams' capacity at the start of implementation and when necessary. SIUs will be responsible for the safekeeping and provide instruction on procurement processes and ensure that beneficiaries do so and make them available for future audits or IFAD and BNDES supervisions. This also applies in cases where there is a partner institution supporting project implementation.

**Anti-money laundering and combating the financing of terrorism (AML/CFT):** As per BNDES Policy for Prevention of Money Laundering and Combating Terrorist Financing<sup>96</sup>, the bank participates in collective initiatives to combat fraud and preventing money-laundering and the financing of terrorist activities (AML/CFT) such as the Integrity and Anticorruption Business Pact (Ethos Institute), the National Strategy to Combat Corruption and Money Laundering (Enccla), the National Forum of Management of Ethics in State-owned Enterprises and commissions of the Brazilian Federation of Banks (Febraban) on compliance and AML/CFT, and promotes much training of its employees on how to combat fraud and prevent money-laundering and/or the financing of terrorist activities. BNDES was created by Law No. 1,628, of June 20, 1952, as the body that contributes to formulation and execution the national economic development policy. As a public company and a member of the National Financial System, BNDES is subject to the supervision and evaluation of national control bodies, such as the Federal Court of Accounts - TCU and the Central Bank of Brazil. Brazil has the Financial Activities Control Council (Coaf), which has technical and operational autonomy, operates throughout the national territory and is administratively linked to the Central Bank of Brazil. Its main function

<sup>96</sup> Available at: [https://www.bndes.gov.br/SiteBNDES/export/sites/default/bndes\\_en/Galerias/Download/BNDES\\_AML\\_policy\\_english.pdf](https://www.bndes.gov.br/SiteBNDES/export/sites/default/bndes_en/Galerias/Download/BNDES_AML_policy_english.pdf)

is to produce and manage financial intelligence information to prevent and combat money laundering and to promote institutional dialogue with national, foreign and international bodies and entities that have connection with its activities.

All disbursements to producer organizations are made in accordance with The Brazilian Federal Revenue Office procedures<sup>97</sup>: (i) States make an agreement with banks, which have more presence in the field near producers' organizations. All the accounts opened by producers organizations operate under this agreement between the state and the banks; (ii) In order to open the bank account (which needs to be specific and solely for the funds utilized for the project), producers organizations complete forms and need to be legally registered in the Ministry of Economy's database (National Register of Legal Entities CNPJ) so that all information is verified and checked; (iii) The state transfers the funds to the account of the producers which will only be released once compliance with the project is ensured and according to specific demands of expenditure presented by the organizations; (iv) All bank accounts for producers' organizations are directly managed by the state (project) which has access to all information in the account; (v) Producers organizations need to render accounts on all expenditure and to support them in this procedure the state will hire technical assistance (TA) teams dedicated to this task; (vi) in case the resources generate income (as they will be in the account and for example can lead to savings) they can be utilized provide it is in line with the purpose of the project; otherwise all unutilized amounts including income generated is returned to the state.

#### G.4. Disclosure of funding proposal

No confidential information: The accredited entity confirms that the funding proposal, including its annexes, may be disclosed in full by the GCF, as no information is being provided in confidence.

With confidential information: The accredited entity declares that the funding proposal, including its annexes, may not be disclosed in full by the GCF, as certain information is being provided in confidence. Accordingly, the accredited entity is providing to the Secretariat the following two copies of the funding proposal, including all annexes:

- full copy for internal use of the GCF in which the confidential portions are marked accordingly, together with an explanatory note regarding the said portions and the corresponding reason for confidentiality under the accredited entity's disclosure policy, and
- redacted copy for disclosure on the GCF website.

The funding proposal can only be processed upon receipt of the two copies above, if containing confidential information.

## H. ANNEXES

### H.1. Mandatory annexes

- Annex 1 NDA no-objection letter(s) [\(template provided\)](#)
- Annex 2 Feasibility study - and a market study, if applicable
- Annex 3 Economic and/or financial analyses in spreadsheet format
- Annex 4 Detailed budget plan [\(template provided\)](#)
- Annex 5 Implementation timetable including key project/programme milestones [\(template provided\)](#)
- Annex 6 E&S document corresponding to the E&S category (A, B or C; or I1, I2 or I3):  
[\(ESS disclosure form provided\)](#)
  - Environmental and Social Impact Assessment (ESIA) or
  - Environmental and Social Management Plan (ESMP) or
  - Environmental and Social Management System (ESMS)
  - Others (please specify – e.g. Resettlement Action Plan, Resettlement Policy Framework, Indigenous People’s Plan, Land Acquisition Plan, etc.)
- Annex 7 Summary of consultations and stakeholder engagement plan
- Annex 8 Gender assessment and project/programme-level action plan [\(template provided\)](#)
- Annex 9 Legal due diligence (regulation, taxation and insurance)
- Annex 10 Procurement plan [\(template provided\)](#)
- Annex 11 Monitoring and evaluation plan [\(template provided\)](#)
- Annex 12 AE fee request [\(template provided\)](#)
- Annex 13 Co-financing commitment letter, if applicable [\(template provided\)](#)
- Annex 14 Term sheet including a detailed disbursement schedule and, if applicable, repayment schedule

### H.2. Other annexes as applicable

- Annex 15 Evidence of internal approval [\(template provided\)](#)
- Annex 16 Map(s) indicating the location of proposed interventions
- Annex 17 Multi-country project/programme information [\(template provided\)](#)
- Annex 18 Appraisal, due diligence or evaluation report for proposals based on up-scaling or replicating a pilot project
- Annex 19 Procedures for controlling procurement by third parties or executing entities undertaking projects financed by the entity
- Annex 20 First level AML/CFT (KYC) assessment
- Annex 21 Operations manual (Operations and maintenance)
- Annex 22 GHG Appraisal report
- Annex 23 Temporary annex on co-financing

*\* Please note that a funding proposal will be considered complete only upon receipt of all the applicable supporting documents.*



MINISTRY OF ECONOMY OF BRAZIL  
Secretariat for International Economic Affairs

OFÍCIO SEI Nº 35/2019/CGIG/SUINT/SAIN/SECINT-ME

Brasília, June 14, 2019.

Mr. Yannick Glemarec  
Executive Director  
Green Climate Fund  
G-Tower, 24-4 Songdo-dong, Yeonsu-gu  
Incheon City, Republic of Korea

**Re: Funding proposal for the GCF by the International Fund for Agricultural Development (IFAD) regarding "Planting climate resilience in rural communities of the Northeast (PCR)".**

*Reference:* Electronic process nº 12120.100376/2019-54.

Dear Mr. Manzanares,

1. We refer to the project " Planting climate resilience in rural communities of the Northeast (PCR) ", as included in the funding proposal submitted by the International Fund for Agricultural Development (IFAD) to us on April 4<sup>th</sup>, 2019.
2. The undersigned is the duly authorized representative of the Secretariat for International Affairs, Ministry of Finance, the National Designated Authority of Brazil.
3. Pursuant to GCF decision B.08/10, the content of which we acknowledge to have reviewed, we hereby communicate our non-objection to the project as included in the funding proposal.
4. By communicating our non-objection, it is implied that:
  - a) The Government of Brazil has no objection to the project as included in the funding proposal;
  - b) The project as included in the funding proposal is in conformity with Brazil's national priorities, strategies and plans;
  - c) In accordance with the GCF's environmental and social safeguards, the project as included in the funding proposal is in conformity with relevant national laws and regulations.
5. We also confirm that our national process for ascertaining non-objection to the project as included in the funding proposal has been duly followed.
6. We note that a non-objection decision does not constitute any kind of guarantee or commitment by the Brazilian Government. Also, it does not exempt the International Fund for Agricultural Development from complying with legal, regulatory and administrative requirements in Brazil.

7. We acknowledge that this letter will be made publicly available on the GCF website.

Best regards,

Document signed electronically  
ERIVALDO ALFREDO GOMES  
Secretary for International Economic Affairs



Documento assinado eletronicamente por **Erivaldo Alfredo Gomes, Secretário(a) de Assuntos Econômicos Internacionais**, em 14/06/2019, às 19:56, conforme horário oficial de Brasília, com fundamento no art. 6º, § 1º, do [Decreto nº 8.539, de 8 de outubro de 2015](#).



A autenticidade deste documento pode ser conferida no site [http://sei.fazenda.gov.br/sei/controlador\\_externo.php?acao=documento\\_conferir&id\\_orgao\\_acesso\\_externo=0](http://sei.fazenda.gov.br/sei/controlador_externo.php?acao=documento_conferir&id_orgao_acesso_externo=0), informando o código verificador **2500349** e o código CRC **3BA017AC**.

Esplanada dos Ministérios, Bloco K, 8º andar, sala 874 - Bairro Zona Cívico-Administrativa  
CEP 70048-900 - Brasília/DF  
(61) 2020-5644 - e-mail and.gcf@economia.gov.br

Processo nº 12120.100376/2019-54.

SEI nº 2500349

## Environmental and social safeguards report form pursuant to para. 17 of the IDP

<b>Basic project or programme information</b>	
<b>Project or programme title</b>	Planting Climate Resilience in Rural Communities of the Northeast (PCRP)
<b>Existence of subproject(s) to be identified after GCF Board approval</b>	No
<b>Sector (public or private)</b>	Public
<b>Accredited entity</b>	International Fund for Agricultural Development (IFAD)
<b>Environmental and social safeguards (ESS) category</b>	Category B
<b>Location – specific location(s) of project or target country or location(s) of programme</b>	Northeastern Brazil
<b>Environmental and Social Impact Assessment (ESIA) (if applicable)</b>	
Date of disclosure on accredited entity's website	Wednesday, October 7, 2020
Language(s) of disclosure	English and Portuguese
Explanation on language	Portuguese is the official language of Brazil.
Link to disclosure	English: <a href="https://www.ifad.org/documents/38711624/40206666/s/ecap_brazil_pcrp_e.pdf/d35a7750-600e-b268-b405-ba751a1695d9">https://www.ifad.org/documents/38711624/40206666/s/ecap_brazil_pcrp_e.pdf/d35a7750-600e-b268-b405-ba751a1695d9</a>  Portuguese: <a href="https://www.ifad.org/documents/38711624/40206666/s/ecap_brazil_pcrp_p.pdf/7a357fac-a8e2-9e86-9283-a760e0e0a4e7">https://www.ifad.org/documents/38711624/40206666/s/ecap_brazil_pcrp_p.pdf/7a357fac-a8e2-9e86-9283-a760e0e0a4e7</a>
Other link(s)	<a href="https://www.ifad.org/en/secap-disclosed-documents">https://www.ifad.org/en/secap-disclosed-documents</a>
Remarks	An ESIA consistent with the requirements for a Category B project is contained in the “Social, Environmental and Climate Assessment Procedures (SECAP) note”.
<b>Environmental and Social Management Plan (ESMP) (if applicable)</b>	
Date of disclosure on accredited entity's website	Wednesday, October 7, 2020
Language(s) of disclosure	English and Portuguese
Explanation on language	Portuguese is the official language of Brazil.
Link to disclosure	English: <a href="https://www.ifad.org/documents/38711624/40206666/s/ecap_brazil_pcrp_e.pdf/d35a7750-600e-b268-b405-ba751a1695d9">https://www.ifad.org/documents/38711624/40206666/s/ecap_brazil_pcrp_e.pdf/d35a7750-600e-b268-b405-ba751a1695d9</a>  Portuguese: <a href="https://www.ifad.org/documents/38711624/40206666/s/ecap_brazil_pcrp_p.pdf/7a357fac-a8e2-9e86-9283-a760e0e0a4e7">https://www.ifad.org/documents/38711624/40206666/s/ecap_brazil_pcrp_p.pdf/7a357fac-a8e2-9e86-9283-a760e0e0a4e7</a>
Other link(s)	<a href="https://www.ifad.org/en/secap-disclosed-documents">https://www.ifad.org/en/secap-disclosed-documents</a>
Remarks	An ESMP consistent with the requirements for a Category B project is contained in the “Social, Environmental and Climate Assessment Procedures (SECAP) note”.

<b>Environmental and Social Management (ESMS) (if applicable)</b>	
Date of disclosure on accredited entity's website	N/A
Language(s) of disclosure	N/A
Explanation on language	N/A
Link to disclosure	N/A
Other link(s)	N/A
Remarks	N/A
<b>Any other relevant ESS reports, e.g. Resettlement Action Plan (RAP), Resettlement Policy Framework (RPF), Indigenous Peoples Plan (IPP), IPP Framework (if applicable)</b>	
Description of report/disclosure on accredited entity's website	Indigenous Peoples Planning Framework (IPPF)/ Wednesday, October 7, 2020
Language(s) of disclosure	English and Portuguese
Explanation on language	Portuguese is the official language of Brazil.
Link to disclosure	English: <a href="https://www.ifad.org/documents/38711624/40206666/s/ecap_brazil_pcrp_e.pdf/d35a7750-600e-b268-b405-ba751a1695d9">https://www.ifad.org/documents/38711624/40206666/s/ecap_brazil_pcrp_e.pdf/d35a7750-600e-b268-b405-ba751a1695d9</a>  Portuguese: <a href="https://www.ifad.org/documents/38711624/40206666/s/ecap_brazil_pcrp_p.pdf/7a357fac-a8e2-9e86-9283-a760e0e0a4e7">https://www.ifad.org/documents/38711624/40206666/s/ecap_brazil_pcrp_p.pdf/7a357fac-a8e2-9e86-9283-a760e0e0a4e7</a>
Other link(s)	<a href="https://www.ifad.org/en/secap-disclosed-documents">https://www.ifad.org/en/secap-disclosed-documents</a>
Remarks	An IPPF consistent with the requirements for a Category B project is contained in the "Social, Environmental and Climate Assessment Procedures (SECAP) note".
<b>Disclosure in locations convenient to affected peoples (stakeholders)</b>	
Date	Wednesday, October 7, 2020
Place	Casa das Nações Unidas (ONU) Praça Municipal Thomé de Souza s/n Elevador Lacerda 40.020-010 Salvador - Bahia - Brazil  Banco Nacional de Desenvolvimento Econômico e Social (BNDES) <sup>1</sup> Av. República do Chile, 100 - Centro Rio de Janeiro - RJ 20031-917 Brazil
<b>Date of Board meeting in which the FP is intended to be considered</b>	
Date of accredited entity's Board meeting	Wednesday, December 9, 2020
Date of GCF's Board meeting	Monday, November 9, 2020

**Note: This form was prepared by the accredited entity stated above.**

<sup>1</sup> Electronic copy has been submitted to the EE on Thursday, October 8, 2020 hard copies will also be made available in EE address in due course.

## Secretariat's assessment of FP143

Proposal name:	Planting Climate Resilience in Rural Communities of the Northeast (PCRP)
Accredited entity:	International Fund for Agricultural Development (IFAD)
Country:	Brazil
Project/programme size:	Medium

### I. Overall assessment of the Secretariat

1. The funding proposal is presented to the Board for consideration with the following remarks:

Strengths	Points of caution
Transforming the agricultural system of the poorest rural farmers in Northeast Brazil	Project depends on uptake of CRPS and continued application of sustainable agroforestry systems.
Adequate mitigation and adaptation technologies for small-scale family farmers and an emphasis on a gender-sensitive approach	The proposed water-saving technologies should be carefully monitored to avoid negative environmental externalities.
A Project Management and Accountability System will enable measurement of GHG emission reduction results obtained from activities to reduce degradation, establish agroforestry cropping and restore soil carbon in the Caatinga regions of the selected States	More precise calculations of the project's net GHG emissions reductions and food security impact will depend on selection of sites within selected States of the Brazilian Caatinga region and baseline studies conducted after project inception.

2. The Board may wish to consider approving this funding proposal with the terms and conditions listed in the respective term sheet and addendum XXIII, titled "List of proposed conditions and recommendations".

### II. Summary of the Secretariat's assessment

#### 2.1 Project background

3. The semi-arid region of Northeast Brazil (NEB) has been experiencing periodic droughts with chronic water scarcity. Average temperature increased by 0.8 degrees Celsius between 1901 and 2000, and an important acceleration in warming during the last three decades. Severe droughts occurred in 1993 and 2012, with the overall drought frequency, intensity and severity increasing over the past 36 years. Crops produced by family farmers have been affected by these climate drivers and impacts, with the average crop area lost being 221,973 hectares per year from 1990 to 2016. NEB is projected to experience a further temperature increase of between 0.5 and 2.0 degrees Celsius in the period 2011–2040, compared with the baseline period 1961–1990.

4. The project proposes to address these observed and projected climate impacts and to build the resilience of the most vulnerable and the poorest farmers in NEB. At the same time, the project will promote low-emission agriculture and restore forests, thereby generating emissions reductions and carbon sequestration through sustainable forest management. The project will be implemented for eight years, with a requested GCF funding of USD 99.5 million (USD 65 million as senior loans and USD 34.5 million as grants) and co-financing of USD 103 million, including from the International Fund for Agricultural Development (IFAD) of USD 30 million, the Brazilian Development Bank (BNDES) of USD 59.3 million and participating States of USD 13.7 million.

5. The project is expected to reduce greenhouse gas (GHG) emissions and sequester 11 million tonnes of carbon dioxide equivalent (tCO<sub>2</sub>eq) in total during the project lifespan of 20 years. At the same time, the project will directly benefit one million people in at least three States of NEB through the introduction of climate resilient productive systems (CRPS) and increased water security for agriculture. An additional 1.5 million people will also be indirectly benefited through the territorial resilience investment plans development and implementation, as well as capacity-building and knowledge management activities, especially for women, youth and traditional communities.

6. The project is structured into three components:

- (a) Implement CRPS;
- (b) Water access for production; and
- (c) Knowledge management and scaling up.

## 2.2 Component-by-component analysis

*Component 1: Climate resilient productive systems (total cost: USD 76.5 million; GCF cost: USD 54 million, or 71 per cent)*

7. Output 1 will implement CRPS for family farmers and traditional communities in their family farms and backyard gardens. It will also implement sustainable landscape management in larger areas of the Caatinga under collective community management to reduce deforestation and restore degraded lands. It will develop territorial resilience investment plans (TRIPs), which will be planning tools for the implementation of CRPS. The CRPS includes a range of activities, including setting up resilient backyard gardens, reducing land degradation in areas of collective community management \ by adopting eco-efficient stoves and biodigesters, adopting biosaline agriculture, and local entrepreneurship for family farming.

8. One of the key challenges this output aims to address is the increase in soil salinity and brackish or salty groundwater leading to worsening water scarcity. The proposed solution – biosaline agriculture with halophyte plants combined with collective desalinization systems – is assessed to be adequate and are best suited to manage the challenge of land salinization in the regional context. The CRPS is also deemed to be the optimal solution in semi-arid NEB, given their effects of recharging soil moisture, soil carbon, retaining water and improving microclimate.

9. The other challenge of increasing land degradation due to overgrazing and timber extraction in the Caatinga will be managed using alternative solutions such as eco-efficient stoves and biodigesters that will reduce the demand for timber extraction. It is anticipated that without the project family farmers in the project areas will continue their slash-and-burn agriculture and accentuate land degradation, aggravating their livelihoods by reducing agricultural production. Overall, the proposed solutions are adequate and reasonable for managing the baseline situation in the target region.

10. The proposed solution has good potential to maximize its impacts, as it is widely accessible to the poorest families in the region. Virtually every family unit in NEB has a backyard. Beneficiaries participating in the project will transform their backyard to climate-resilient agroforestry systems, consisting of food crops, fruits, medicinal and ornamental plants, spices, and fodder combined with livestock. Although the size of the backyards is quite small, under CRPS these spaces allow frequent irrigation, proximity to the house and a leading role of women farmers.

11. Another strength of this project is the effort to increase beneficiaries' ownership of the interventions. For each activity, beneficiary farmers must contribute at least 10 per cent of the financing of the TRIPs amount. Although the TRIPs and CRPS will be financed mostly with GCF grants, the project requires family farm labor in construction and maintenance to ensure ownership by the beneficiaries encouraging sustainability of the project interventions.

*Component 2: Water access for production (total cost: USD 101.8 million; GCF cost: USD 42.4 million, or 42 per cent)*

12. Component 2 will provide various technologies for water collection and storage for use in agricultural production, such as cement patio (or calçadão) cisterns, underground dams, trench barriers, greywater reuse system, as well as green septic tanks. These technologies focus on increasing water security by capturing and storing rainwater and reusing greywater and blackwater for irrigation.

13. The issue of water scarcity in NEB is driven by both climatic and non-climatic drivers, with the non-climatic driver being the lack of distribution across Brazilian territory. Climatic drivers, namely low rainfall and high evaporation, are the main reason for this component and the inter-seasonal rainfall variability has been analysed in the feasibility study.

14. The proposed water-saving technologies are adopted from other countries and adapted to the NEB context. They have been tested over the past two decades and were selected as the best practices. The analyses have been provided in the feasibility study of their adequacy to the local context.

*Component 3: Knowledge management and scaling up (total cost: USD 9.4 million; GCF cost: USD 2.9 million, or 31 per cent)*

15. Component 3 will strengthen the institutional and technical capacity of the project beneficiaries in implementing components 1 and 2, promote South-South cooperation and unlock policy barriers to support farmers in accessing markets.

16. The need for the proposed activities is well justified, and it is positively assessed that adequate capacity-building and institutional strengthening will be followed by practical measures, given that most of the proposed adaptation activities require incentives to shift the farmers' current unsustainable practices. The key success factor of this component will be the establishment of a coordination mechanism among the different institutions at the local and regional levels, in order to effectively and efficiently deliver the knowledge and technologies to the poorest and the most vulnerable farmers. It is important that the activities undertaken under this component are properly documented and shared, with concrete outputs generated, so that they can be sustained, scaled up and replicated into other regions of the country.

*Component 4: Project management (total cost: USD 14.8 million; GCF cost: USD 0.2 million, or 0.2 per cent)*

17. The last component is the project management cost for implementation of the project. The GCF portion of the project management cost is around 0.2 per cent of the total requested GCF funding, and is compliant with GCF policy on fees.

### **III. Assessment of performance against investment criteria**

### 3.1 Impact potential

*Scale: Medium-high*

18. The project aims to reduce emissions and sequester carbon of 11,086,999 tCO<sub>2</sub>eq during the project lifespan of 20 years. This mitigation result will be generated through sustainable land management of forest lands, annual and perennial croplands and grasslands on 84,124 hectares, as well as through installation of 540 eco-efficient stoves and 540 biodigesters. The calculation of emission reductions was done with the EX-Ante carbon balance tool (EX-ACT) using tier 2 values for the soil organic carbon. A baseline was calculated for agricultural emissions (annual), grassland and livestock and use of inputs (fertilizers and energy consumptions). These are not included in the logical framework, and it is recommended that these baselines are captured and reported during project implementation.

19. The GHG calculation did not account solar-powered pumps (31,000) for emissions reduction or for the possible generation of emissions through the production and transportation of materials for cement patio cisterns. For the latter, the accredited entity (AE) explained that initial GHG emissions have not been included because the States have not been determined yet, and the estimation would have to be based on the actual conditions in particular States (e.g. transportation distances). In addition, possible emissions from grid-powered desalination systems have also not been taken into account, as the project does not install any new desalination units, but rather employs the existing units to reuse brackish water. These omissions in emission reductions and generation, and the final carbon balance, should be monitored and reported to GCF through annual performance reports.

20. The proposal aims to reach 0.5 per cent of the total national population and 12 per cent of the population in NEB. The project's direct beneficiaries are estimated at one million people who will benefit from CRPS and increased access to water for agricultural production. An additional 1.5 million people in the region are also expected to benefit from enhanced knowledge and learning in low-emission and climate-resilient agriculture.

21. In terms of scientific evidence for climate change and its impacts in the region, the feasibility study presents observed climate data drawn from multiple meteorological stations cited in different studies (e.g. Da Silva (2004) and Carvalho (2020)). The results show contradictory climatic trends in terms of precipitation depending on the areas, although the overall temperature shows increasing trends. A separate study on the impacts of droughts on agricultural production in NEB has also been presented, covering the period 1990–2016. The analysis shows severe extreme droughts in certain years (1993 and 2012) but it is difficult to determine increasing trends and more prolonged effects of droughts over the years within the given timeframe.

22. Targeting of the project areas (sites within the Caatinga biome of selected States and beneficiaries) will be based on a set of selection or eligibility criteria which are to be developed in greater detail at the initial stage of the project implementation. The feasibility study provides a set of general criteria for selecting the regional states and beneficiaries. The criteria ensures that the selection will be done using the climate vulnerability index, the level of food and nutritional insecurity, as well as other important environmental- and poverty-related indicators. The criteria are deemed to be appropriate and are in line with the GCF investment criteria indicators.

### 3.2 Paradigm shift potential

*Scale: Medium-high*

23. The paradigm shift in this project is demonstrated to a certain extent. The project is expected to transform the family farmers' production system from dependence on mono-cropped beans, corn and manioc requiring expanding degradation of natural vegetation to climate-resilient and biosaline agriculture including diversification on the use of crops and

community conservation of native Caatinga vegetation. The project will also shift small family farmers' conventional agriculture practices, which are highly sensitive to climate change, to drought-resilient crop production systems that will ensure food security for subsistence farmers. The shift of the agricultural system to a more drought tolerant one with a reliable supply of water is acknowledged as positive. The project will incentivize this shift in agriculture with the use of full grants from GCF. It could have been more compelling if the project developed a financial mechanism to further incentivize farmers to continue the resilient farming after the project for financial sustainability.

24. For the water-saving systems, the proposed technologies to be adopted are not new, but they are adapted to the NEB context (e.g. in the case of biodigesters, from Chinese and Indian models) and were selected based on the best practices that have been developed in NEB during the last two decades.

25. The project also has good potential for scaling up and replication within the target areas and in other regions of the country. A significant amount of grants are to be invested in knowledge management and South-South cooperation. It is expected that, based on such knowledge management and capacity-building, the project will create a positive enabling environment for local and national stakeholders to replicate and scale up agricultural adaptation. It is also important to involve the private sector in agricultural value chains, widening opportunities for smallholder farmers to add value to their products and create sustainable financing opportunities, which will gradually reduce the need for full grant support in the future.

26. The project utilizes concessional loans for water-saving technologies with sovereign guarantee, and requires beneficiaries to contribute at least 10 per cent of costs for CRPS investment. These mechanisms will ensure some level of sustainability of the project. However, the AE should develop a concrete exit strategy containing a financial plan for beneficiaries to continue CRPS, sustainable forests management and to maintain the infrastructure after the project ends. The AE committed to develop such an exit plan in the penultimate year of the project implementation.

### 3.3 Sustainable development potential

*Scale: High*

27. The proposal provides sound justification for its potential to generate positive environmental, social and economic externalities. The proposed technology packages include generally proven results with good practices that have beneficial environmental impacts, such as creating positive microclimates and improving soil conditions. No harmful environmental impacts are foreseen to be associated with the selected climate resilient seeds and other plant materials proposed in the CRPS, although the proposed water-saving technologies should be carefully monitored to avoid negative environmental externalities.

28. The proposed water supply and agricultural practices will enhance food and water security and generate an increase in farmers' production and incomes. Economic co-benefits are foreseen to be substantial, particularly from the production of various cash crops, vegetables, medicinal and herbal plants. The project is also expected to positively contribute to relieving impacts of COVID-19. The project is expected to generate around 200 local jobs for youth and strengthen 70 local entrepreneurs.

29. The potential for social benefits is also assessed as high: diversified agricultural production, greater access to water and to markets will directly benefit society in the long term, and will better prepare and equip communities for current and future climate change impacts.

30. Gender considerations have been adequately included in the project design. The target for the project's technical assistance is that 40 per cent of the beneficiaries will be women, and for each proposed activity, 50 per cent of the beneficiaries will be women. It will be important to

foster women's skills in agricultural activities, their participation in decision-making processes, and to strengthen their capacity to access credit for greater diversification in their agricultural practices. A detailed gender assessment and action plan has been developed and was submitted as an annex.

### 3.4 Needs of the recipient

*Scale: Medium-high*

31. The vulnerability of the country and the target beneficiaries and their adaptation needs are generally explained throughout the proposal, and the analysis of the scale and intensity of the country's exposure to climate risks is provided in the feasibility study. The impacts of climate change, particularly incidents resulting from droughts, on agricultural production and livelihoods are presented. The vulnerability of smallholder farmers, including women, is acknowledged and their losses due to the climatic events are noted.

32. Although Brazil is classified as an upper middle-income country, the proposal justifies the grants portion by highlighting the level of poverty of the project beneficiaries. The proposal emphasizes the current lack of loans or other kinds of financial instruments with formal banks, as well as lack of access to markets for poor rural farmers to implement low-emission and climate-resilient agriculture. Thus, the grants are deemed to be adequate for the marginalized population in NEB in terms of their financial capacity.

33. The proposal explains the financial needs of the recipient based on the degree of poverty and vulnerability of family farmers. Although such justification is acknowledged, it could have been strengthened by placing it within the context of a wider investment strategy; this could include a financial estimation of the cost of implementing climate change mitigation and adaptation measures in agriculture at the national level, and the associated shortfalls in the national budget or other resources. Such an exercise would have provided a clear road map or pathway for climate resilience building in the sector from a financial perspective, and would clarify the level of contribution and its impacts from GCF.

### 3.5 Country ownership

*Scale: High*

34. The proposal states that the project contributes to the country's nationally determined contribution (NDC), national adaptation plan and its various national development and climate change strategies. It would have been more compelling if the proposal had delineated in a more concise manner how and to what extent the project will contribute to the low-carbon agriculture programme as part of the NDC.

35. As the executing entity (EE), BNDES has demonstrated its financial management capacity to manage a similar size of investment. The result of the financial management capacity assessment conducted by the AE was satisfactory. Given that BNDES is also the GCF AE, it is expected that this project will strengthen the capacity of BNDES on managing GCF investments and support them bringing more projects in the future.

36. The project was designed on the basis of rigorous consultations with relevant stakeholders, including the GCF national designated authority. A stakeholder engagement plan was submitted as an annex to the funding proposal.

### 3.6 Efficiency and effectiveness

*Scale: Medium-high*

37. The proposed structure of grants and loans blending at concessional terms is assessed to be adequate and reasonable, considering the level of poverty of the target beneficiaries who

are identified as the most vulnerable population of the region, as well as the nature of non-income generating activities.

38. Given the size of the investment, and comparing the other forestry investments in Brazil, including the approved results-based payments from GCF in the Amazon biome, the cost-per-tonne in this project is deemed relatively expensive. This is due to the introduction of various technologies to reduce pressure on natural resources and forest lands.

39. The proposal demonstrates the economic viability of the project, with a positive net present value (NPV) of USD 152 million and economic internal rate of return of 19.8 per cent, using the discount rate of 10 per cent. The analysis shows that proposed agricultural activities will be economically viable in a 20-year time-horizon. The proposal also demonstrates cost-effectiveness using a financial model. The project is expected to generate positive NPV of \$2,322 to R\$40,000 Brazilian Reais, with a financial internal rate of return of 10 to 39 per cent.

## **IV. Assessment of consistency with GCF safeguards and policies**

### **4.1 Environmental and social safeguards**

40. The project is a partnership between the International Fund for Agricultural Development (IFAD), acting as the AE, and the Government of Brazil's Development Bank of Brazil (BNDES) as the EE. It seeks to transform poor farming families' productive systems in the semiarid region by increasing production and improving their capacity to address a range of climate change challenges. Its long-term goals are: creation of resilient and productive farming systems; restored ecosystem functions; increased and stabilized family income, food security and nutrition; and supporting young generations to stay active in rural activities.

41. The AE has provided a Social, Environmental and Climate Assessment Procedure (SECAP), which is IFAD's equivalent to GCF's required Environmental Social Management Framework (ESMF). The SECAP describes the project's social and environmental risks and mitigation strategies, and the key considerations regarding climate impacts associated with the project. The SECAP appendices include an Indigenous Peoples Planning Framework, the project's Risk Categorization Screening Questionnaire, and a copy of the AE's Complaints Submission Form, among others. A Stakeholder Engagement Plan is provided as an appendix to the financial proposal. The initial screening of the social, environmental and climate issues likely to be associated with the project determined it to be category B – moderate risk. The Secretariat confirms this categorization and it is within the AE's accreditation level as regards environmental and social risk.

42. The proposed project consists of three components: 1) climate resilient productive systems; 2) water access; and 3) knowledge management and scaling-up. The AE commits that approximately 1,000,000 people in 250,000 family farms will directly benefit from implementation of the project. It further commits to increasing the resilience of agricultural production systems over 84,124 hectares, increasing water access to 36,000 families, and mitigating between 11,086,999 tCO<sub>2</sub>eq and 11,621,173 tCO<sub>2</sub>eq over a 20-year period.

43. The SECAP describes the policies, laws and regulations of the Government of Brazil with relevance to the project – including policies governing poverty reduction and family farming; food and nutrition security; traditional communities and indigenous peoples; water access; climate change; and a range of environmental regulations. The Environmental and Social Safeguards 4 on community health, safety and security was triggered in the screening procedures due to the likely use of fertilizers for increased crop productivity. The SECAP states that careful selection of chemicals and management will be promoted, but also states the project will not promote the use of chemical pesticides. Fertilizers are expected to be used only during

the first few years of the project, when the CRPS activities are not capable of generating enough biomass, then scaled down to zero as the system matures and can produce its own fertilizers. Local manure is to be prioritized if available instead of chemical fertilizers, with technical assistance teams working to ensure adequate use and handling of fertilizers. The project can further strategize on developing information and capacity-building among the farmers, many of whom are accustomed to the more harmful types and applications of agrochemicals that the project can help eliminate.

44. Indigenous peoples' issues are present in the project area and their full engagement is important for success of the project. The project documentation complies with the requirements of the GCF Indigenous Peoples Policy. The SECAP in annex 6 and the Indigenous Peoples Planning Framework in appendix 1 of the SECAP provide the main means to achieve these goals.

45. A major infrastructure project in the project area is the transposition of the São Francisco River. This project has been controversial with many claims that indigenous peoples have been negatively affected by the project. An important goal of this project is to help indigenous peoples and avoid additional, similar negative outcomes. Ongoing consultations guided by the concept of free, prior and informed consent will therefore be especially important to avoid similar mistakes. The project commits to carrying out further consultations with indigenous peoples within the project areas during its implementation cycle.

46. Another important goal will be to ensure that indigenous peoples benefit from the project. There is a commitment to developing log frame indicators that will include relevant disaggregation for women, youth, indigenous and quilombola beneficiaries.

47. The SECAP describes stakeholder engagement activities that took place in the planning of the project, and the grievance procedures currently required by the AE. It commits to developing project-level grievance redress mechanisms (GRMs) consistent with GCF requirements and based on the AE's mechanism, and building agreement with stakeholders on the best methods for implementing the project level GRMs. The SECAP includes specific detail outlining how the AE will need to ensure all project-affected communities are able to access the AE's mechanism (as well as any future project-level GRM), including those who may not have access to internet resources. As described, the project has a clear process for accessing the various grievance mechanisms, and the importance of robust stakeholder engagement to minimize the risk of grievances is included. It will be important to consider that beyond the initial signing of agreements by all parties, implementation of those agreements is often a significant challenge and must also be monitored and reported.

48. The SECAP provides a useful graphic representation of the project's various GRMs and their functions. This and other aspects of stakeholder engagement and grievance handling procedures should be widely available in relevant languages and locations, given the significant number and capacity differences of project-affected individuals across a wide geographic area. The SECAP commits to giving special attention to project participants to address this concern: farmers, illiterate or technology illiterate people, people with hearing or visual disabilities, people with limited or no access to internet and other groups with special needs. Dissemination of information among these groups will be carried out by state-level project management units using social media, local newspapers, flyers, brochures, radio, and television. Tracking, monitoring and rectifying deficiencies in this regard will be important aspects of project implementation.

49. Responsibility for stakeholder planning and engagement activities, including designing mechanisms for confidential reports and financial support, will fall to the Youth, Gender and Traditional Communities Specialist within each state-level project management unit, with support from monitoring and evaluation specialists on tracking compliance issues and grievance handling. It is important that these specialists have the training and capacity to design

and manage complex stakeholder engagement and grievance redress procedures, particularly given the high number of intended beneficiaries and potentially impacted farming families.

50. While the SECAP mentions that the GCF independent grievance redress mechanism is available to impacted stakeholders at any time throughout the project, it will be important that the project make this information available not only to the expected project beneficiaries, but to all project management units and partners who have a role in addressing grievances via the various mechanisms available to stakeholders.

## 4.2 Gender policy

51. The AE has provided a gender assessment and gender action plan and therefore complies with the Gender Policy of GCF.

52. The gender assessment provides information regarding the enabling environment where many advances were made in rural public policies and programmes which have adopted specific strategies for inclusion and support for agroecological production and marketing of rural women's production in the agriculture sector. However, previously established policies aimed at reducing social inequalities have suffered serious setbacks, leading to unfavourable conditions experienced by women in rural areas. Policies on women's rights are seen to function at minimum thus rendering Brazil one of the countries with the highest inequality rates in the world. However, this does not invalidate the already established and active role that is being played by autonomous rural women's organizations and movements in Brazil as a response to the lack of inclusion of rural women's agendas in rural workers' organizations.

53. The assessment, which relied on desk reviews and lessons learnt from previous programmes, indicates that women and young girls living in rural areas of Brazil's Northeast are the most vulnerable to climate change-related risks in the country. The challenge is not only to young girls and women but also affects traditional communities. The vulnerabilities have social, economic and political dimensions that limit their capacity for adaptation. The assessment indicates that women have no access to effective policies and programmes. Despite the policy gaps however, the assessment indicates that women continue to play important roles and continue to engage in the collection and sale of non-timber forest products for subsistence when other income-generating activities are not feasible. Women play critical roles in promoting innovations in technology and in sustainable agricultural systems that are resilient to climate change. While women produce for subsistence, they also find ways to improve their capacity and try to engage in local and regional markets however weak and incomplete their organizational skills may be. Women tend to operate in the informal sector, with little access to legal procedures, lacking working capital, producing low-quality products and with no possibility of selling their produce in many of the markets available.

54. The assessment indicates that, despite their efforts, women are among those more prone to chronic poverty, and are the poorest and most vulnerable. In the NEB, the number of families with women heads of household is increasing. Half the population of the semi-arid NEB have no income or only government assistance as their single source of income, and 59.5 per cent are women. The majority of farmers producing in areas less than five hectares are women, and 87.3 per cent of women farmers do not have access to technical assistance services. Women are engaged in bird breeding (73.5 per cent); mixed crop/livestock production (72.3 per cent); horticulture/floriculture (63.0 per cent) which are subsistence, agricultural or non-agricultural activities. Further, the assessment also indicates that, of the total number of rural farmers without land, there are almost twice as many women as men. In addition, although women participate in productive dynamics, they are generally excluded from decision-making about resources. While decision-making on resources is out of their reach, the skewed division of work in the communities also means that the task of searching, managing, handling and storing of water for household consumption is primarily that of women. Extreme situations such as

droughts lead to an increase in their workload, and with water scarcity they need to travel increasingly lengthy distances in search of sources, carrying water in pots or cans. While the economic and social situation of women is dire, it is also similar as regards the reproductive aspect in that the majority of rural women (90.8 per cent) devote 26.1 hours per week to domestic work, while 43.1 per cent of men dedicate only 10.2 hours per week to this type of work.

55. The assessment recognizes – and the project will work towards – increased acknowledgement of the existing contributions of women in the communities and in the sector, while at the same time investing in their already existing potentials and knowledge, for increased efficiency, effectiveness and remuneration. The existence of stereotypes hinders women from achieving their full potential in addition to the existence of social inequalities of race and ethnicity. The lessons from other project experiences indicates the need to include prioritization and targeting of women (in public and technical teams) and underserved communities by indicating minimum rates of women’s participation while at the same time instituting affirmative measures that can be understood as initial steps to achieve gender transformation. The intention is to stimulate sustainable agricultural practices that value the knowledge and skills of women in rural areas, contributing to their autonomy and social, economic and political resilience.

56. The AE has provided a gender action plan which includes activities, targets (minimum 40 per cent), indicators, timeline, budgets and gender expert(s) and thus fulfils the requirements of GCF policy. At the initial phase, the project will conduct an assessment with communities to identify the structural and cultural factors that facilitate or hinder the participation and benefit of women and communities in the project. The findings will inform the current gender action plan and help refine it, in quantitative as well as qualitative terms. The current gender action plan submitted includes activities which are aimed at addressing the gender and social empowerment issues and are targeted particularly at women. Activities included are intended to enhance already existing women’s roles, such as cultivation of nutritionally-rich foods in backyard gardens and other productive spaces; sustainable management of natural resources with women participating; income-generating and resilient production-based activities for female agricultural workers; partnering with organizations working on gender; training on sustainable productive practices and/or renewable, energy-efficient technologies; ensuring access to rainwater harvest and storage techniques; investment in technological innovations by women; investment in microenterprises run by females and childcare support activities. Other activities are also included that will look into reorienting or gender transformative actions such as sensitization on gender-based roles; knowledge management and interventions in public policies for youth and traditional communities; enabling women to engage in “male” trade and documenting the case studies on traditional information and dissemination.

## 4.3 Risks

### 4.3.1. Overall programme assessment (medium risk)

57. GCF is requested to provide a total of USD 99.5 million comprising USD 65 million senior loan and USD 34.5 million in grants. The project will implement climate resilient productive systems in family farms and increase water access for farmers in Northeast Brazil. The AE and BNDES are providing a senior loan of USD 30 million and USD 59.3 million respectively. The AE and GCF loans will benefit from a sovereign guarantee, and all co-financiers will be pari-passu with GCF except for pricing. It is advised that the guarantee agreement with the government is executed before GCF disbursement.

#### 4.3.2. Accredited entity/executing entity capability to execute the current programme (low risk)

58. IFAD, the AE, has partnered with Brazil since 1978 with operations that are concentrated in the Northeast Region. As of January 2020, IFAD supported 12 projects to a total value of USD 859.5 million including USD 313 million in IFAD financing.

59. The EE for this project is BNDES, which is accredited with GCF. It has the final decision-making authority for all project activities such as use of the funds, selection of states, and eligible interventions. IFAD conducted a financial management assessment at BNDES, in particular the financial division and public management and sustainability division, which will be responsible for coordination. The AE is satisfied with the EE's capacity and has a plan to address any shortcomings identified during the implementation.

#### 4.3.3. Project-specific execution risks (medium risk)

60. State-level implementing units (SIU) capacity: project activities will be implemented in coordination with the EE and the state-level implementing units. Selection of the participating states is yet to be decided and inadequate capacity at the SIU may be a challenge for timely project implementation. To mitigate this risk, the AE will carry out capacity assessments of the SIUs and provide necessary technical support to the EE.

61. Behavioural change and land tenure: approximately 82 per cent of the GCF grant will finance uptake of CRPS in family farms and backyard gardens. The success of the project will depend on how interested farmers are in adopting CRPS to yield benefits, improve fertility and increase their resilience and income. The funding proposal states that one third of farmers in the Northeast do not own land and this may hinder some investment activities. For some families the level of poverty may be an obstacle for their full participation. In selection of beneficiaries, the different modalities of access to the land will be considered. In addition, the project will work with the family's immediate needs, such as food security, and technical assistance will encourage families to start the CRPS on a small scale in a restricted CRPS area and expand at a later stage.

62. Credit risk: the borrower of the GCF loan is BNDES (Moody's rating, Ba2). The Government of Brazil (Moody's rating, Ba2) will guarantee the loan. The Government has high debt burden and currently bears the combination of the fiscal and monetary policy measures to the negative credit impact of the economic disruption related to COVID 19. The highly concessional loan of GCF with long term repayment profile is expected to support the state Government and EE in making the repayment.

63. All financing resources will be blended and provided as grant to the final beneficiaries. The loans and grant elements are budgeted in different subactivities. The AE clarified that the allocation of grant and loans is the result of the consultation process with the Government on the willingness of States to invest in certain project activities.

64. Economic and financial viability: the economic analysis results in an economic internal rate of return of 19.77 per cent and the project remains viable in most of the tested scenarios such as an increase in costs up to 30 per cent or a reduction in benefits of 30 per cent according to the sensitivity analysis. In financial analysis, nine models were developed to simulate impacts for each type of intervention on each targeted group of beneficiaries. Overall, it shows a positive financial internal rate of return ranging from 10 per cent to 39 per cent depending on the activity and based on the behavioural hypotheses that beneficiaries will be motivated to take the risks and make the investments required by the project. The project expects to mobilize approximately USD 15million in-kind parallel financing from the beneficiary groups.

#### 4.3.4. Compliance risk (medium risk)

65. The AE has described the internal controls to be utilized in this project to prevent the occurrence of money laundering, terrorist financing, and prohibited practices. The AE has confirmed that there are no United Nations Security Council sanctions issues present in the project or its activities. While some of the proposed activities contemplate the distribution of commodities among some beneficiaries, the AE has described internal controls applicable to ensure proper integrity and accountability in that process. A mechanism for the reporting of complaints and allegations of wrong-doing (whistle-blower) has been set up. In general, the proposed activities do not in themselves suggest an unduly high level of risk. The AE has evidenced that it will undertake appropriate measures to monitor and mitigate risks.

66. Accordingly, based on the information provided, Compliance Risk is assessed as medium.

#### 4.3.5. Recommendations

67. It is recommended that the Board considers the above factors in its decision.

Summary risk assessment		Rationale
Overall programme	Medium	Project implementation will be affected by the capacity of State level implementing units. The AE will carry out capacity assessments of the SIUs and provide necessary technical support to the EE. Success of the project depends on farmers' uptake of CRPS and continued application of sustainable agroforestry systems.
Accredited entity/executing entity capability	Low	
Project-specific execution	Medium	
GCF portfolio concentration	Low	
Compliance	Medium	

## 4.4 Fiduciary

68. As part of its responsibilities as AE, IFAD will carry out project supervision independent from other national control and oversight bodies. The supervision will consist of onsite supervisory missions, which will assess financial management arrangements, identify areas requiring improvement, fiduciary risks, and corresponding mitigating measures. IFAD will also conduct financial supervision through office reviews of periodic financial and annual consolidated audit reports.

69. The EE for the project will be BNDES. BNDES will have the final decision-making power on all project activities including: (i) use of funds; (ii) state and project implementation area selection; and (iii) selection of final beneficiaries. The central project management unit will be placed within BNDES to monitor implementation, compile physical and financial information, report to IFAD and be accountable overall.

70. IFAD conducted a financial management assessment at BNDES, in particular in the financial division and public management and sustainability division, which will be responsible for project coordination. IFAD has concluded that it is satisfied with the EE's capacity.

71. Project operations will follow the loan and grant agreement(s), IFAD General Conditions for Agricultural Development Financing and its disbursements, financial reporting and audit procedures, as well as with BNDES regulations for financing state entities. The GCF grant and loan, and IFAD loans will be made available to BNDES under one financing agreement covering grant and loan instruments and a sovereign guarantee agreement.

72. In terms of the flow of funds, cash transfer from IFAD to BNDES will follow two modalities;
- (a) Advance/replenishment, where BNDES will open and maintain designated accounts for each financial instrument to receive GCF and IFAD funds. IFAD will establish the amount of the advance for each financing instrument on the basis of approximately nine months of average expenditures (indicatively). Funds will then be replenished following the presentation of withdrawal applications and relevant supporting documentation of eligible expenditures; and
  - (b) Direct payment, where BNDES may request IFAD to directly pay providers for amounts higher than the equivalent of USD 100,000.
73. The project will be audited annually by the Supreme Audit Institution in accordance with international auditing standards. The consolidated annual audit report, including all sources of funding and participating states, will be submitted to IFAD within six months after the end of the fiscal year.

#### 4.5 Results monitoring and reporting

74. The funding project is cross-cutting with the aim to mitigate 550,140 tCO<sub>2</sub>eq annually and at least 11.3 MtCO<sub>2</sub>eq over its lifetime, of GHG emissions, and to enhance climate resilient sustainable development through adaptation. It is expected to benefit 600,000 males and 400,000 females directly and 780,000 males and 720,000 females indirectly.
75. Overall, the funding proposal and logframe have been found to adequately apply the results management framework and performance measurement framework indicators. The outcomes and impacts and their related indicators are aligned with GCF requirements. Pertinent information on measurable organizational value, baseline, targets and assumptions, has been provided. Similarly, the logframe contains clear presentation of project-level results, their indicators and other required information in a concise manner. Their diligent application during implementation would facilitate results monitoring, progress reporting, performance assessment and finally delivery on the ground.
76. The implementation timetable has been found to follow the required structure and format. The milestones and deliverables are well articulated and reporting timelines are provided as required.

#### 4.6 Legal assessment

77. The Accreditation Master Agreement was signed with the AE on 24 September 2018, and it became effective on 9 November 2018.
78. The AE has not provided a legal opinion/certificate confirming that it has obtained all internal approvals and has the capacity and authority to implement the project. It is recommended that, prior to submission of the funding proposal to the Board (a) the AE has obtained all its internal approvals; and (b) GCF has received a certificate or legal opinion from the AE in form and substance satisfactory to GCF confirming that all final internal approvals by the AE have been obtained and that the entity has the authority and capacity to implement the project.
79. The proposed project will be implemented in the Federative Republic of Brazil, a country in which GCF is not provided with privileges and immunities. This means that, among other things, GCF is not protected against litigation or expropriation in this country, which risks need to be further assessed. The Secretariat sent a draft agreement on privileges and immunities together with a background note to the Ministry of Economy in December 2017, and

comments to such draft were received in February 2019, to which the Secretariat replied with clarifications in June 2019. While discussions are ongoing, an agreement has not been reached thus far.

80. The Heads of the Independent Redress Mechanism and Independent Integrity Unit have both expressed that it would not be legally feasible to undertake their redress activities and/or investigations, as appropriate, in countries where GCF is not provided with relevant privileges and immunities. Therefore, it is recommended that disbursements by GCF are made only after the GCF has obtained satisfactory protection against litigation and expropriation in the country, or has been provided with appropriate privileges and immunities.

81. Under the proposed project, as described in the funding proposal and term sheet, the AE will enter into a subsidiary agreement to provide the GCF Proceeds as a loan and a grant (together with the AE's co-financing) to Banco Nacional de Desenvolvimento Economico e Social ("BNDES"), which will in turn pass down the GCF Proceeds and the AE's co-financing, together with BNDES' co-financing resources, to the selected sub-national states (the "Participating States") who will use such proceeds to extend sub-grants to the beneficiary communities/organizations for the financing of eligible agroforestry and water management practices and interventions, in accordance with the project implementation manual (PIM) to be developed and approved by BNDES, in consultation with the AE.

82. The definition of "Executing Entity" in the AMA includes any entity that channels GCF Proceeds and/or carries out the implementation of a funded activity. Even though the Participating States will channel GCF Proceeds, the Participating States will not have any decision-making authority for the approval of the Territorial Resilient Investment Plans ("TRIPs") (which will describe the eligible practices and interventions to be implemented in the targeted areas) or the sub-grants to be extended downstream, being that BNDES will be in charge of approving or not the proposed TRIPs and sub-grant applications presented by the Participating States. In this regard, BNDES will act as the only executing entity for this project. Therefore, the AE will not have a direct contractual relationship with the Participating States, as the latter will not exercise any final decision-making and will be subject to BNDES' guidelines and decisions for the implementation of the project.

83. Furthermore, the AE requested the Secretariat a deviation from the terms of the AMA to exclude the application of GCF's step-in rights for this project, indicating that since it is a public-sector project with a sovereign counterparty, it is not feasible for the AE to allow GCF or any other party to take over its contractual relationship with the executing entity. Accordingly, and following the receipt by the Secretariat of a written confirmation from the AE that the National Designated Authority (NDA) of the Federative Republic of Brazil has been informed of, and acknowledged, this deviation to the AMA and its implications, an express provision has been included in the term sheet to allow for such deviation from the AMA. This means that, subject to Board approval, in case the AE decides to discontinue project implementation, the GCF will not have recourse to take over the AE role or appoint another party to replace the AE, and the only alternative would be cancellation, without prejudice of other remedies available to GCF under the AMA.

84. In order to mitigate risk, it is recommended that any approval by the Board is made subject to the following conditions:

- (a) Delivery by the AE to GCF of a certificate or legal opinion confirming that it has obtained all its internal approvals within 120 days of the Board approval;
- (b) Signature of the funded activity agreement in a form and substance satisfactory to the Secretariat within 180 days from the date of Board approval, or the date in which the AE has provided a certificate or legal opinion confirming that it has obtained all internal approvals, whichever is later; and

- (c) Completion of legal due diligence to the satisfaction of the Secretariat.

## Independent Technical Advisory Panel's assessment of FP143

Proposal name:	Planting Climate Resilience in Rural Communities of the Northeast (PCRP)
Accredited entity:	International Fund for Agricultural Development (IFAD)
Country/(ies):	Brazil
Project/programme size:	Medium

### I. Assessment of the independent Technical Advisory Panel

#### 1.1 Impact potential

*Scale: Medium*

1. This is a medium-sized cross-cutting funding proposal covering the following GCF results areas: mitigation activities for forestry and land use (34 per cent of the GCF contribution); and adaptation activities for most vulnerable people, communities and regions, health and well-being, food and water security, and ecosystem and ecosystem services (in total, 66 per cent of the GCF contribution).
2. The project will take place in the semi-arid region of Northeast Brazil (NEB), a highly vulnerable region populated by the poorest people in the country. The population of the region amounts to 21.3 million people, which is 10 per cent of the country's total population. According to the proposal, 90 per cent of agricultural properties in this dryland region of Brazil are family farms demonstrating high vulnerability to climate change.
3. The GCF funding requested by the project is a USD 99.5 million (49 per cent of total project cost), of which 35 per cent is grant and 65 per cent is concessional senior loan. The proposal has an 8-year implementation period and a total lifespan of 20 years. It is included in the GCF country programme of Brazil and in the work programme of the accredited entity (AE).
4. This funding proposal will be implemented jointly by the Government of Brazil, IFAD and the Brazilian Development Bank (BNDES)<sup>1</sup> which is the executive entity for the project. BNDES is an organization linked to the Ministry of Economy.
5. The semi-arid NEB is a tropical dry climate, with average minimum and maximum temperatures of 21.23 and 30.85 °C, respectively. This region has a short, erratic rainy season from March to May, and annual rainfall averages from 390 to 1,550 mm. According to the feasibility study, the region has experienced chronic problems relating to water scarcity, with periodic droughts. The feasibility study used the World Meteorological Organization's operational definitions of different types of drought (meteorological, agricultural, hydrological and socioeconomical) by duration, frequency and severity.<sup>2</sup> The region is affected by agricultural and hydrological droughts, and these are the main targets of the proposal.

<sup>1</sup> BNDES (Banco Nacional de Desenvolvimento Econômico e Social) is a public company wholly owned by the federal government of Brazil with legal personality under law, private equity and property. The BNDES statute is available at: <[https://www.bndes.gov.br/SiteBNDES/bndes/bndes\\_en/Institucional/The\\_BNDES/BNDES\\_bylaws.html](https://www.bndes.gov.br/SiteBNDES/bndes/bndes_en/Institucional/The_BNDES/BNDES_bylaws.html)>.

<sup>2</sup> Agricultural drought links various characteristics of meteorological (or hydrological) drought to agricultural impacts, focusing on precipitation shortages, differences between actual and potential evapotranspiration, soil water deficits, reduced groundwater, or reservoir levels.

6. The feasibility study includes a range of charts and maps on the latest trends of meteorological and agricultural droughts, derived as a result of assessments conducted by different climatologists using observational data from this region. The materials show that droughts affected all states in the NEB for almost half of the period from 1981 to 2016. The states most affected by recurring meteorological droughts during these 36 years were Bahia, Pernambuco and Ceará. The most impacted areas, considering the vegetation index (agricultural droughts), are located in the central area, including eastern Piauí, northern Bahia and the western Pernambuco states. For these territories, drought conditions remained for a considerable period (more than 25 years).
7. The extreme<sup>3</sup> category drought that happened from 2011 to 2016 had a high socioeconomic impact as well as significant agricultural and hydrological impacts. The consequences of this drought affected the whole region, and it is considered to be the worst drought in the past 100 years. It exacerbated many social problems through the indebtedness of farmers, migration, disease and malnutrition. The estimated economic losses of this drought are in the order of USD 6 billion in the agricultural sector alone. The funding proposal explains that, as a result of this drought, the water supply in NEB has suffered successive reductions since 2012, with a minimum stored volume of 13.8 per cent in March 2017. The drought continues to demonstrate the vulnerability of NEB. Further details on the trends of extreme climatic phenomena and their impact on the region are provided under the investment criteria “needs of the recipient”.
8. The project consists of three components that complement and reinforce one another to promote climate resiliency as well as reduce greenhouse gas (GHG) emissions:
- (a) Component 1 will introduce climate resilient productive systems (CRPS) in NEB, which should increase the resilience of family farmers and traditional communities to the impacts of climate change, as well as mitigating GHG emissions. This component contributes to the total emission reduction commitment of the project by strengthening carbon sinks on 84,124 hectares (ha) comprising family farms, backyard gardens and collective areas, and by converting these territories to sustainable management. This component also includes installing 540 eco-efficient stoves and building 540 biodigesters for family farmers, and implementing 540 income-generating activities in collective areas (mainly forests and pastures), supported by investment in 70 micro enterprises to supply small-scale equipment for CRPS;
  - (b) Component 2 will reduce the impact of severe droughts by focusing on improving access to water for family farmers and traditional communities, and by investing in small-scale technologies for harvesting, reuse, treatment and storage of rainwater. The technical assistance provided to the beneficiaries will focus on addressing issues such as efficient water management, good irrigation practices, techniques for limiting evapotranspiration and precautions to prevent soil salinization.<sup>4</sup> All pumping systems will use renewable energy (photovoltaic or wind power). The anticipated results of this component are 20,000 cisterns with walkways (cement patios with underground tank), 500 trench barriers, 500 small underground dams, 10,000 greywater reuse systems, 5,000 blackwater treatment systems (green septic tanks); and
  - (c) Component 3 is dedicated to knowledge management and scaling up CRPS. This component is considered by the project to be fundamental for future sustainability and

<sup>3</sup> Extreme drought is defined as the second-highest level of drought, with major crop/pasture losses and widespread water shortages or restrictions.

<sup>4</sup> In the semi-arid regions, brackish or salty groundwater is common. Around 25 per cent of wells contain fresh water. An estimated 75 per cent of the wells in the semi-arid region contain water that is unfit for human consumption. There are over 500 desalination units operating in NEB, which produce residual water that currently accumulates in evaporation tanks with no productive use.

scalability. The key output of this component is the dissemination of the CRPS process and the small-scale water harvesting systems throughout the NEB semi-arid region and beyond, in order to increase the climate resilience of vulnerable communities.

9. The project will deliver and monitored several other results areas. For example, GHG emissions will be reduced by more than 11 million tonnes of carbon dioxide equivalent (MtCO<sub>2</sub>eq) over 20 years;<sup>5</sup> at least 1,080 smallholder households will save 80–104 Brazilian real per month as a result of a reduction in firewood consumption owing to implementation of efficient stoves and biodigesters; 67,000 family farms participating in CRPS are estimated to reach an increase in biomass production of at least 50,000 kg/ha after a 10-year period; agricultural losses during drought periods will be reduced by 10 per cent compared with the 2010–2020 baseline; and soil moisture during the dry season will be increased by 15 per cent compared with the baseline. Approximately 1 million people in 250,000 family farms (40 per cent women and 50 per cent youth) directly benefit from the project.

10. The independent Technical Advisory Panel (TAP) considers that, according to the preliminary assessment, the direct adaptation and mitigation impacts of the funding proposal should be high. However, in the absence of the baseline statistics that are crucial for assessing results that can be achieved, the independent TAP assesses the impact of this proposal as medium, at this stage of assessment.

## 1.2 Paradigm shift potential

*Scale: Medium*

11. This project does not propose any innovation or drastic changes in behaviour which are new for the region and its population, but the activities planned are dedicated to scaling up and accelerating actions that have already been initiated in the region's sustainable development process. The independent TAP confirms that, due to the severe impact of climate change in NEB, this intervention is very timely and crucial for the region.

12. However, the funding proposal does have an innovative element regarding effective implementation of sustainable development activities. The AE plans to introduce a planning, monitoring evaluation and learning system (described in annex 11 of the funding proposal) which is based on result-based monitoring for planning. Baseline assessment will be based on multi-criteria analysis, applying the set of indicators for assessing three interlinked components of system resilience: climate change impact on the system; sensitivity of the system to the climate exposure/risks; and the adaptive capacity of the system and planning the activities considering the results of this analysis.

## 1.3 Sustainable development potential

*Scale: Medium*

13. The project plans to scale up diverse agroforestry systems using CRPS and a demand-driven approach to sustainable management of the agriculture sector. The whole concept of the proposal is to contribute to the sustainable development of NEB with a particular focus on the rural population. All three components are constructed on the principle of sustainable development.

14. One of the biomes of the Brazilian forest, the Caatinga<sup>6</sup> ecosystem, is also considered within the proposal as being suitable for demonstrating a sustainable collective management approach for collective territories which should help to preserve this biome by decreasing demand for timber; improving pastoral management by adjusting stock rates; improving

---

<sup>5</sup> In the independent TAP's assessment all calculations are done for 11 million tCO<sub>2</sub>eq.

<sup>6</sup> Caatinga is one from the Brazilian Biomes not yet included in REDD-plus activities. It covers 4 per cent of total biome of Brazil.

management of native vegetation; and applying rational forest management through selective logging, regrowth management, and redistribution of nutrients in the agroecosystem.

15. According to the feasibility study, the gender vulnerability assessment found that women have less access than men to both tangible productive resources (land, credit, housing and basic services) and soft resources (education, technical assistance, political participation). The project plans to build women's leadership skills, foster their participation in decision-making processes, and assist women in accessing credit and technologies for production and commercialization. Forty per cent of the technical assistance provided by the project will be dedicated to performing services in communities directed to women. The project's gender focus will ensure better opportunities for women and youth in all three components. These implementation measures ensure that 400,000 women (40 per cent of total beneficiaries) have access to the benefits of the project.

16. Six performance standards are described in annex 6 of the proposal, of which performance standard 6 on "Resource efficiency and pollution prevention" states that "the project will not support the use of pesticides. Also, the water-related infrastructure planned is very local and small in scale given the local needs." The independent TAP notes that this standard is important for avoiding application of pesticides and ensuring sustainable agriculture practices.

17. The proposal explains that the project plans to introduce small water-saving technologies (e.g. planting in terraces and level curves, installing artificial capture, storage and filtration systems to eliminate run-off, promoting forced recharge) in degraded and compacted areas to improve soil hydration rather than deplete it. These technologies will be implemented to shift traditional methods, so that infiltration can occur naturally, and to promote a biological water reserve in the roots and leaves of specialized vegetation. The independent TAP notes that a statement regarding these technologies, explaining that they are very local and small, does not guarantee that there is no potential for negative side effects. Special monitoring measures should be implemented on the possible negative impact of small water-saving technologies' and at the same time the water balance of whole basin of underground water should be controlled. Monitoring of only individual technologies is not enough measure for assessing their negative or positive impact.

18. Performance standard 7 on "Indigenous peoples" states that "At the present stage of the project design process it is still not possible to identify which indigenous peoples' groups and communities will be targeted. This will depend on the geographic coverage of the project's interventions that, at the same time, will depend upon states' participation." <sup>7</sup> The independent TAP notes that the proposal does not confirm in general that these groups will definitely be involved. Special attention should be given by the Secretariat to this indicator of sustainable development in a baseline study, which should be provided before the second disbursement of the GCF proceeds. The funding proposal should ensure the equal participation of these most vulnerable stakeholders, which is a priority of the Government of Brazil.

19. The funding proposal contributes to the following sustainable development goals (SDGs):

- (a) Component 1 contributes to SDG 1 (end poverty in all its forms everywhere), which aims to ensure that, by 2030, all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including micro finance; and aims to build the resilience of the poor and those in vulnerable situations and

---

<sup>7</sup> The Northeast region, where the Planting Climate Resilience project will take place, is home to a total of 233,079 indigenous individuals (26 per cent of the total indigenous population), representing 80 indigenous peoples' groups.

- reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters;
- (b) SDG 2 (end hunger, achieve food security and improved nutrition and promote sustainable agriculture), which involves promoting sustainable agricultural, supporting small-scale farmers and equal access to land, technology and markets. It also requires international cooperation to ensure investment in infrastructure and technology to improve agricultural productivity;
  - (c) Component 2 contributes to SDG 6 (ensure availability and sustainable management of water and sanitation for all) by protecting and restoring water-related ecosystems; and
  - (d) Component 3 contributes to SDG 4 (ensure inclusive and equitable quality education and promote lifelong learning opportunities for all). Activities of component 3 particularly contribute to providing equal access to affordable vocational training, to eliminate gender and wealth disparities.
20. The independent TAP considers that, at this stage of assessment, the potential of the project to contribute to sustainable development is medium.

#### 1.4 Needs of the recipient

*Scale: High*

21. The information provided in the proposal and the feasibility study show that the semi-arid region of Brazil is one the most vulnerable regions in South America, even though Brazil itself is a 'medium risk' country according to the Climate Change Vulnerability Index<sup>8</sup>. The targeted area has a high incidence of long duration and severe droughts,<sup>9</sup> with the most severe recent drought cycle lasting 5 years (2011–2016).
22. Drought indices for the NEB<sup>10</sup> were analysed for 36 years (1981–2016<sup>11</sup>), using the standardized rainfall index and the vegetation health index, which are, respectively, a meteorological drought index and an agricultural drought index. The analyses showed that drought intensity has been increasing over the period. In particular, a comparison of two periods, 1981–1986 and 2011–2016 showed that the duration of meteorological droughts increased from 30 months to more than 50 months, the frequency of occurrence in the period increased from 3 to 5 times and the severity of droughts changed from 'moderate drought' to 'extreme drought' affecting a more substantial area (from 49 to 94 per cent of the NEB territory) with significant impacts for population, as well as economic activities. Arid conditions (which did not exist previously) have been observed during the later years of the period, mainly in the central semi-arid region, covering almost 2 per cent of the NEB.
23. Projections of future trends show that despite the rise of precipitation in the summer in some territories, the projected annual cycle shows a dominating annual reduction of rainfall in the NEB region accompanied by an increase in the number of consecutive dry days. The projections suggest that of the 595 municipalities under the risk of extreme droughts, 392 will be at risk of severe droughts and 306 will be at moderate drought risk by 2040.<sup>12</sup>
24. Studies assessing the impact of climate change on agricultural crops found that the seven main crops of Brazil are expected to be negatively impacted by climate change, with the

<sup>8</sup> <https://scioteca.caf.com/bitstream/handle/123456789/509/caf-vulnerability-index-climate-change.pdf>

<sup>9</sup> Brito SSB et al. 2017. Frequency, duration and severity of drought in the Semiarid Northeast Brazil region. *International Journal of Climatology*. 38(2): pp.517–529.

<sup>10</sup> As footnote 9 above.

<sup>11</sup> To compare different subperiods the whole period was divided into seven subperiods and assessment was done for each of them: 1981–1986, 1987–1992, 1993–1998, 1999–2004, 2005–2010 and 2011–2016.

<sup>12</sup> Marengo JA et al. 2019. "Increase risk of drought in the semiarid lands of Northeast Brazil due to regional warming above 4 °C." In: CA Nobre, JA Marengo and WR Soares (eds.). *Climate change risks in Brazil*. Springer International Publishing. pp.181–200. Available at: <<https://doi.org/10.1007/978-3-319-92881-4>>.

exception of sugar cane. From the information provided in the feasibility study on crop yields losses predicted for each region in 2030 compared with the base year (2009), for scenarios B2 (optimistic) and A2 (pessimistic) the Northeast is clearly the region most affected, with over 80 per cent loss of beans, maize losses anticipated at 50 per cent, over 40 per cent loss of soy, and rice and cotton estimated at 15–25 per cent loss.

25. According to the feasibility study, modelling of surface and groundwater supplies per water basin for NEB has demonstrated the alarming results of sudden-onset reductions in flows by 2100 in the river basins that supply the region: São Francisco, Atlântico Norte e Nordeste and Atlântico Leste. Such a scenario is of concern, given that NEB is already becoming drier and experienced a 7-year continuous cycle of prolonged severe hydrological droughts from 2011 to 2017.<sup>13</sup>

26. The needs of the country are well communicated in Brazil's nationally determined contribution (NDC). Brazil is committed to reducing GHG emissions to 37 per cent below the 2005 level by 2025 and, as a subsequent indicative contribution, to reducing GHG emissions by 43 per cent below the 2005 level by 2030. The Government of Brazil is also committed to achieving its NDC targets through eliminating extreme poverty and reduce inequality.

27. The funding proposal directly contributes to the NDC goal of restoring and reforesting 12 million ha (7 million ha of tree plantation plus 5 million ha of restoration) which will be accomplished by complying with its Native Vegetation Protection Law ("Forest Code"), and the subsequent National Plan for Restoration of Native Vegetation.

## 1.5 Country ownership

*Scale: High*

28. Priority and ownership of this proposal is confirmed by the Government of Brazil by its inclusion in the GCF country programme of Brazil.

29. In its NDC Brazil emphasizes that adaptation is considered fundamental to tackling the effects of climate change. Social considerations are at the core of Brazil's adaptation strategy, focusing on the need to protect vulnerable populations from the negative effects of climate change and to enhance resilience. Brazil's National Adaptation Plan aims to implement knowledge management systems to promote technology development for adaptation, and to develop processes and tools in support of adaptation actions and strategies at different levels of government. It should be further noted that Brazil is aiming to enhance its national capacity in water security (National Water Security Plan) and conservation and sustainable use of biodiversity (National Strategic Plan for Protected Areas, implementation of the Forest Code, particularly concerning protected areas).

30. The main national governance mechanism for climate change is the Interministerial Committee on Climate Change. Before beginning project implementation, the executing entity will contact the Interministerial Committee on Climate Change to present the project and liaise with federal and state implementation governance bodies for each of the sectorial programmes identified.

31. The proposal requests 83 per cent of the project costs as a senior loan, demonstrating the country's ownership and high priority for the project.

32. BNDES (one of the executing entities) supports a large portfolio of family farming, agroecology and water-access projects in Brazil, especially in NEB. It has supported installation of 24,600 cisterns in NEB states, and an additional 6,800 water cisterns are planned. BNDES is a

---

<sup>13</sup> Ribeiro Neto A, Rolim Da Paz A and Raimundo Da Silva E. 2016. "Impactos e vulnerabilidade do setor de recursos hídricos no Brasil às mudanças climáticas". In: Brasil. Ministério Da Ciência, Tecnologia e Inovação (eds.). *Modelagem Climática e Vulnerabilidades Setoriais à Mudança do Clima no Brasil*. Brasília: Ministério da Ciência, Tecnologia e Inovação. pp.189–240.

co-financer of the ECOFORTE programme. It has also supported hundreds of productive units for processing and commercializing agricultural products, mostly in partnership with state governments in NEB, and implementation of approximately 3,300 technologies for integrated and sustainable agroecological production and more than 500 small-scale community seed banks.

33. The extensive experience gained and lessons learned from previous BNDES and IFAD<sup>14</sup> projects that focused on strengthening family agriculture and climate-friendly social technologies in the targeted area demonstrate high country ownership and should ensure the project's results have long-term sustainability beyond the project period.

## 1.6 Efficiency and effectiveness

*Scale: High*

34. The independent TAP considers the financial and technical efficiency of this proposal to be high.

35. The funding proposal is requesting from GCF a USD 34.5 million grant to reduce GHG emissions by 11 MtCO<sub>2</sub>eq over the 20-year lifespan of the project (550,140 tCO<sub>2</sub>eq annually) and strengthen the adaptive capacity of 1 million beneficiaries, 0.47 per cent of the total population of Brazil and 6.7 per cent of the rural population of NEB. The independent TAP notes that the cost to GCF of USD 9 per tCO<sub>2</sub>eq reduced by the project (calculated based on requested grant) is not high, considering that the project is located in a region that is very vulnerable to the impacts of climate change. A 90 per cent of grant is allocated for component 1 for GHG mitigation through cross-cutting activities. The cost for the country, which is USD 15 per tCO<sub>2</sub>eq (calculated on the basis of loans amounting to USD 65 million from GCF, USD 30 million from IFAD and USD 73 million from BNDES) is also not considered as high, compared with the results that should be achieved and the anticipated contribution to Brazil's NDC.

36. The project budget distribution could be considered as efficient. In particular, the cost of the first component is 37.7 per cent of the total project cost and accounts for the highest share of GCF grant (91 per cent). This is the key component reducing GHG emissions and strengthening the resilience of local farmers. The second component accounts for the highest share in the total project cost (50.3 per cent). This component applies 65.3 per cent of the GCF concessional senior loan and is responsible for improving access to water for production through dissemination of various small technologies for rainwater harvesting, greywater reuse and water desalination. A 4.7 per cent of the project budget is allocated to component 3, which is dedicated to knowledge management and scaling up activities and results of components 1 and 2. The independent TAP considers that the project budget distribution is quite efficient, including the management cost which is USD 14.8 million (7.3 per cent of total cost) covered by the loan from BNDES and with the GCF grant at a share of 1.6 per cent, which is not considered as high.

37. Despite the fact that the current leverage of co-financing is not high (at a ratio of 1:1.04), the project expects to mobilize, in addition, approximately USD 15 million of in kind/cash parallel financing from beneficiary groups.

38. The planning, monitoring evaluation and learning system to be implemented by the project will consider the establishment of the baseline situation, demand-driven planning and management of the project using results-based monitoring. The independent TAP considers this approach as pre-requisite for ensuring high efficiency.

---

<sup>14</sup> IFAD is currently implementing six projects supporting the productive structuring of family farming and social water-access technologies covering 11 states, 9 of which are located in NEB.

39. The proposal explains that BNDES has a national influence and capacity to mobilize resources, disseminate lessons learned to other bank programmes and include CRPS projects in its lending portfolio, which should ensure the long-term financial sustainability of the process.

## **II. Overall remarks from the independent Technical Advisory Panel**

40. The independent TAP recommends this funding proposal for approval by the GCF Board with the following conditions:

- (a) Satisfaction of the following conditions prior to disbursement under the FAA:
  - (i) Prior to the second disbursement of GCF Proceeds, the Accredited Entity shall submit to the Fund, in a form and substance satisfactory to the GCF Secretariat, a comprehensive baseline study, which shall include, among others, (i) the risks related to the operation of small water technologies identified during the baseline assessment conducted by the accredited entity, (ii) the relevant risk mitigation measures, and (iii) a report on the level of involvement of indigenous peoples' groups and communities based on the geographic coverage of the interventions targeted by the funded activity.
  - (ii) Prior to the second disbursement of GCF Proceeds, the Accredited Entity shall submit to the Fund, in a form and substance satisfactory to the GCF Secretariat, a revised "Social, Environment and Climate Assessment Procedures" document which incorporates the relevant risk mitigation measures in relation to the risks identified during the baseline assessment conducted by the Accredited Entity.

## **Response from the accredited entity to the independent Technical Advisory Panel's assessment (FP 143)**

Proposal name:	Planting Climate Resilience in Rural Communities of the Northeast (PCRP)
Accredited entity:	International Fund for Agricultural Development (IFAD)
Country/(ies):	Brazil
Project size:	Medium

### **Impact potential**

IFAD agrees with the independent Technical Advisory Panel (TAP) that the direct adaptation and mitigation impacts of the funding proposal should be high. The project implementation arrangements call for the specific project intervention areas within the semiarid North East Brazil (NEB) to be defined during the first year of project implementation. Thus, project specific baseline statistics cannot be presented at this time. However, as acknowledged by TAP, climate vulnerability conditions are applicable to all semiarid NEB States eligible to participate in the project. Upon the selection of the participating States, IFAD, BNDES and the States will apply clear eligibility criteria, as defined in the Funding Proposal, to ensure the most vulnerable areas and people are targeted within each State, thus ensuring a high impact of PCRP. Baseline data will be collected and presented to the GCF accordingly.

### **Paradigm shift potential**

Historically, the Government has dealt with droughts in NEB by implementing large-scale infrastructure projects such as large dams, extensive well drilling programs and, more recently, the transposition of the San Francisco River. This is the first time the Government, together with the national development bank BNDES, is willing to undertake a loan operation to implement a nature-based solution at scale. This is a flagship response to a climate change adaptation problem in NEB, which implies a significant change in approach. Although there are pilot programs in NEB successfully implementing agroforestry systems, a multi-State operation to increase resilience at scale is a new concept in the country. Thus, IFAD believes the paradigm shift potential to be high.

### **Sustainable development potential**

PCRP aims to increase production while improving the most vulnerable peoples' autonomous capacity to face the challenges posed by ongoing climate change. The project tackles the main barriers that limit an increased resilience, and drives development towards a more sustainable pathway by increasing and stabilizing family income and food security, transforming productive systems, and incentivizing young generations to stay active in rural activities. The project applies IFAD's historical expertise in targeting the poorest and most vulnerable population, and is built around the principle of social inclusion. Furthermore, the

project promotes affirmative actions for the participation of women, youth, and indigenous and traditional communities.

Water management investments considered in PCRP are evaluated as low risk technologies according to IFADs "Social, Environmental and Climate Assessment Procedures (SECAP)", particularly guidance statements 7 and 8. The project will revisit this assessment as requested by the TAP.

**Needs of the recipient**

IFAD acknowledges ITAPs assessment and fully agrees with the evaluation.

**Country ownership**

IFAD acknowledges ITAPs assessment and fully agrees with the evaluation.

**Efficiency and effectiveness**

IFAD acknowledges ITAPs assessment and fully agrees with the evaluation.

**Overall remarks from the independent Technical Advisory Panel:**

IFAD thanks the TAP for its recommendation and confirms the conditions are implementable.



## **Brazil**

---

# **Planting Climate Resilience in Rural Communities of the Northeast (PCRP)**

Gender Assesment and Actiona Plan

GCF Additional Financing

July 2020

# TABLE OF CONTENTS

<b>1. Introduction .....</b>	<b>1</b>
<b>2. Context of the conditions rural women face: gender-based social inequalities in the Brazilian Semiarid.....</b>	<b>3</b>
<b>3. Guiding concepts on gender in the context of socioenvironmental projects ..</b>	<b>5</b>
<b>4. PCRCP's gender action plan: strategies and approaches.....</b>	<b>8</b>
4.1 Phase I: Diagnosis focused on gender inequalities in the scope of PCRCP.....	8
4.2 The gender action plan: guiding principles and operational forms.....	9
<b>5. Detailing the project's gender action plan .....</b>	<b>11</b>
5.1 Some considerations about the approach selected.....	11
5.2 The main lines of action to be included in the gender action plan.....	12
<b>5.2.1 Guaranteeing female representation (at least 40%) in technical teams and target populations .....</b>	<b>12</b>
<b>5.2.2 Consolidating partnerships with reference organizations working in gender issues and adopting a feminist approach.....</b>	<b>12</b>
<b>5.2.3 Definition of guidelines for educational activities with a gender focus on rural women.....</b>	<b>12</b>
<b>6. GENDER ACTION PLAN: “PLANTING CLIMATE RESILIENCE IN RURAL COMMUNITIES OF THE NORTHEAST” (PCRCP) .....</b>	<b>19</b>
<b>OUTPUT 1.1: APPLICATION OF CRPS IN FAMILY FARMS, BACKYARD GARDENS, SCHOOLS, BIOSALINE PRODUCTION, ENTREPRENEURSHIP AND FARMERS’ NETWORKS .....</b>	<b>19</b>
<b>OUTPUT 2.1: Improve water access to family farmers and traditional communities by investing in small-scale technologies for harvesting, reuse, treatment and storage .....</b>	<b>23</b>
<b>OUTPUT 3.1: CRPS and small-scale water harvesting system disseminated in the NEB semiarid and abroad to increase climate resilience of vulnerable communities.....</b>	<b>24</b>
<b>7. References .....</b>	<b>28</b>

# GENDER ASSESSMENT:

Planting climate resilience in rural communities of the Northeast (PCRP)

---

## 1. Introduction

Women are more vulnerable to the effects of climate change since they constitute the majority of the world's poor and have been historically socialized to take care of natural resources, which are increasingly threatened by precarious environmental conditions. Disasters and climate-change-related crises have been happening more frequently over the last decade, and it is evident that their impacts are disproportionately felt by those socially excluded and living in poverty. Thus, women and children have 14 times more probability of dying in climate-related disasters than men.<sup>1</sup> Moreover, the lack of resilience of people dealing with such catastrophes is exacerbated by inequality.

Research indicates that women and young girls living in rural areas of Brazil's Northeast, the project's target region, are the most vulnerable to climate change-related risks in the country (CEPAL 2016). They also face social, economic, and political barriers that limit their capacity for adaptation, as they have no access to effective and lasting policies and programs that address socioenvironmental adversities. Despite the strengthening of the women's movement's organizational power in Brazil, especially in the last 15 years, the lack of gender-transformational policies attentive to women's needs and other gender issues is notable in climate-change mitigation and adaptation initiatives. Research has proven that the only efficient way to combat climate change is by improving the resilience of those living at risk, such as women. The project "Planting climate resilience in rural communities in the Northeast" (PCRP) takes this into serious consideration.

Socioenvironmentally the most vulnerable groups (women, young people, and traditional communities) have been able to lead changes to overcome hardships they face. These initiatives should be fostered by the actions proposed in the PCRP Action Plan. For example, studies show the important role that non-timber forest products (NTFPs) (such as medicinal plants, animals, fruits, etc.) play in adaptation to climate change. In all countries, women often engage in collection / sale of NTFP products for subsistence when other income-generating activities are not feasible.

Research studies have shown on rural farms, mostly it is women who are the ones engaged in agroecological transition. They introduce innovations in productive arrangements, which in many cases leads to intra-family conflicts, usually due to the resistance of men (husbands and children) to change to new models of agricultural production initially perceived as more expensive and less profitable. Women are often the first to coordinate productive processes in the logic of diversification, seeking ways to plant "a little bit of everything" in a variety of ways within different productive agricultural spaces and to seek sustainable practices that do not harm the environment and make full use of local resources.

As set forth in CEDAW<sup>2</sup> General Recommendation No. 34, while women have played a traditional role as managers of natural resources, State parties often fail to acknowledge the

---

<sup>1</sup> For further information, see: "The South Asia Women's Resilience Index: Examining the role of women in preparing for and recovering from disasters." Economist Intelligence Unit, 2014 (available at: <https://www.gdnonline.org/resources/The%20South%20Asia%20Women%27s%20Resilience%20Index%20Dec8.pdf>).

<sup>2</sup> The Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) was adopted by the United Nations General Assembly on 18 December 1979, and entered into effect on 3 September 1981. It consists of a preamble and 30 articles, 16 of which identify substantive rights that must be respected, protected, guaranteed and promoted by the signatory State parties.

role of rural women and girls in unpaid work, their contribution to the Gross Domestic Product and, therefore, to sustainable development. It can be seen that women are generally excluded from processes and decisions on use and management of natural resources and territories. Participation of rural women in positions of political and social control in the field of environmental policies and agricultural development – all of which grew and intensified as a result of Brazil democratization process – has always been neglected. According to the *Forests and Gender*, published by the International Union for Conservation of Nature (IUCN): "As most of the world's biodiversity inhabits fragmented landscape mosaics outside protected areas, women and other community members who manage and use forests for a range of land-uses must also be considered as primary stakeholders" (Aguilar et al., 2011, p.22). The PCRP project is based on the following assumption: Women should be considered "stakeholders" (parties involved / engaged) in management plans for non-timber agricultural activities. They play a vital role in promoting innovations in technology / methodology in sustainable agricultural systems that are resilient to climate change.

International agreements on women's human rights have made real progress in recent decades in acknowledging the multiple and diverse inequalities women experience, especially women in rural areas and women who belong to traditional communities (indigenous, fisherwomen, Afro-descendants). Some documents that address the inequalities rural women experience include the Beijing Platform for Action and the UN Committee on the Elimination of Discrimination Against Women.

It is also important to emphasize the organizational strength of autonomous rural women's organizations and movements in Brazil as a response to the lack of inclusion of rural women's agendas in rural workers' organizations, such as the Rural Women Workers Movement of the Northeast (MMTR-NE); the Movement of Women Farmers (MMAs), and then, under the name of the Movement of Peasant Women (MMC) integrated into the Via Campesina; and the Babassu Coconut Breakers Interstate Movement (MIQCB). In 2004, these women's movements and organizations held a productive dialogue with the State, and the Program for the Promotion of Gender, Race, and Ethnicity (PPIGRE) was created in the Ministry of Agrarian Development (MDA) to identify and address issues related to rural women and their interface with socio-environmental issues. From 2004 to 2015, significant progress was made in women's productive organizations, such as the Technical Assistance (ATER) Women policy, which set some important standards for building rural women's leading role in different regions of Brazil.

The PCRP project presents a unique opportunity to leverage significant changes in the socioenvironmental field based on contributions by rural women. Rural women are not only indirect beneficiaries who benefit due to their belonging to the family nucleus, they are also protagonists who make valuable contributions in proposing and implementing strategies and actions.

In this gender assessment report, the first part will look at the precarious social situation that is the daily life of rural women in the Northeast region of Brazil, where the actions of the project will be implemented. The project will prioritize the difficulties and aspirations expressed by rural youth, a neglected segment in rural areas, so the issues affecting young rural women in particular will be underscored. The project will also aim to prioritize the needs and demands of "traditional communities", in such a way that gender issues are focused on in conjunction with racial and ethnic factors. The project's focus on young women and traditional communities is manifested in the proposed action plan.

In the second part, a detailed action plan will be prepared in the gender field, to be implemented in the beneficiary area during the project's life cycle. As a strategic action that

integrates the first phase, a specific study on rural women's social position, their relationship with the environment, and their demands in two main areas – access to water and practices in resilient productive systems – will be prepared. This study carried out through a participatory diagnosis will provide a basis for other strategic actions included in the Gender Action Plan as well as for the monitoring process.

## **2. Context of the conditions rural women face: gender-based social inequalities in the Brazilian Semiárido**

Brazil continues to be one of the countries with the highest inequality rates in the world, and women in particular are affected. Recent research (2007) by the United Nations Development Program (UNDP) shows that although 27% of the urban poor in Brazil have managed to escape poverty in the last ten years, the remaining 73% have stagnated in a situation of chronic poverty. Among those more prone to chronic poverty are people with less education, the Northeast population, and informal workers. Among these groups, women are the poorest and most vulnerable.

In the Northeast, the number of families with women heads of household (families in which the leading provider is the woman) is increasing. In 2004, 32% of households were led by women, with the aggravating fact that 60% of these women did not receive any support from the fathers of their children. This reality illustrates the complete inequality of gender relations in terms of responsibility for future generations. In most states, heads of households are generally black women (FUNDAÇÃO CARLOS CHAGAS, 1998).

Half the population of the Northeast Semiárido region (more than 10 million people) have no income or only government assistance as their single source of income, and 59.5% are women (INSA, 2010). More than five million people (31.4%) earn below the minimum wage; 47% are women. About 5.5% of the population in this area earn an income two to five times above the minimum wage, the majority of these (67%) are men; and of the 0.15% of the area's population with income 30 times above minimum wages, only 18% are women (IBGE, 2000). In rural areas, only 5% of women's income is derived from agriculture. In contrast, the largest source of income for extremely poor men in rural areas comes from agricultural activities (85% earn their wages from agriculture).

Although rural women produce from 60–80% of food in developing countries, they have less than 2% of available land (FAO, 2011). Men presently control 87.3% of rural properties in Brazil and 94.5% of the country's total rural area (OXFAM, 2018). According to *Terrenos da Desigualdade* (2016), of the total number of rural farmers without land, there are almost twice as many women as men. The majority of farmers producing in areas <5 hectares are women, and 87.3% of women farmers in Brazil do not have access to technical assistance services (OXFAM, 2016).

According to census data (IBGE, 2014), 45.5% of rural women are inserted in the labor market, compared with 72.2% of rural men.<sup>3</sup> By analyzing this data, it is essential to consider that, when engaging in domestic activities in a rural property, which is also characterized as their home, women have less opportunity and time to enter the labor market, unlike men, who tend to spend a few hours per week working in the productive sphere. According to the national household sample survey (PNAD, 2013), the majority of rural women (90.8%) devote 26.1

---

<sup>3</sup> "Data indicate that 54.5% of rural women are not in the labor market, so they are soon characterized as 'unemployed,' since they are not in the formal market and their production does not enter into the accounts. However, its agricultural production corresponds to another type of economy: the economy of the fair, trade, solidarity economy and even donations" (JALIL et al., 2017, p.64).

hours per week to domestic work, while 43.1% of men dedicate only 10.2 hours per week to this type of work (JALIL et al., 2017, p.64).

Approximately 46.7% of rural women are involved in subsistence agricultural activities in Brazil, compared to 14.0% of rural men (IBGE, 2009). The most common types of farming activities in which rural women are engaged include: bird breeding (73.5%); mixed crop / livestock production (72.3%); horticulture / floriculture (63.0%) (IBGE, 2009). Conversely, among men, paid employment is predominant in almost all agricultural activities. Less than one third of the people in subsistence and unpaid activities are men. This data is crucial because it reveals women's greater participation in unpaid, subsistence, agricultural or non-agricultural activities. Clearly a wide range of women's contributions are not recognized as work and therefore are not accounted for in the market logic that governs the hegemonic concept of economics. The density of women's economic life and daily work is made invisible by the fact that most transactions and actions are not monetized or calculated for their insertion in formal markets. Although women participate in productive dynamics, working in almost all tasks of the property, they are generally excluded from decision making about resource, jeopardizing their personal and financial autonomy (SILIPANDRI; CITRÃO, 2011).

At the same time, in terms of economic initiatives of rural women, the National Mapping of the Solidarity Economy, which made up the National Information System on Solidarity Economy (SIES), implemented by the Federal Government, revealed the strong presence of rural women in economic practices that are outside the mercantile economy. It also points out the diversification of arrangements created by women for economic purposes. A study of productive rural organizations for women conducted in 2011 identified almost 800 groups composed exclusively of women and more than 9000 organizations made up of women producing handicrafts, plants, and benefitted foods, as well as providing services (FARIA, 2011). In the second stage of the mapping, conducted between 2009 and 2013, a total of 19,708 organized enterprises were identified, distributed across 2713 Brazilian municipalities (SILVA; CARNEIRO, 2014), more than half in rural areas (GAIGER, 2012). These mappings revealed that "women work proportionately more than men and run a considerable percentage of enterprises, illustrated by their greater community and social involvement" (GAIGER, 2012, pp. 19–20). This set of data and research shows that in all regions of the country, contrary to many political arguments, women are involved in economic processes, sometimes engaging more than men in productive activities. Women produce for subsistence while seeking ways to qualify their capacity for productive organization, seeking their insertion in local and regional markets. Yet, although in many enterprises women have a leading role in management processes, there are several weaknesses and gaps in their organizational processes that keep their products from achieving insertion in the formal market. Most ventures are informal, with little access to legal procedures. Other common problems are operational and structural, such as lack of working capital, difficulty in ensuring improved products and their distribution, and obstacles that prevent them from finding means of transportation to sell their products.

Women are more directly affected by climate-change impacts, particularly droughts and floods, which have severe repercussions for food and nutritional health and safety. In many developing countries such as Brazil, women are primarily the ones responsible for the search, management, handling and storage of water. In this context, extreme situations involving water deprivation due to prolonged droughts (as is the case in the semiarid region of Brazil) can lead to an increase in their workload. When water is scarce, women are the ones who must travel longer distances to look for water sources, carrying water in pots or cans for long distances, so that they put their safety at risk or spend hours waiting in line at the water-tank truck. Therefore, gender inequality is revealed in water resources management, conditions that are aggravated

by erratic climate patterns. Survey data show that as natural resources (such as water) become scarcer, women's participation in resources management activities significantly increases.

In looking at the advances and setbacks in the field of public policies, it can be observed that during the period 2004–2016, many advances were made in rural public policies and programs; policies such as ATER, credit and public procurement, although targeted to the broader public of family agriculture, have adopted specific strategies for inclusion and support for agroecological production and marketing of rural women's production. For instance, in the case of the Food Acquisition Program (PAA), in 2012, contracts with women (as holders) accounted for 35% of the total, which grew in the next period. Resolution 44 of 2011 stipulated that 5% of the PAA's annual budget should be allocated directly to women (or mixed groups with at least 70% women). It also resolved that at least 40% of participants in the modes of Purchase of Family Agriculture with Simultaneous Donation and Local Direct Purchase with Simultaneous Donation should be women, and 30% in Stocks for Family Agriculture and Incentives for Production and Milk Consumption.

Since 2016, all previously established policies aimed at reducing social inequalities have suffered serious setbacks, leading to precariousness conditions currently experienced by women in rural areas. Policies on women's rights were cut to minimum functioning levels; there have been cuts in policies and social programs such as *Bolsa Família* and PAA, and no new ATER calls for women were issued. In this complex scenario of setbacks in public policies and services, the PCRFP faces the challenge of providing inputs for construction of mitigation and adaptation policies in the face of climate change, while at the same time contributing significantly to improved living conditions for rural women.

### **3. Guiding concepts on gender in the context of socioenvironmental projects**

To guarantee transformations in gender balance in social relations, in addition to increasing empowerment of women, a crosscutting treatment of gender is needed in social projects, programs, and policies. The notion of gender mainstreaming in social projects, programs, and policies presupposes that gender permeates every aspect of all project cycle, from design to implementation and monitoring. The assumption is that gender must be intrinsic to the project's structure, reaching every aspect of the action plan, from activities programmed with beneficiaries to the monitoring and evaluation system. From this perspective, the project is committed to a crosscutting approach to gender, based on the understanding that it is not a mere addition or factor, but is intrinsic to the very structure. For the project to attain its goals depends on this gender-centered perspective. Also, gender should ideally be tackled with an inter-setorial approach to social inequalities, through a deep understanding of its connection with race and ethnicity.

Some lessons learned from a gender diagnosis conducted with six IFAD-supported projects in the Northeast semiarid region in December 2017 should be taken into account so that this project can incorporate the gender approach transversally in its goals, strategies, and actions. In most projects analyzed, the importance of prioritizing rural women as beneficiaries was clear. It was important to include targets indicating minimum rates of women's participation, in both the public benefited by the actions and in the technical team. Although specification of minimum participation numbers for segments considered to be more prone to situations of social exclusion (such as women) is an important measure, it is not sufficient and cannot be confused with an effective and cohesive implementation strategy that aims to overcome social inequalities. Therefore, affirmative measures can be understood as initial steps

in a more encompassing and comprehensive approach. To truly ensure the mainstreaming of gender in a project, it is crucial to ensure compliance with some of the conditions listed below:

1) Projects that have one or two specialist(s) / consultant(s) in gender as part of the technical team undoubtedly tend to achieve more significant advances. Without such an expert, it becomes much more of a challenge to ensure that this approach gets incorporated into the action plan. However, regardless of the arrangement of the project in question, there must be continuous investment in gender-transformational training processes for members of the technical and administrative teams to enable them to have a gender perspective when working with the target audience.

2) Building partnerships with gender-based organizations (preferably with a feminist approach) facilitates incorporation of the theme institutionally since these organizations can provide methodological approaches that support local and regional processes.

3) Strategies and actions for gender equality and women's empowerment must be funded in the budget, through allocation of resources in specific expenditure categories. This way, it is possible to guarantee affirmative actions in socio-environmental projects, as significant steps for achieving women's autonomy in the respective groups.

4) When possible, setting up an inter-institutional social oversight unit to monitor the actions implemented from a gender perspective, gender mainstreaming approach at the institutional level will be assured.

## **INNOVATIVE EXPERIENCES IN GENDER TRANSFORMATIVE APPROACHES AND THEIR RESULTS**

<b>MAJOR PROBLEM TACKLED</b>	<b>INNOVATIVE EXPERIENCE(S) IN GENDER TRANSFORMATIVE APPROACHES</b>	<b>RESULTS/ IMPACTS</b>
-The invisibility of women's skills and knowledge in the promotion of sustainable and innovative agricultural, productive and extractive practices.	-Investment in productive enterprises led by women, such as arts & crafts and processing of agricultural products, as well as backyard gardens and social technologies for water access (cisterns), grey water reuse and ecological stoves. -the creation of strategies that will promote women's engagement in applying renewable technologies and sustaining the knowledge management process generated from their use.	--Women's groups created in rural territories, 85% of which are focused on productive income-generating (agricultural and non-agricultural) activities. -Women trained in tasks and technological equipment (cisterns, etc.) that are traditionally considered to be "men's jobs", in such a way that they become reference points/ local leaders in the application and experimentation of diverse renewable and sustainable technologies. - Up to 50% of women participating in or taking leadership in agroecological or agroforestry initiatives. -40% of rural women Projects' beneficiaries involved in preparing and selling agroecological products (processed and "in natura") in

		<p>community-level, municipal and regional Markets.</p> <p>-A greater diversity of markets being accessed by women-led community enterprises.</p> <p>-Links with public policies, especially those which are favorable to rural women, such as PAA and PNAE (for institutional purchases), have been established.</p>
<p>-Difficulties encountered in existing Project monitoring &amp; evaluation systems for effectively registering and monitoring the impact of women's agricultural production on food and nutritional security, income and agro-biodiversity in the Semiarid region of 7 Northeastern States.</p>	<p>-The introduction of the use of agroecological logbooks to capture the economic, social and environmental contributions women make to their households in the 6 IFAD projects.</p>	<p>-Implementation of agroecological logbooks with a total of 879 rural women beneficiaries and the creation and strengthening of a total of 80 self-organized women's groups involved in the use of these instruments in rural communities of 7 Northeastern states.</p> <p>- Analysis of diverse types of information generated by ALs, in accordance with a wide array of social and economic indicators that are integrated within the M &amp; E systems of the six projects.</p>
<p>Heavy workloads of rural women due to multiple tasks in spheres of agricultural production and social reproduction</p>	<p>-Initiatives that alleviate women's responsibilities with child-care and domestic tasks, such as the development of a methodology for "child-care circles", in which local leaders are trained to facilitate educational activities for young children that take into account themes linked to social and environmental sustainability.</p> <p>-Introduction of labour-saving technologies in the IFAD Projects, such as eco-efficient stoves.</p> <p>-Involvement of 3 of the 6 projects in activities linked to the "Campaign for Equal and Just Division of Domestic Labour" directed towards rural women and coordinated by the Northeastern Network of Feminism and Agroecology.</p>	<p>-An improvement in up to 60% of women's level of participation in Project activities due to initiatives for sharing/ socializing care-work responsibilities (such as child-care);</p> <p>- The strengthening of leadership qualities, as community members – 60% of whom are young women - who are interested and committed to this action are selected for trainings in the methodological approach for "Child-care circles" and act as "child care workers" during project activities;</p> <p>-The experimentation of a diversity of labour-saving technologies adapted to the conditions of the Semiarid region have been implemented, with clearly proven positive impacts on rural women's workload.</p>

<p>The limited capacity of technical work teams to internalize the perspective of "social inequalities" (gender, race, and ethnicity) and apply it in their interventions.</p>	<ul style="list-style-type: none"> <li>- Sensitivity-trainings on gender-mainstreaming directed towards technicians of Project team and members of partner organizations;</li> <li>- The creation of a committee for Gender mainstreaming within 5 of the 6 Projects, made up of staff in the Project Management Units and technical service providers, with the purpose of monitoring the implementation of the gender strategy and action plans.</li> </ul>	<ul style="list-style-type: none"> <li>-Participation of representatives of organizations (up to 80%) that offer technical assistance services in the scope of the project in trainings and workshops focused on issues of gender, race and ethnicity, with the purpose of creating a more thorough approach to technical assistance services, which includes a gender focus.</li> <li>- Gender, race and ethnicity specialists acting as focal points in the Project Management Units to aid the inclusion of gender equality actions within strategies in each one of the Project's components.</li> <li>-Incorporation of criteria concerning sensitivity to gender issues and proven experience in the field in 60% of Project team professionals' contracts and work "terms of reference";</li> <li>-Recruitment of women as professionals (up to 40%) as an affirmative action in Project TA teams.</li> </ul>
--	---	--

#### 4. PCRPs' gender action plan: strategies and approaches

##### 4.1 Phase I: Diagnosis focused on gender inequalities in the scope of PCRPs

The gender mainstreaming in a project with a socioenvironmental focus starts with diagnostic and research actions that are generally carried out in the first phase of project execution. From the survey and analysis of information about the aspects that interfere in the social condition of women and men in the sociopolitical and socio-environmental contexts in which the project is implemented, it is possible to build the foundations for a consistent and coherent action plan, aligned with the logical framework. To be effective, this action plan must guarantee the empowerment of women through two channels: 1) greater access to and control of resources and services; and 2) greater access to opportunities and capacity building.

Thus, gender analysis should be a starting point for the preparation of an intervention plan that will address the social vulnerabilities experienced by women as well the potentialities of coping with gender inequalities. This qualitative diagnosis will be a complementary source to the information generated by the baseline study, most of which is grounded in quantitative indicators. It will be carried out by the technical assistance teams through a participatory methodology called Participatory Rural Appraisal, a set of techniques and tools that allow the social groups themselves to be both informants and executors so that they manage planning and development. Consultations with stakeholder institutions will complement the information generated in the diagnostic phase and based on other studies carried out by research centers, academic institutions, and multilateral agencies.

A caveat should be made here, concerning the diagnosis to be carried out in the first phase of the project. The main objective of this diagnosis is to identify the structural and cultural factors that facilitate or hinder the participation of women in socioenvironmental processes, especially in terms of women's access to goods, and monetary and non-monetary resources. According to studies by Moser and Satterthwaite (2008) and Carmen Deere (2002), both the level of social vulnerability and ability to adapt to adverse and precarious situations depend on the degree of access to resources, assets, and inputs (material or non-material). Research conducted around the world reveals that women tend to have limited access to inputs and resources (physical, financial, human, social, and natural), which undoubtedly represents a significant impediment to their process of social, economic and political autonomy.

Thus, a reference plan should guide this initial diagnosis, so that gender-based social disparities can be revealed, showing the different priorities of men and women; their capacities, skills, abilities and restrictions in the various productive activities; their access to and control of various types of resources; and their influence in the decision-making processes in the various collectives in the family and community. This conceptual framework, which serves as the project's backbone, will include the following dimensions: (i) access to and control of resources (human, social, natural, and economic); (ii) access to and control of benefits (monetary and non-monetary); (iii) decision-making; (iv) job title / division of tasks; (v) welfare (health, gender violence, among other factors). This last factor mentioned – women's welfare and well-being, which includes the complex issue of violence - must be taken into consideration in this initial diagnosis and in strategic actions to be carried out in the Gender Action Plan, given the increase in violence against women on a nation-wide level, especially in rural sectors, during the period of social isolation since the onset of COVID-19

Use of participatory techniques that are part of the Rural Participatory Appraisal is indicated to facilitate participation of various social actors and provide a multifaceted perspective on the topics addressed. The methods will be custom-tailored to respond more sensitively to the issues faced by rural women. In general, we recommend prioritizing the mappings of spaces (map, flowchart) and visualizations of temporal cut-outs (Timeline, River of Life, etc).

#### 4.2 The gender action plan: guiding principles and operational forms

The action plan will be prepared based on the results gathered in the Rural Participatory Appraisal mentioned above, to overcome obstacles and stimulate the gender potentialities that are identified in the field of social relations and that fall within the several dimensions that make up the conceptual framework. In the intervention strategies outlined in the action plan, the project team should seek greater integration between the five dimensions of the conceptual framework.

The action plan will be built on some assumptions, detailed below. The project aims to stimulate sustainable agricultural practices that value the knowledge and skills of rural women, contributing to their autonomy and social, economic and political resilience. In this sense, the project will seek the social and productive inclusion of women taking into account the specific features of their identities and occupation in the different territories, as farmers, *gerazeiras*, *ribeirinhas* and fishers, which involve different ways of relating to the land and natural resources according to each socioenvironmental context. Any strategy focused on reducing gender inequalities is linked to the recognition and appreciation of women's knowledge and skills in sustainable use of natural resources and aims at empowering women so they can make decisions about the management of available resources. The project should also adopt measures

to encourage women's participation in management and social control spaces, such as Food and Nutrition Security Forums and Councils, Territorial Commissions and Rural Development Committees, so they can focus on designing and monitoring policies that promote access to land, credit, and technologies adapted to the semi-arid context for production and commercialization.

Implementation of the action plan in the field of gender should be guided by the following prerequisites, criteria, and questions:

- Which groups (directly or indirectly) do the project's actions target and what is the composition of these groups?
- What is the composition of families that are part of the social fabric in the beneficiary communities and how can the power relations inherent in the family environment be characterized?
- How do effects of the themes addressed by the project differ for men and for women?
- Does the project help open possibilities and opportunities that combat gender inequalities?
- What are the capacities of the beneficiary women that can be channeled to advance the achievement of project goals?
- What should the methodological approach in planned actions be in order to facilitate participation of rural women, especially women in traditional communities?

It is essential to point out that a gender strategy is operationalized through construction of a gender action plan that does not exist in isolation, but which has the task of dialoguing with all project aspects, integrating the overall planning of the executing agency and the evaluation & monitoring mechanisms. The M&E system should not only ensure the collection and analysis of disaggregated indicators but also a balance between quantitative and qualitative indicators, since qualitative indicators are better able to capture changes in social relations<sup>4</sup> by verifying shifts in the unequal power relations in different spheres. Throughout the project implementation cycle, evaluation meetings on gender-related impacts and women's empowerment should be held. These periodic evaluations should be incorporated into the project implementation report, midterm report, and final evaluation.

At the start of the project implementation cycle, the information collected in the baseline<sup>5</sup> will be essential for constructing the monitoring plan, with special attention given to incorporating the gender perspective into the tools and methodological approach. It is also important to analyze inputs and outcomes from the gender perspective. And gender-specific budget allocation will ensure specific actions that strengthen the performance of rural women and contribute to a more even balance between the productive and reproductive fields in the exercise of their functions.

A planning / monitoring / systematization / evaluation system must be established, in order to verify changes in the functions carried out by rural women in promotion of sustainable practices and their degree of political, social and economic autonomy. In the first two to three years of the project implementation cycle, the young communicators and social communication / knowledge management advisors must seek an alignment between materials produced with indicators aimed at measuring changes in gender roles and social relationships in the monitoring

---

<sup>4</sup> "Qualitative indicators" are indicators that express variables or dimensions that cannot be expressed by numbers only, such as: "increased self-esteem," "leadership capacity" or "changes in attitudes and behaviors," among others. While an indicator may help identify the quality of female participation, it can bring with it the difficulty of verification (WEITZMAN, 2006).

<sup>5</sup> The purpose of the baseline study is to identify the ground-zero situation of target populations, that is, the starting point to which modifications will be compared. Information from the field will be compiled in a data verification system and analyzed through a rigorous system of statistical analysis.

system. The production and dissemination of materials that highlight good practices in the field of gender social relations will undoubtedly be an interesting way of showing progress in meeting the indicators both for the public served internally by the project and for public managers and representatives of institutions that are associated with the themes that guide intervention proposals.

## **5. Detailing the project's gender action plan**

### **5.1 Some considerations about the approach selected**

The pedagogical approach to be adopted in educational and organizational activities incorporates a feminist perspective, which focuses on the sexual division of labor and its repercussions on various dimensions of social reality. The project's training processes aim to make the beneficiary population aware of this often-ignored fact: the overall domain of "care" is housed by the term "domestic work" or "reproductive labor," referring to unremunerated work, while work activities that generate value in the market (according to the postulates of economic sciences) are framed as components of "productive work." The project seeks to unveil the artificial separation between "productive labor" and "reproductive labor," showing that they are inseparable in women's lives and should both be valued accordingly, although currently a social hierarchy exists between the two.

The focus on "sexual division of labor" is concern not only with fostering greater engagement of women in "productive" processes but also with promotion of the concept of "care" work, to help beneficiary women avoid too oversized workloads. In an IFAD-supported project in the semiarid region of Bahia (*Projeto Viva Semiárido*), it is worth highlighting a pilot experience that is beginning and appears in the design of the *Ciranda das Crianças* project. The intervention is not limited to affirmative action enabling participation of women in the pilot activities, but encompasses other dimensions, all of which have been approached by the project's gender advisor in a progressive way, namely: (i) retrieval and appreciation of games that were common in previous generations; (ii) training children as future citizens with awareness of the importance of gender equality in relations; (iii) training women to play the role of *cirandeiras*, becoming local and regional references.

Regarding the methodological approach employed, it is essential to make some considerations. Workshops and meetings generally use a methodological approach that allows externalization of feelings from the sharing of life experiences, which results in greater awareness of one's social condition and consolidation of self-organization processes. The process of informal education is dialectical and complex and should contribute to appropriation of subjects -- not only techniques but also understanding of social and power relations in which the different subjects are involved in multiple dimensions: social, political, economic, cultural. Among the educational activities, the PCRCP emphasizes exchanges that are inspired by "peasant-to-peasant" methodology, based on the enriching learning that comes from practice, knowledge sharing, and recognition that examination of different realities is an essential factor in social change. In this methodology, organized rural women speak to women in the newly formed groups about their organizational process and what were the difficulties, advances, and changes experienced in the family and community. Such exchanges will strengthen the role of women fostering the proposal and experimentation of innovative methodologies and technologies aimed at social and environmental sustainability.

## 5.2 The main lines of action to be included in the gender action plan

### **5.2.1 Guaranteeing female representation (at least 40%) in technical teams and target populations**

In order to adopt a gender-transformational approach to rural development, at least 40% of the technicians hired to provide technical assistance in the communities (including "experimental farmers" or "local talents") should be women, which will facilitate their protagonism in planned actions. In courses, meetings, and exchanges planned in the project, an effort will be made to maintain a balance between men and women in the target audience. The proportion of 40% of women will be more easily maintained in the *cirandas* initiative for child care during the planned activities. With regard to CRPS, it is important to ensure that at least 40% of family farms rely on women and young people to hold the leading role in the implementation cycle.

### **5.2.2 Consolidating partnerships with reference organizations working in gender issues and adopting a feminist approach**

Building partnerships with local gender-oriented organizations should be fostered as a way to help incorporate the gender approach with a feminist perspective in the TA system, once these organizations can provide methods and tools that support local and regional processes.

Therefore, one of the project's first steps is to map the potential partner organizations in the scope of the project at the level of each State to support implementation of the gender strategy, under coordination of the contracted gender advisor(s). These reference organizations that will act in the dynamics of each PMU and should also be represented on the project's steering committee so that they can contribute to the global monitoring of strategies and actions.

### **5.2.3 Definition of guidelines for educational activities with a gender focus on rural women**

Implementing affirmative actions that ensure the autonomy of women -- both in terms of technical assistance and capacity building, through educational activities and encouragement of participation in public policies spaces -- is an essential step for transforming gender balance in social relations in all spheres: family, community and society. To follow this path means to strive for a better quality of interventions, so that rural women can participate fully in the processes, exercising their citizens' rights, without entailing the overload of tasks. There must be measures in this project to guarantee the availability of care work, a work that fits the field of "social reproduction" and which plays a primary role in sustaining productive work, since these two fields of social and economic life are inseparable.

In addition to guaranteeing training opportunities for women (to encourage the process of self-organization), it is essential to support training opportunities involving mixed groups that address gender issues so that men gradually become aware of the importance of gender equality in their daily lives. Therefore, in the scope of the proposed exchanges and territorial meetings, a crosscutting gender approach should be incorporated into the overall thematic approach.

The following section presents the specific lines to be explored in this field of actions focused primarily on rural women:

### *5.2.3.1 Specific training activities for rural women in technological innovations*

Through training and capacity-building workshops, women will gain greater control over resources – material, intellectual and financial – in a context where lack of access to inputs and productive resources is an obstacle to women's self-determination.

The educational approach adopted in local workshops and territorial meetings among women farmers supports a broad environmental education process, seeking connections between feminism, women's rights, the specific conditions of the Caatinga Biome, and agroecological principles. To ensure women's economic autonomy, a fundamental guideline of the project will be the promotion of specific training activities that allow the incorporation of technologies from the pedagogical approach "learn by doing," so that women become adept at using technological innovations in a conscious way and can reproduce them in the local communities. These technical skills in management of equipment and technologies (such as tanks, for example) specifically target the training of women to become multipliers. This approach will be instrumental in changing local attitudes about women's roles in managing local resources and inputs while improving their social status and increasing their income.

### *5.2.3.2 Actions targeting women in public schools and EFAs*

Although diversification is considered a primary principle of agrifood systems<sup>6</sup> needed in the approach to implementing resilient productive investments by TA teams, it does not necessarily guarantee that families' dietary intake in the coverage area is more varied, since there is often a disconnect between productive practices and consumption habits. In order to help improve the nutritional quality of the families' diets, an action plan will be carried out with women farmers in the context of resilient productive Investments developed in the EFAs and schools.

The proposal is to disseminate information on the value of native plants and foods in local and regional cultures, as well as to encourage the use of new recipes for school meals and establishment of seed banks in public facilities and local communities, targeting women who traditionally take care of food and socio-biodiversity practices in these environments. Workshops at the school and EFAS levels should be replicated by the self-serving women in their local communities, among their families and neighbors, so that changes in eating habits are perceived as a collective issue (within both the family and the community) and not just as an individual problem to be addressed by women as if it were one of their innate functions.

### *5.2.3.3 Knowledge management, Social control and interventions in public policies (PPs)*

In the training and social organization processes, it is necessary to take into account the need to guarantee women access to the set of public policies that enable recognition and expansion of their productive activities. Training activities should include examination of information on public policies and women should be encouraged to participate in policy discussions in public meetings in their territories, such as the Municipal Councils for Sustainable Rural Development (CMDRS), in addition to the various bodies, councils and forums of policy articulation and public policy management (including RESAB, regional

---

<sup>6</sup> The starting point is the understanding of agrifood systems as inclusive and sustainable processes that encompass social, cultural, economic, environmental and political aspects and consider the connections between production, processing, distribution, and consumption of food product.

education offices, school nutrition councils, among others). Participation of rural women in these public institutions and venues will be closely monitored on the basis of indicators from various domains (social, political, economic, and environmental). Social communication products will be essential inputs to support the performance of women leaders in various PP formulation and monitoring spaces. All knowledge management products (audiovisual or written) should feature innovative experiences led by women in traditional communities (indigenous and quilombola), in such a way that the significant contributions of such communities in the use of natural resources and in the creation of sustainable practices are fully brought to public attention.

Youth will play a key role in social communication and knowledge production strategies, given that 450 young people will be selected to act as Youth Communicators in a media resource empowerment program. These young Communicators – 50% of whom will be girls – will have the following tasks and responsibilities: (i) they will act on a local and regional level in the strengthening of grassroots organizing efforts between families involved directly or indirectly with the implementation of CRPS; (ii) they will register and systematize activities, transforming such reports into audiovisual and written materials; (iii) they will strengthen the link between systematization and M & E through a hands-on experience with monitoring of CRPS in family farms and backyard gardens in accordance with selected indicators. Criteria will be developed by the Knowledge management professionals for the selection of these participants, based on leadership potential, past involvement in social organization initiatives, interests and skills in sustainable agriculture and social technologies. In the selection process, one of the goals will be the participation of girls (50%), in order to ensure equal representation. After the training program, the youth that were selected will be evaluated by the instructors and the Knowledge management professionals, so that they are aware of their strengths and weaknesses, and a work plan will be constructed for each one of them, that will be closely monitored by the local work team (TA teams, knowledge management professionals, etc.) Contracts will be drawn up for each one of the Youth Communicators, that lay out a set of rules and guidelines for their work responsibilities, including the function of the scholarship (“learning grant”) and the use of equipment for social media (cel phones and notebooks). In order to ensure the efficient performance of the "Young Communicators" in the field activities, beyond receiving a scholarship for their services through a "learning grant", each one will have access to equipment (cell phones and notebooks) for the creation of the social communication products. Throughout the project, the performance of the Youth Communicators will be evaluated and monitored, in accordance with the terms laid out in their contracts and the rules and regulations that have been previously established.

#### **5.2.4 Assistance in climate resilient productive systems (CRPS) management highlighting women's protagonism**

The methodology to be used for planning and monitoring productive investments should address the demands and desires of all family members so that at least 40% of women and 50% of young people are directly involved. The technicians who carry out the technical assistance must be concerned not only with resolving technical issues but also with advising family or community members and groups on issues related to CRPS management, which requires a methodological approach based on the guiding principles of associativism and cooperativism.

In managing the territorial investment plans in resilience that make up the CRPS, gender considerations are crucial. In this project, technicians will be guided to view the yard

around a family's home as a productive space rather than simply an extension of the domestic space (as typically viewed in most programs and projects that provide technical assistance services in Brazil). In the agroecological transition, in which the backyard often plays a central role, some women will become farmer-experimenters, observers and innovators, having appropriated knowledge and technologies, as they pass on their knowledge to other women and also learn from each other. Technicians accompanying these investments will focus on the ways in which changes in agricultural practices trigger processes of growing awareness at the core of social relations.

Another important consideration in the system of Technical Assistance designed for PCRCP is the need to validate and channel traditional knowledge and talents in the construction of farmers' networks, in such a way that the cultural heritage of such groups is fully strengthened and affirmed. Approaches that can be adopted in the construction of horizontal educational approaches to technical assistance that affirm farmers forms of knowledge and expertise, especially those of traditional communities, will be the object of trainings of technical assistance professionals. Also, when focusing on Collective Resilient Investments, technical assistance professionals will be trained, through specific training sessions, to attend to the needs of many indigenous and afro-descendent communities, which historically have adopted collective methods for managing the land as well as natural resources.

One of the TA teams' responsibilities in this project is to support CRPS management, which goes beyond financial management of inputs and resources to include organization of work and qualification of productive processes. The starting point for incorporating a gender focus into management processes is the problematization of the sexual division of labor. The processes of assisting and training women's groups and mixed groups in the productive organization should take into account time spent in domestic and care work, seeking to alleviate the burden of reproductive activities through the socialization of these tasks, in addition to use of equipment and other concrete measures related to infrastructure support.

In order to strengthen business management of women's and mixed groups' family and community enterprises, technicians will use tools that help better distribution of work and time, so as to incorporate the household dimension; more significant control over resources and greater transparency in accountability; and the improvement of a system for calculating productive process costs affecting the income obtained from sales. The technical assistance team should recognize the nature of women workload and the weaknesses and strengths that affect their daily routine during visits, meetings, and workshops guided by the basic concepts of associativism and cooperativism.

One line of the PCRCP that aims to help insert farmers in productive ventures is the provision of investments for microenterprises that provide services and products to guarantee improvements in productive processes that are driving forces of CRPS. Stipulated criteria intend to prioritize the leadership of women, especially young women, in construction of these enterprises. Thus, the inherent capacities of entrepreneurship are stimulated and developed among youth.

### **5.2.5 Constructing technical assistance services that respond to the demands and needs of rural women**

#### **(i) Commercialization**

In the field of advisory services for marketing CRPS products, it is vital that TA technicians promote the consolidation of points of sale that go beyond institutional markets, such as agroecological fairs. The short direct circuits favor women's direct interaction with

consumers from the sale of socio-biodiverse products without the intermediary action of men, to strengthen women's economic, social and political autonomy. The fairs are already a common event in popular culture, but their scope must be broadened to become a process of political articulation that promotes visibility of specialized products, such as agroecological products. Attention must also be paid to the challenges of focusing on the issue of health legislation and moving toward participatory certification.

The action plan should contain strategies to enable the tracking of productive groups, mixed groups and/or families interested in expanding marketing possibilities, inserting their products in different informal and formal markets. In some cases, it will be important to improve product presentation (packaging, labels, etc.) and plan measures of distribution through communication and marketing strategies. These measures, aimed at quality control and improvement of the product's visual image, will increase the possibilities of placing different agroecological products (*in natura* and processing) in a range of marketing venues.

#### **(ii) Adapted and sustainable technologies**

Addressing risks related to climate change requires new information, tools, and technologies, in order to provide subsidies to improve sustainability of agricultural and socio-environmental practices. Effective time-saving technologies and equipment will facilitate accomplishment of agricultural work, especially for women, who usually experience a work overload due to their multiple functions in productive and reproductive tasks and responsibilities.

In this sense, it is worth mentioning the creation of strategies in the "plan of action" that will promote women's engagement in applied technologies and the knowledge management process generated from their use. To this end, there are some questions about the "social" function of technology, since it not only helps generate economic returns and environmental impact but also must answer to the beneficiaries' expectations, positively influencing the quality of their lives and power dynamics underlying social relationships.

From this angle, the approach to introduce social and renewable technologies in CRPS is based on the idea of "learn by doing," since women will be trained in construction and management of technologies such as eco-stoves or gray-water-reuse systems. The goal is for the beneficiary women to become multipliers of practices such as trench barriers and cisterns. Enabling women to coordinate an equipment-building activity (traditionally viewed as a "male" trade) indeed represents a factor in the approach of empowering beneficiary women to hold this position, besides directly shifting gender social relations in the family and community.

#### **5.2.6 Social communication and knowledge management from a gender perspective**

Social media and knowledge management strategies need to be combined with educational and organizational processes engaging women to maximize their effects. It is advisable to register and organize innovative and successful experiences of working with gender and women, to facilitate analysis of acquired learning. It is also advisable to integrate an information organizing methodology in the exchanges between CRPS, with significant participation of women, so that these exchanges are conducted with a view toward organization of information as a process, not just a final product. In all written or audiovisual systematizations, most of which will be taken on by the Youth Communicators, (see 5.2.3.3 for more details), special attention should be given to the initiatives undertaken in the context of traditional communities, so that their innovative experiences can be highlighted. At least 40% of the case studies and other systematizations to be carried out will focus on the traditional communities within the Project's intervention area, with the goal of gathering information about their diverse forms of traditional knowledge as well as their practical experiences concerning the conservation of biodiversity and sustainable practices.

Methodological tools such as agroecological guidebooks will be essential in the participatory organizing process, significantly enhancing the role of women as experienced farmers in the various agricultural production spaces. The "Agro-ecological Register" aims to record and monitor production, tracking (identifying as sold, donated, exchanged, or consumed) everything that is grown on productive farms and in areas of women's leadership on farms. It will serve as a tool for empowering women, since from this instrument, they see themselves as protagonists in productive processes and begin to become more actively involved in other areas such as marketing or Political Articulation. The register, which will integrate the environmental perspective, will help valorize rural women's productive capacity and assess the economic and environmental impact of productive processes in the areas in which CRPS will be implemented.

Efforts should be made to ensure that the methodologies adopted to organize experiences in the project are integrated into the M&E system. Some levels of changes in social gender relations and empowerment of women farmers from work in CRPS can be measured and serve as input for the qualitative and quantitative indicators of the M&E system. The results should be published (in notebooks and/or videos) at the end of the organizing process and made available to the public and the project's partner organizations, in public spaces and political venues (councils, forums).

### **5.2.7 Training on gender from a feminist perspective**

A gender specialist will be contracted for the purpose of gender-perspective training, but technical teams also need to internalize the perspective of "social inequalities" (gender, race, and ethnicity) and apply it in their interventions. So an effort should be made to provide training to technical teams, especially in the project's initial phase, and reinforcement workshops throughout the implementation cycle. It is important to emphasize the need to "re-educate" contractors to work in communities through an intense training process organized in modules that seek a balance between conceptual deepening and empirical experience from fieldwork. Within these training sessions, professionals should be prepared not only to understand complex themes, such as the causes of gender, racial and ethnic inequality and their various manifestations within rural communities, but also they should be prepared to develop methodological approaches that take into account the specificities of traditional communities and the specific needs and demands of women in collective processes.

### **5.2.8 Strengthening gender management / social control unit in the institutional framework**

In addition to implementing strategies that ensure gender mainstreaming in practices with help from gender, race and ethnicity experts, it is recommended that efforts be made to incorporate gender focus into the project's structures and units. In any social project, it is essential to invest in the strengthening of management units to help mainstream groups and perspectives at the institutional level that have often been classified as "marginalized" (gender, race, and ethnicity). This strategy also supports the work of gender / race / ethnicity advisors, which will be key in the institutional structure at different project levels (in state PMUs and field teams), systematically tracking the actions programmed in the work plan and monitoring changes at local, municipal and regional levels. The commission (which should include technical team members and be open to participation of partner institutions working in these thematic areas) should be an internal space for ongoing reflection, based on organized

information on the progress made and obstacles in meeting indicators, besides providing a review of the actions in the diverse stages of the implementation cycle.

This commission also plays a role in the advocacy process. It must link the activities carried out in the framework of the project's work plan with the general trends of the political conjuncture, taking into consideration the impact of actions mapped at the local and regional levels with negotiation and monitoring of public policies on rural development and environmental sustainability that are gender-based, race-based, and ethnicity-based.

**6. GENDER ACTION PLAN: “PLANTING CLIMATE RESILIENCE IN RURAL COMMUNITIES OF THE NORTHEAST” (PCRPP)**

**IMPACT STATEMENT:**

The project will contribute to increased climate-resilient agricultural production for 1 million direct beneficiaries (of which, at least 40% are women and 50% are youth) of the most vulnerable people, communities and regions in the rural Northeast area of Brazil.

**OUTCOME STATEMENT:**

Increased resilience to climate change of at least 400,000 women in the project area, through improvement of their capacities to access sustainable forest management, efficient water management, climate smart agriculture, agroforestry practices, food and nutritional security and knowledge management and scaling-up techniques.

Output	Activities	Indicators and targets	Timeline	Responsibilities
<b>Component 1 - Climate Resilient Production systems:</b> implement CRPS, empower beneficiaries to manage sustainably these systems and promote leadership by women, youth and traditional communities.				
<b>OUTPUT 1.1: APPLICATION OF CRPS IN FAMILY FARMS, BACKYARD GARDENS, SCHOOLS, BIOSALINE PRODUCTION, ENTREPRENEURSHIP AND FARMERS’ NETWORKS</b>	<b>Activity 1.1.1. Selection of Project Areas and development of TRIPs</b>  - Guarantee the participation of women (at least 40%) in the stages of design and implementation of TRIPs; <sup>[1]</sup> <sub>SEP</sub>  - Conduct baseline survey on the target population. Information will be disaggregated on gender for knowledge, attitudes and practices (KAP) regarding climate change	- Studies designed towards identifying families willing to receive investments that contemplate gender issues and gather gender information.  - At least 40% of the women in communities involved in developing Territorial Resilience Investment Plans;	1st and 2 <sup>nd</sup> year of Project’s implementation cycle	Gender specialists; PMU teams; Management Council (made up of representatives of state administration, beneficiaries and civil society); Teams of technicians (for rural technical assistance services)

	<p>adaptation in target communities. Studies will include the following gender-transformational 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).</p>	<p>- 40% of technical assistance team that will implement TRIPs are women.</p>		
	<p><b>Activity 1.1.2 Implement CRPS in family farms and backyard gardens</b></p> <p>- Implementation of productive activities 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, many of which tend to depend on the investment of women’s time and labour;</p> <p>- Promotion of seed banks” as a mechanism for validating the native</p>	<p>- At least 40% women from families involved in decision making processes concerning the use of resources, inputs and technologies in Household Resilient Investments;</p> <p>-Number of women and their children with significant improvements in their state of health, including a reduction of rates of malnutrition and chronic degenerative diseases.</p> <p>-Number of women directly involved in the preservation and circulation of heirloom seeds within their communities and territories for planting practices.</p>	<p>2<sup>nd</sup> to 6<sup>th</sup> year</p>	<p>Gender specialists; PMU teams; Management Council (made up of representatives of state administration, beneficiaries and civil society); Teams of technicians (for rural technical assistance services)</p>

<p>knowledge of heirloom seeds, involving women directly in such efforts.</p>			
<p><b>Activity 1.1.3 Implement Collective Resilient Investments</b></p> <ul style="list-style-type: none"> <li>- Implementation of productive activities focused on the cultivation of nutritionally-rich foods in productive spaces, including native, rustic edible plants that are more resilient in semi-arid conditions, many of which tend to depend on the investment of women's time and labour;</li> <li>- Training sessions for cooks (most of whom are female) in school facilities where CRPS is being taught, aimed at fostering recipes with native crops that originate from the school gardens;</li> <li>- Construction of Collective Resilient Investments with a methodological approach that</li> </ul>	<ul style="list-style-type: none"> <li>- 40% women (of total of families benefitted in collective resilient investments) participating actively in the sustainable management of natural resources within collective areas;</li> <li>-60% of traditional communities in the Project area directly involved in collective resilient investments with signs of strong female leadership;</li> <li>- 40% of income-generating and resilient production-based activities in collective areas made up of female agricultural workers;</li> <li>- 40% of students involved in CRPS training are girls;</li> <li>-Number of women (Cooks; Professors; students) sensitized for disseminating climate-resilient agricultural and food practices in schools and Family-based agriculture centers (EFAS);</li> <li>-Number of women directly involved in the preservation and</li> </ul>	<p>2<sup>nd</sup> to 6<sup>th</sup> year</p>	<p>Gender specialists; race and ethnicity consultants; PMU teams; Management Council (made up of representatives of state administration, beneficiaries and civil society); Teams of technicians (for rural technical assistance services)</p>

<p>involves 40% women and 50% youth (of all members of the family) as major protagonists.</p> <p>- Promotion of seed banks” as a mechanism for validating the native knowledge of heirloom seeds, involving women directly in such efforts.</p>	<p>circulation of heirloom seeds within their communities and territories for planting practices.</p>		
<p><b>Activity 1.1.4: Build a Farmers’ Network</b></p> <p>- Empower women agricultural workers participating in interactive activities such as exchanges and work team efforts for the implementation of sustainable technologies;</p> <p>- Create gender-transformational training programs with 550 technical service providers and farmers identified as “local talents”;</p> <p>- Consolidate a participatory CRPS monitoring methodology to be carried out by the farmers network in coordination with technical assistance teams that contains at least 2 indicators focused on</p>	<p>-Atleast 40% women selected and trained in sustainable productive practices and/or renewable, energy-efficient technologies;</p> <p>-Atleast 40% of female leaders selected are from traditional communities (indigenous, quilombola, “fundos de pasto”)</p> <p>-550 technical service providers and farmers identified as “local talents” sensitized in gender roles, dynamics and relations within the field of climate change and environmental sustainability;</p> <p>-Number of socio-environmental indicators that register and monitor transformations in gender roles, as well as racial and ethnic relations</p>	<p>2<sup>nd</sup> to 6<sup>th</sup> year</p>	<p>Members of the “farmers network”; technical service providers; Gender specialists; PMU teams</p>

	qualitative transformations in gender roles and relations within socio-environmental processes.	within diverse spaces for agricultural production.		
	- Promotion of entrepreneurship in CRPS among young female farmers;	- At least 40% of rural micro-enterprises developed under young women's leadership; -Atleast 60% of traditional communities are stimulated to create rural micro-enterprises under young women's leadership.	2 <sup>nd</sup> to 6 <sup>th</sup> year	PMU teams; Gender specialists; technical assistance teams
<b>Component 2: WATER ACCESS FOR PRODUCTION</b> - disseminate practices aimed to capture, harvest, store and use efficiently water that empower women, youth and members of traditional communities, with the main objective of decreasing the vulnerability of livestock and crops to rainfall irregularity and prolonged droughts				
<b>OUTPUT 2.1: Improve water access to family farmers and traditional communities by investing in small-scale technologies for harvesting, reuse, treatment and storage</b>	-Foster women's participation in the construction and replication of technologies such as cisterns, rainwater reservoirs, trenches and small underground dams;  -Promote workshops and visits to improve farmers' knowledge in water harvesting and storage technologies with at least 40% women's participation.	- Number of women (40% of the families involved) benefitted by rainwater harvest and storage techniques;  - Number of women trained in technologies dedicated towards the capture and storage of rainwater who act as local and regional "multipliers."	2 <sup>nd</sup> to 6 <sup>th</sup> year	Technical service providers; Gender specialists; PMU teams
	- Foster training sessions focused on the re-use of grey and black water in family residences among local	- Number of training sessions with at least 40% of female participants;	2 <sup>nd</sup> to 6 <sup>th</sup> year	Technical service providers; Gender specialists; PMU

	female farmers;			teams
<b>Component 3: Knowledge management and Scaling-up - strategies for capacity- building; learning, exchange and replication of sustainable practices and qualifying inputs for public policy making with a focus on different social inequalities (gender, race and ethnic issues)</b>				
<b>.OUTPUT 3.1: CRPS and small-scale water harvesting system disseminated in the NEB semiarid and abroad to increase climate resilience of vulnerable communities.</b>	<p><b>Activity 3.1.1. Raise awareness and build capacities of women, youth and traditional communities</b></p> <ul style="list-style-type: none"> <li>- Promote affirmative actions (women-only events, workshops and training sessions);</li> <li>- Foster alternatives for childcare support and socialization of domestic activities;</li> <li>- Hold sensitivity training sessions for technical assistance providers in gender, race and ethnicity approaches;</li> <li>- Compilation of case studies with focus on gender issues, especially within the context of traditional communities;</li> <li>- Register and systematize knowledge-sharing of sustainable technologies by female farmers and youth leaders;</li> </ul>	<ul style="list-style-type: none"> <li>- At least 165 of 414 young communicators are young women;</li> <li>- 200 sustainable technologies and methodological innovations registered, 40% of which have been implemented under female leadership;</li> <li>- 40% of women involved directly in training and replication of 540 eco-sufficient stoves and 540 bio-digesters;</li> <li>- Use of at least 5 different social media resources and techniques for capturing technological and methodological innovations;</li> <li>- 550 technical service providers and local talents (farmer leaders) using methodological approaches with gender, race and ethnicity focus;</li> <li>- Childcare support activities carried out in 80% of the total of</li> </ul>	1st to 6 <sup>th</sup> year	PMU teams; gender specialists; social communication specialists/ consultants; technical assistance teams; Farmers Network (“Local talents”)

	<ul style="list-style-type: none"> <li>- Foster the creation of a young communicators' network, 40% of whose members are female;</li> <li>- Promote trainings, workshops and inter-regional, inter-state exchange visits between youth communicators, 40% of whom are women;</li> <li>- Contribute towards the diversification of social media resources and techniques for registering methodological and technological innovations.</li> </ul>	<p>699 events promoted;</p> <ul style="list-style-type: none"> <li>- Up to 200 women's groups and grassroots organizations created as a result of affirmative-action activities.</li> </ul>		
	<p><b>Activity 3.1.2 Drive scaling-up, unlock policy barriers and experiment with CRPS and resilience participatory monitoring model</b></p> <ul style="list-style-type: none"> <li>- Guarantee women's participation (at least 40%) in 5 learning routes in Brazil, at the level of Latin America and Caribe (LAC) and Africa;</li> <li>- Design and implement a methodological approach to learning routes and exchanges within Brazil and internationally that features women as main protagonists and</li> </ul>	<ul style="list-style-type: none"> <li>-Number of learning routes (national and international) that include visits to experiences led by women, 40% of which should be developed within the context of traditional communities;</li> <li>- 40% of women included in learning routes and exchanges (technical service providers and female community leaders);</li> <li>- 50% of systematizations that compose 8 thematic studies featuring women-led initiatives;</li> <li>-40% of thematic studies and</li> </ul>	<p>1<sup>st</sup> to the 8<sup>th</sup> year</p>	<p>Social communication specialists/ consultants; M &amp; A consultants; Gender specialists; CPMU (BNDES team); Management Council</p>

<p>disseminators of knowledge;</p> <ul style="list-style-type: none"> <li>- Produce thematic studies and publications that feature women-led initiatives in the construction of resilient and sustainable productive systems;</li> <li>- Ensure the dissemination of proposals for climate change resilience with a gender, racial and ethnic focus in relevant channels of information.</li> </ul>	<p>publications feature women-led initiatives in traditional communities (indigenous, quilombola, etc.);</p> <ul style="list-style-type: none"> <li>- 50% of outcomes and learning initiatives published as part of Knowledge and Results Management component should feature women-led experiences;</li> <li>- 40% of 70 newsletters and informative reports produced feature women as protagonists in climate resilient productive systems and contain proposals / recommendations for incorporating a gender focus in climate change resilience strategies;</li> <li>- 60% of project beneficiaries (men and women) receiving news about measures and strategies for resilience in the face of climate change via particular information channels.</li> </ul>		
<p><b>Activity 3.1.3. Plan, Monitor, Evaluate and Learn</b></p> <ul style="list-style-type: none"> <li>- Develop a monitoring system that will use disaggregated data, as well</li> </ul>	<ul style="list-style-type: none"> <li>- Number of indicators of progress in monitoring system that contemplate gender, racial/ethnic dimensions;</li> </ul>	<p>1<sup>st</sup> to the 8<sup>th</sup> year</p>	<p>Social communication specialists/ consultants; M &amp; A consultants; Gender</p>

	<p>as indicators of progress in gender and racial/ethnic dimensions;</p> <ul style="list-style-type: none"> <li>- Hold meetings to evaluate project results using as a reference at least 4 indicators with a gender focus;</li> <li>- Carry out seminars with representation of community leaders (40% of whom are women and at least 40% of whom are from traditional communities) at the beginning, middle and finalization of project implementation to evaluate project results and impacts;</li> <li>- Develop a participatory and qualitative monitoring methodology of TRIPs involving youth communicators, 40% of whom should be women;</li> <li>- Construction of guidelines and reference schemes for thematic systematizations with gender, racial and ethnic focus.</li> </ul>	<ul style="list-style-type: none"> <li>- Number of technical progress reports (TPRs) that incorporate a gender analysis;</li> <li>- 40% of participants of meetings and seminars for evaluation and monitoring are female beneficiaries.</li> <li>- At least three thematic systematizations throughout the project execution period that emphasize immediate impacts on households in terms of income and food security in short to medium term with a gender, racial/ethnic focus.</li> </ul>		<p>specialists; CPMU (BNDES team); Management Council</p>
--	---	---	--	---

## 7. References

1. AGUILAR, L., SHAW, D. D. M.; QUESADA-AGUILAR, A. (2011). Forests and Gender. IUCN/WEDO, 2011.
2. BLOMSTROM, E.; BURNS, B. Global policy landscape: A supporting framework for gender-responsive action on climate change. In: AGUILAR, Lorena; GRANAT, Margaux; OWREN, Cate. Roots for the future: The landscape and way forward on gender and climate change. Global Gender and Climate Alliance and the International Union for Conservation of Nature; IUCN & GGCA: Washington, DC, USA, 2015.
3. BRUMER, A; ANJOS, G. Gênero e reprodução social na agricultura familiar. Revista Nera, 2012, n. 12, p 6-17. Available at: <<http://www.mstemdados.org/sites/default/files/1396-4020-1-PB.pdf>>.
4. CATA CUTAN, D.; NAZ, F. A guide for gender mainstreaming in agroforestry research and development. ICRAF Vietnam, 2015.
5. CEDAW. General recommendation No. 34 on the rights of rural women. 2016. Available at: <[https://tbinternet.ohchr.org/Treaties/CEDAW/Shared%20Documents/1\\_Global/INT\\_CEDAW\\_GEC\\_7933\\_E.pdf](https://tbinternet.ohchr.org/Treaties/CEDAW/Shared%20Documents/1_Global/INT_CEDAW_GEC_7933_E.pdf)>.
6. CEPAL. La matriz de la desigualdad social en América Latina. 2016. Available at: <[https://repositorio.cepal.org/bitstream/handle/11362/40668/4/S1600946\\_es.pdf](https://repositorio.cepal.org/bitstream/handle/11362/40668/4/S1600946_es.pdf)>.
7. ECONOMIST INTELLIGENCE UNIT. The South Asia Women's Resilience Index: Examining the role of women in preparing for and recovering from disasters, 2014. Available at: <<https://www.gdnonline.org/resources/The%20South%20Asia%20Women%27s%20Resilience%20Index%20Dec8.pdf>>.
8. FARIA, Nalu. Economia feminista e agenda de luta das mulheres no meio rural. In: BUTTO, Andréa (org). Estatísticas Rurais e Economia Feminista: um olhar sobre o trabalho das mulheres. Brasília, Ministério do Desenvolvimento Agrário, 2009, p. 11-28.
9. FARIA, Nalu. Mulheres rurais na economia solidária. In: BUTTO, Andréa, et al. Autonomia e cidadania: políticas de organização produtiva para as mulheres no meio rural. Ministério do Desenvolvimento Agrário (Brasil) IICA, Brasília, DF (Brasil), 2011.
10. FARIA, Nalu; MORENO, Renata. (org). Análises feministas: outro olhar sobre a economia e a ecologia. São Paulo: SOF, 2012, p. 7-11.
11. FERDOUS, T.; JOST, C.; SPICER, T.D. Gender, and Inclusion Toolbox: Participatory Research in Climate Change and Agriculture. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), CARE International and the World Agroforestry Centre (ICRAF), 2014.
12. FUNDAÇÃO CARLOS CHAGAS. Mulheres, Trabalho e Família, 1998.

13. GAIGER, Luiz Inácio Germany. Por um Olhar Inverso: prismas e questões de pesquisa sobre a Economia Solidária. *Sociedade e Estado*, 2012, 27.2: 313-335. Disponível em: <<http://www.scielo.br/pdf/se/v27n2/a06v27n2.pdf>>. Acesso em: 12 abr. 2017.
14. HIRATA, Helena. Gênero, classe e raça: Interseccionalidade e consubstancialidade das relações sociais. *Tempo Social - Revista de sociologia da USP*, v. 26, n. 1, 2014, p. 61-73.
15. IBGE. Pesquisa Nacional de Amostra por Domicílio (PNAD). Rio de Janeiro, v. 33, p. 1 – 133, p. 2013.
16. INSTITUTO BRASILEIRO DE GEOGRAFIA E ESTATÍSTICA (IBGE). Estatísticas de gênero: uma análise dos resultados do censo demográfico 2010. *Estudos e Pesquisas Informação Demográfica e Socioeconômica*, n. 33. Rio de Janeiro: IBGE, 2014.
17. JALIL, L.; DE MORAES, L.; OLIVEIRA, M. Porque ainda discutir a ‘justa’ divisão sexual do trabalho? Alguns aportes necessários à luta por igualdade e liberdade para as mulheres rurais no Brasil. In: JALIL, L.; ESMERALDO, G.; OLIVEIRA, M. *Rede Feminismo e Agroecologia do Nordeste*. 1 ed. Recife, 2017.
18. MASSON, Laura. *Feministas en todas partes. Una etnografía de espacios y narrativas feministas en Argentina*. Buenos Aires: Prometeo Libros, 2007.
19. MOREIRA, Sarah. *Mulheres e Meio Ambiente: o olhar das mulheres sobre os fogões ecológicos, um estudo de caso da comunidade Garapa I – Acarape/ Ceará*. Monografia apresentada no Curso de Especialização em Geografia: Educação Ambiental da Universidade Estadual do Ceará, 2013.
20. OXFAM. *Terra e desigualdade: mulheres, direito à terra e os impactos do agronegócio*. 2018. Available at: <<https://www.oxfam.org.br/noticias/terra-e-desigualdade-mulheres-direito-a-terra-e-os-impactos-do-agronegocio>>.
21. PAULILO, Maria Ignez Silveira. Trabalho familiar: uma categoria esquecida de análise. *Revista Estudos Feministas*, Florianópolis, UFSC, v. 12, n. 1, p. 229-252, jan./ abr. 2004.
22. Pesquisa Nacional de Amostra por Domicílio (PNAD). Rio de Janeiro, 2009.
23. Relatório Terrenos da Desigualdade. 2016. Available at: <[https://www.oxfam.org.br/sites/default/files/arquivos/relatorio-terrenos\\_desigualdade-brasil.pdf](https://www.oxfam.org.br/sites/default/files/arquivos/relatorio-terrenos_desigualdade-brasil.pdf)>.
24. SILIPRANDI, EMMA; CINTRÃO, ROSÂNGELA. As mulheres agricultoras e sua participação no Programa de Aquisição de Alimentos (PAA). In: BUTTO, Andréa. *Autonomia e Cidadania: Políticas de Organização Produtiva para as Mulheres no Meio Rural*. Brasília: Ministério de Desenvolvimento Agrário, 2011. p. 153-191.
25. SILVA, S. P.; CARNEIRO, L. M. Os novos dados do mapeamento de economia solidária no Brasil. In: *Mercado de trabalho: conjuntura e análise*, n. 57. Brasília: Ipea, 2014.

26. WEITZMAN, Rodica. Tecendo Deslocamentos: Relações de gênero, práticas produtivas e organizativas entre trabalhadoras rurais. Tese de Doutorado. UFRJ/Museu Nacional/PPGAS, Rio de Janeiro, 2016.
  27. WOORTMANN, Ellen F. Da complementaridade à dependência: espaço, tempo e gênero em comunidades 'pesqueiras' do nordeste. Revista Brasileira de Ciências Sociais (ANPOCS), Ano 7, N. 18, 1992.
-