



**GREEN
CLIMATE
FUND**

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

GCF/B.27/02/Add.05

21 October 2020

Consideration of funding proposals - Addendum V

Funding proposal package for FP145

Summary

This addendum contains the following seven parts:

- a) A funding proposal titled "RELIVE – REsilient LIVELihoods of vulnerable smallholder farmers in the Mayan landscapes and the Dry Corridor of Guatemala";
- 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.

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Funding Proposal

Project/Programme title:	<u><i>RELIVE – REsilient LIVElihoods of vulnerable smallholder farmers in the Mayan landscapes and the Dry Corridor of Guatemala</i></u>
Country(ies):	Guatemala
Accredited Entity:	Food and Agriculture Organization of the United Nations (FAO)
Date of first submission:	2019/11/04
Date of current submission	2020/09/22
Version number	<u><i>[V.015]</i></u>



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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

Please use the following name convention for the file name:

“FP-FAO-Guatemala-LA-2019”

Acronyms

ASIS	Agricultural Stress Index System
CADER	Learning Centers for Rural Development
COCODE	Community Development Council
COMUDE	Municipal Development Council
CONRED	National Coordinator for Disaster Reduction
CPF	Country Programming
CSA	Climate Resilient Agriculture
CSO	Civil Society Organizations
ECLAC	Economic Commission for Latin America and the Caribbean
EE	Executing Entity
EM-DAT	The Emergency Events Database
FAO	Food and Agriculture Organization of the United Nations
FEWS NET	Famine Early Warning Systems Network
FS	Feasibility Study
GCF	Green Climate Fund
GDP	Gross Domestic Product
GIZ	The German Society for International Cooperation
GOG	Government of Guatemala
GRMS	Global Resources Management System
INAB	National Forest Institute
INE	Institute of National Statistics
INSIVUMEH	Seismology, Volcanology, Meteorology and Hydrology Institute
IUCN	International Union for Conservation of Nature
KOICA	Korea International Cooperation Agency
LMCC	Climate Change Framework Law
M&E	Monitoring and Evaluation
MAGA	Ministry of Agriculture, Livestock and Food
MARN	Ministry of Environment and Natural Resources
NAP agriculture	Integrating Agriculture in National Adaptation Plans
NAP	National Adaptation Plan
NDA	National Designated Authority
NDC	Nationally Determined Contributions
NGOs	Non-Governmental Organizations
OED	FAO Office of Evaluation
PANCC	National Climate Change Action Plan
PINPEP	Forest Incentive Program for Small-Holders
PMU	Project Management Unit
PROBOSQUE	Incentive Program for the establishment, recovery, management, production and protection of forests in Guatemala
PSC	Project Steering Committee
RCP	Representative Concentration Pathway
RELIVE	REsilient LIVElihoods of vulnerable smallholder farmers in the Mayan landscapes and the Dry Corridor of Guatemala
RLC	FAO Regional Office for Latin America and the Caribbean
SDG	Sustainable Development Goals
SEGEPLAN	Planning and Programming Secretariat of the Presidency
SESAN	Secretariat for Food and Nutritional Security
SINCC	National System for Information on Climate Change
SLM	FAO Sub-regional Office for Mesoamerica
SNER	System for Rural Extension
TC	Technical Committee

A. PROJECT/PROGRAMME SUMMARY			
A.1. Project or programme	Project	A.2. Public or private sector	Public
A.3. Request for Proposals (RFP)	<p>If the funding proposal is being submitted in response to a specific GCF Request for Proposals, indicate which RFP it is targeted for. Please note that there is a separate template for the Simplified Approval Process and REDD+.</p> <p>Not applicable</p>		
A.4. Result area(s)	<p>Check the applicable GCF result area(s) 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>Mitigation: Reduced emissions from:</p> <p><input type="checkbox"/> Energy access and power generation:</p> <p><input type="checkbox"/> Low-emission transport:</p> <p><input type="checkbox"/> Buildings, cities, industries and appliances:</p> <p><input type="checkbox"/> Forestry and land use:</p> <p>Adaptation: 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>GCF contribution:</p> <p><u>Enter number</u>%</p> <p><u>Enter number</u>%</p> <p><u>Enter number</u>%</p> <p><u>Enter number</u>%</p> <p>52%¹</p> <p>18%</p> <p><u>Enter number</u>%</p> <p>30%</p>	
A.5. Expected mitigation impact		A.6. Expected adaptation impact	<p>Direct Beneficiaries:</p> <p>Total = 116,353 Female = 46,541 Women</p> <p>0,7% of National population 20 % of population in target area</p>
			<p>Indirect Beneficiaries</p> <p>Total = 583,146 Female = 300,320 3.9% of National Population</p>
A.7. Total financing (GCF + co-finance)	66,677,169 USD	A.9. Project size	Medium (Upto USD 250 million)
A.8. Total GCF funding requested	29,837,169 USD <i>For multi-country proposals, please fill out annex 17.</i>		
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 29,837,169 <input type="checkbox"/> Equity <u>Enter number</u></p> <p><input type="checkbox"/> Loan <u>Enter number</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	<p>Indicate the number of years and months the project/programme is expected to be implemented.</p> <p>7 years</p>	A.12. Total lifespan	<p>Indicate the maximum number of years over which the impacts of the investment are expected to be effective.</p> <p>20 years</p>

¹ Refer to Section C.2 for the detailed calculation.

<p>A.13. Expected date of AE internal approval</p>	<p><i>This is the date that the Accredited Entity obtained/will obtain its own approval to implement the project/ programme, if available.</i> 10/31/2019</p>	<p>A.14. ESS category</p>	<p><i>Refer to the AE's safeguard policy and GCF ESS Standards to assess your FP category.</i> B</p>
<p>A.15. Has this FP been submitted as a CN before?</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>	<p>A.16. Has Readiness or PPF support been used to prepare this FP?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>
<p>A.17. Is this FP included in the entity work programme?</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>	<p>A.18. Is this FP included in the country programme?</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p>A.19. Complementarity and coherence</p>	<p><i>Does the project/programme complement other climate finance funding (e.g. GEF, AF, CIF, etc.)? If yes, please elaborate in section B.1.</i> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>		
<p>A.20. Executing Entity information</p>	<p>Food and Agriculture Organization of the United Nations (FAO) Ministry of Agriculture, Livestock and Food (MAGA) National Forest Institute (INAB) The German Society for International Cooperation (GIZ) Each Executing Entity will only be responsible for specific Project Activities as set out in Section B.4 - Table 7.</p>		
<p>A.21. Executive summary (max. 750 words, approximately 1.5 pages)</p>			
<p>1. The project REsilient LIVELihoods of vulnerable smallholder farmers in the Mayan landscapes and the Dry Corridor of Guatemala (RELIVE) aims to build the resilience of Guatemala's most vulnerable farmers and their livelihoods against the impacts of climate change. The project will promote drought-resilient crop production systems by adopting a package of proven and validated adaptation measures. It will also be transformative in its focus on promoting women's equitable representation in project activities and enabling women's greater economic empowerment and participation in decision making. RELIVE project will overcome critical barriers to strengthen the resilience of vulnerable farmers against the impacts of climate change through the implementation of climate-resilient agricultural and water management practices, resulting in improved food security and more sustainable and resilient livelihoods.</p> <p>2. In Guatemala, around 76% of the rural population and 79% of the indigenous people live in poverty.² Chronic malnutrition affects 53% of children in rural areas and 61% of children from indigenous origin. Poverty and food security are growing challenges in Guatemala, and this will be exacerbated by the effects of climate change which represents a significant threat to agriculture. The majority of the population in the country are smallholder farmers³ engaged in rain-fed agriculture, which is highly sensitive to climate change. Infra-subsistence* and subsistence** family farmers are the most vulnerable population to the effects of climate change in Guatemala as they depend solely on agriculture for both food security and income generation. Guatemala is the second most vulnerable country to climate change in Latin America⁴ and 11th worldwide⁵ in terms of exposure and vulnerability. In the period 1960 – 1990 and 1990 – 2016 climate change, manifested through significant temperature increase and uncertain changes in precipitation patterns in the Mayan Lowlands and the Dry Corridor. Climate projections consistently indicate an increase in temperature and changes in precipitation patterns during both the dry and wet seasons, thus affecting livelihoods, especially those dependent on agriculture. As a result of these changes, there is a high risk for increase in aridity. An assessment on the aridity index shows an increase in aridity by 2030 in the project area with reference to baseline period 1961 – 1990 using RCP 4.5. Potential impacts from the increase in the aridity</p>			

MAGA, 2016. Política Agropecuaria de Guatemala 2016 – 2020:

*Infra-subsistence family farmers – Majority are indigenous people living in poverty and extreme poverty do not produce enough for the family's consumption. They maintain a permanent risk of food and nutrition insecurity, which manifests itself in high chronic malnutrition, episodes of acute malnutrition. Their access to productive resources and markets is low or null;

** Subsistence family farmers -Families in a situation of poverty, with limited land ownership, produce for self-consumption and exchange or sell locally a small part of their production. Temporary work outside their plot are used to supplement their basic needs. They produce the largest volume of food for national consumption, they influence the advance of the agricultural frontier.

² Guatemala. Instituto Nacional de Estadística (INE). (2016). Encuesta Nacional de Condiciones de Vida. 2014. Tomo I. Guatemala: Instituto Nacional de Estadística..

³ Average size of land properties is 0.7 hectares.

⁴ Mapplecroft, 2014. *Indice de vulnerabilidad y adaptación al cambio climático en la región de América Latina y Caribe*. Banco de Desarrollo de América Latina. Corporación Andina de Fomento.

⁵ Mapplecroft, 2014. *Indice de vulnerabilidad y adaptación al cambio climático en la región de América Latina y Caribe*. Banco de Desarrollo de América Latina..

index could result in an increase in drought stress⁶, drying or regressive death in plants and trees. Maize and beans are the main staple crops, they are highly sensitive to changes in aridity. Reduction of crop yields will put the food security of subsistence farmers at high risk. Especially given the tight association between precipitation cycles and agricultural calendars that determine the sowing and harvesting cycles.

3. The business-as-usual agricultural strategies in Guatemala focus solely on crop productivity and result in long-term loss in soil moisture and nutrients. These strategies are also promoted for subsistence and infra-subsistence farmers. Without a change in production practices, crop losses will be significant and rural livelihoods will be undermined. Achieving reduced vulnerability and increased resilience requires a shift in agricultural practices to improve soil humidity and introduce efficient irrigation systems and new seed varieties tolerant to droughts and heat waves.⁷ This will prevent the expected crop losses and help the country reach its target in terms of food security.
4. GCF funding will support agricultural transformation amongst the most vulnerable people⁸. The beneficiaries of the project will be infra-subsistence and subsistence smallholder farmers, the majority of whom are indigenous people, who are the most exposed and vulnerable to the impacts of climate-induced droughts and heat waves.⁹ The project will directly support 116,353 people (0.7% of the national population and 20% of the population in the project area), of which 46,541 female, in the Departments of Alta and Baja Verapaz, Petén, Zacapa and Chiquimula. The indirect beneficiaries of the project are estimated at 583,146 farmers (3,9% of the population), of which 300,320 female.
5. The project will be implemented over seven years and generate three key outcomes:
 1. Critical production systems are climate resilient and farmers have enhanced, food-secured and adapted livelihoods;
 2. Water resources at micro-basin level are sustainably managed and landscapes are restored to ensure stable supply of water for farming amidst CC-induced drought conditions;
 3. Local and national institutions adopt governance mechanisms and have strong capacities to implement climate change adaptation measures.
6. The total project cost is USD 66.7 million, of which USD 29.8 million is GCF financed and USD 36.84 million is co-financed by MAGA, INAB and the Korea International Cooperation Agency (KOICA). FAO, the AE, will act as the Executing Entity (EE) for some activities under the project and will be responsible for the GCF proceeds and for the overall quality assurance and oversight of the project. The Ministry of Agriculture, Livestock and Food (MAGA) and the National Forestry Institute (INAB) will be Executing Entities and will be responsible to manage their co-financed funds but will not execute any GCF Proceeds. Both MAGA and INAB are mandated to coordinate and oversee the implementation of the project. GIZ will be an Executing Entity of a part of the KOICA co-financing.

⁶ Malhi, Y., Aragao, L., Galbraith, D., Huntingford, C., Fisher, R., Zelazowski, P., & al., e. (2009). Exploring the likelihood and mechanism of a climate-change-induced dieback of the Amazon rainforest. *Proceeding of the National Academy of Sciences of United States of America (PNAS)*, 106(49), 20610-20615

⁷ Altieri M. et al. 2015. Agroecology and the design of climate change resilient farming systems. *Agronomy for sustainable development* 35-3

⁸ The small farmers who have limited access to markets, financial instruments, agricultural and climate technological advice and who suffer from poor basic infrastructure.

⁹ CONRED, 2017. Humanitarian needs overview 2017.

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

Socio-economic context

7. One of the main economic activities generating foreign exchange in Guatemala is agriculture, which depends greatly on the availability of water resources from precipitation (Pons, Taylor, Griffin, Castellanos and Anchukaitis, 2017). Guatemala is the second most vulnerable country to climate change in Latin America and the 11th worldwide.^{10,11} This situation is reflected in the high human and economic costs that extreme meteorological events have had in the country (INSIVUMEH, 2002; CEPAL, 2005; EMDAT, 2017) and the limited resilience of affected communities to face these challenges. Approximately 51% (15.6 million) of Guatemala's population live in rural areas, of which 41% are indigenous peoples^(a) the majority of whom live in poverty conditions.^{12,13} Poverty among the indigenous population is 1.7 times higher than among the non-indigenous population.¹⁴ Chronic malnutrition affects 53% of children in rural areas, most of which are children from indigenous communities. Poverty and food security are growing challenges in Guatemala, and this will be exacerbated by the effects of climate change and its impacts on agriculture.^{15,16} In Guatemala, subsistence agriculture comprises 53% of producers and is responsible for the production of 67% of the country's basic grains.
8. The direct beneficiaries of the proposed project are infra-subsistence and subsistence farmers living in regions highly exposed to aridity due to climate-induced droughts and heat waves. The project will be implemented five departments located in the Dry Corridor and the Mayan Lowlands (Figure 3).
9. There is a clear link between climate change and rural livelihoods, since the expected climate impacts would result in lower yields of staple crops (maize and beans), on which the vast majority of the prioritized population depend for their subsistence. Moreover, the evidence shows that in certain areas, small farmers may lose their harvests as a result of extended dry spells. As for cash crops that account for a significant part of the local economy, such as coffee and cacao, climate change will result in lower yields and the presence of pests and the appearance of diseases will not only affect yields, but also the quality of the production. As such, scenarios are set to have a severe impact on the livelihoods of these already vulnerable small farmers.

Historical climate trends

10. Guatemala experiences a bimodal seasonal rainfall climate, with a rainy boreal summer season and a dry boreal winter season. The rainy season begins in April or early May with two peaks near June and September and a period of decreased rainfall called "*canicula*" or midsummer drought (MSD) between July and August. The MSD can last on average from 5 to 15 days. Evidence shows that MSD has experienced an increment in duration and a trend towards a dryer period, changes that are critical for determining agricultural calendars across Guatemala.¹⁷
11. Climate in Guatemala has already experienced a change in temperature in most of the territory, **affecting crop yields**, as measured by all the available methods, including: weather stations, satellite-derived imagery, reanalysis datasets. . For assessing the historic trends of both temperature and precipitation the CRU dataset for the periods 1960-1990 and 1990-2016 was used. A detailed overview of historic climate change – drawing on available literature and additional analysis done by FAO – is outlined in Sections C1 and C2 of the Feasibility Study. A summary is presented below:
 - **Temperature:** Analysis show that the average annual temperature increased with 0.6C since 1971 in the Mayan Lowland region and in the Dry Corridor. More importantly, in these time periods, the inter-annual distribution of changes in mean temperature in both regions show increases with up to 0.8C in specific months important for the agricultural production (January, June and December).

(a) Indigenous groups include: K'iche', Q'eqchi, Kaqchikel, Achi, Ch'orti', Poqomchi y Mam,

(b) The main products are staple crops - maize, beans and sorghum, and cash crops - coffee, cocoa, cardamom, fruits, vegetables, and forest products, mainly timber.

¹⁰ Mapplecroft, 2014. *Indice de vulnerabilidad y adaptación al cambio climático en la región de América Latina y Caribe*. Banco de Desarrollo de América Latina. Corporación Andina de Fomento.

¹¹ Eckstein, Künzel & Schäfer, 2018. *GLOBAL CLIMATE RISK INDEX 2018. Who Suffers Most From Extreme Weather Events? Weather-related Loss Events in 2016 and 1997 to 2016*. Bonn: Germanwatch e.V. Downloaded from <https://germanwatch.org/en/download/2043>

¹² INE, 2003. *Características de la población y de los avitantes censados*. Guatemala: INE

¹³ Pons, Brincker & Castellanos, 2018. *Asegurando la resiliencia ante el CC en los paisajes Mayas de Petén, Verapaces y el Corredor Seco. Producto 1. Documento de análisis de los efectos del Cambio climático a nivel nacional y local. Documento de consultoría*. Guatemala.

¹⁴ INE, 2015. *República de Guatemala: Encuesta Nacional de Condiciones de Vida 2014. Principales resultados*. Guatemala: INE.

¹⁵ CEPAL. (2018). *La economía del Cambio Climático en Guatemala*. Documento técnico 2018. Santiago de Chile: Naciones Unidas.

¹⁶ IARNA. (2010). *Evaluación de la Seguridad Alimentaria y la Agricultura en Guatemala: Diagnóstico y Propuestas de Acción*. Guatemala: IARNA.

¹⁷ Anderson, T., Anchukaitis, T., Griffin, D., Pons, D., & Taylor, M. (s.f.). (2019). Climate sensitivity and potential vulnerability of Guatemalan fir (*Abies guatemalensis*) forests in Totonicapán, Guatemala" in *Journal of Latin American*

- **Precipitation:** Despite of a non-significant upward trend in precipitation for the country, the monthly assessment shows that certain months have experienced a decrease in the total precipitation for specific months, which are critical for agricultural production. In particular, the precipitation in August has seen an overall reduction, associated to the drying trend of the MSD.¹⁸
12. **Despite that the precipitation showed a less clear trend in the historical record, the increase in mean temperature would result in increase of evapotranspiration with potential negative effects to agriculture.** In project region, the temperature in June is critical for the development of the crops planted in May. A decrease in soil moisture due to increased temperatures is expected to negatively impact the development of the staple crops like maize.
 13. **The influence of El Niño-Southern Oscillation (ENSO) on Guatemala's climate has an important influence on the territory's precipitation and temperature.** ¹⁹It has been attributed to the ENSO around 25% of the variability in the temperature and up to 85% on precipitation scales.²⁰
 14. In the last 20 years, the occurrence and intensity of extreme weather events has increased, especially droughts and floods.²¹ Between 1988 – 1999 altogether 17 extreme events occurred, while in the period 2000 – 2017 altogether 53 events occurred. The 2014 drought caused the yield loss of 80% for maize and 63% for beans, which led to an economic loss of USD 61 million for the country. **In the regions of the Dry Corridor and the Mayan Lowlands (where the five departments of the project area are located), the drought affected 40% (12,090 ha) of the project area causing partial or total crop losses of 58,636 subsistence families, resulting in USD 11.6 millions of economic impact.**²² The high temperatures and rainfall variation in September in 2012, led to a severe outbreak of coffee rust which led to the loss of 15% of the coffee production.²³

Climate change projections

15. In order to integrate a metric that would allow for temperature changes (associated to soil moisture loss via evapotranspiration processes) and future rainfall estimates, FAO decided to work with aridity. Aridity is a metric that combines atmospheric demand for humidity via temperature and available precipitation. Aridity integrates these two climate variables and allows for impacts on vegetation to be accounted for, if a change in any of the variables occurs (available water vs evapotranspiration). Because monthly temperature and annual precipitation are available as products of future climate scenarios, we decided to work with this metric using the Thornthwaite equation for potential evapotranspiration (since models do not produce other variables for more complex PET formulas).
16. The Penman model cannot be use towards the future, as the climate models used in this study do not produce the needed variables (e.g. wind speed and direction). Hence, we selected the Thornthwaite equation, which only demands monthly temperature and annual precipitation, reducing the uncertainties associated to more complex, far more intricate variables towards the future like wind. A simple model with less assumptions adding to uncertainty is preferred over a more complex, less certain one.
17. FAO followed WMO guidance and used the CRU observation dataset justification for grant. This dataset is a common product for this type of analysis and is currently being used worldwide to cross-validate and verify multi-model ensembles for new forecast systems. FAO confirms that the length of this data set used is the only that allows formulating the two climatologies (1960-1990 and 1990-2016)

¹⁸ Ibid.

¹⁹ Steinhoff, D. F., Monaghan, A. J., & Clark, M. P. (2015). Projected impact of twenty-first century ENSO changes on rainfall over Central America and northwest South America from CMIP5 AOGCMs. *Climate Dynamics*, 44(5), 1329-1349. doi:10.1007/s00382-014-2196

²⁰ Diaz, H. F., Hoerling, M. P., & Eischeid, J. K., (2001). ENSO variability, teleconnections and climate change. *International Journal of Climatology*, 21(15), 1845-1862. doi:10.1002/joc.631

²¹ EM-DAT 2017. The international Disaster database. URL: <https://www.emdat.be> [Accessed December 2018]

²² SESAN, 2014. *Informe de daños ocasionados por la canícula prolongada 2014*. Guatemala: SESAN.

²³ Cerda et al., 2014. Contribution of cocoa agroforestry systems to family income and domestic consumption: looking toward intensification. *Agroforestry Systems*, 88(6), 957-981. doi:10.1007/s10457-014-9691-8

18. Climate projections consistently indicate increase in temperature and change in precipitation patterns during both the dry and wet seasons, thus affecting livelihoods, especially those dependent on agriculture.^{24,25,26}

Most general circulation models agree that temperatures in Guatemala will increase in the coming decades and that long-term rainfall will drop in most of the Central American territory.^{27,28} A regional climate projection using RCP 4.5 shows increase in temperature in the region with the highest increases expected in Guatemala by 2030 in the project's intervention areas (Figure 1). A detailed overview of climate projections and methodology used is outlined in Section C3 of the Feasibility Study. A summary is presented below:

- **Temperature:** increasing trend in both scenarios (Scenario A2 and B1) with changes between 1.1 and 1.2 ° C for the 2020s, between 1.3 and 1.5 ° C for the 2030s, between 2 and 2.7 ° C for the 2050s, between 2.5 and 4.1 ° C for the 2070s, and between 3.3 and 5.4 ° C for the 2090s²⁹. Projections from General Circulation Models (GCMs) also suggest an increase in temperature towards the 2030s of up to 2.2 ° C under the RCP4.5 scenario for all the seasons in Guatemala.³⁰
- **Precipitation:** Projections show overall decrease of rainfall starting from 2030. It is expected that by 2050, rainfall will decrease between 9.5% and 12.4%, and 18.4% and 28.9% by 2070³¹. The same trend is observed in both projections, but in scenario A2 the changes are more abrupt compared to scenario B1.³²

19. The projected increase in mean temperature and decrease in precipitation, is expected to result in an increase in aridity in the country, which will negatively affect the phenology and water requirements of crops. Due to the high dependence on rainfed agriculture in Guatemala, the increase in aridity will likely result in severe impacts on the crop yield reaching reductions of up to 57% in certain crops.³³

²⁴ Neelin et al., 2006, Neelin, J., Münnich, M., Su, H., Meyerson, J., & Holloway, C. (2006). Tropical drying trends in global warming models and observations. *Proceedings of the National Academy of Sciences*, 103, 6110–6

²⁵ Karmalkar, A., Bradley, R., & Díaz, H. (2011). Climate change in Central America and Mexico: regional climate model validation and climate change projections. *Climate Dynamics*, 37, 605-629.

²⁶ Magrin, et al., 2014, Magrin, G., Marengo, J., Boulanger, J., Buckeridge, M., Castellanos, E., Poveda, G., . . . Vicuña, S. (2014). América Central y del Sur. En V. C. Barros, *Cambio climático 2014: Impactos, adaptación y vulnerabilidad. Parte B: Aspectos regionales. Contribución del Grupo de trabajo II al Quinto Informe de Evaluación del Grupo Intergubernamental de Expertos sobre el Cambio Climático* (págs. 1499-1566). Cambridge, Reino Unido y Nueva York, NY, Estados Unidos de América: Cambridge University Press

²⁷ Karmalkar, A.V., Bradley, R.S. and Díaz, H.F., (2011). Climate change in Central America and Mexico: regional climate model validation and climate change projections. *Climate Dynamics* 37: 605-629.

²⁸ Imbach P, Chou SC, Lyra A, Rodrigues D, Rodriguez D, Latinovic D, et al. (2018) Future climate change scenarios in Central America at high spatial resolution. *PLoS ONE* 13(4): e0193570. <https://doi.org/10.1371/journal.pone.0193570>

²⁹ Rivera, P. F., Bardales Espinoza, W. A., & Ochoa, W. (2019). Escenarios futuros de cambio climático para Guatemala. En E. J. Castellanos, A. Paiz-Estévez, J. Escribá, M. Rosales-Alconero, & A. Santizo (Eds.), *Primer reporte de evaluación del conocimiento sobre cambio climático en Guatemala*. Guatemala: Editorial Universitaria UVG

³⁰ Imbach P, Chou SC, Lyra A, Rodrigues D, Rodriguez D, Latinovic D, et al. (2018) Future climate change scenarios in Central America at high spatial resolution. *PLoS ONE* 13(4): e0193570. <https://doi.org/10.1371/journal.pone.0193570>

³⁰ Rivera, P. F., Bardales Espinoza, W. A., & Ochoa, W. (2019). Escenarios futuros

³¹ Pons, Brincker, & Castellanos, 2018. Asegurando la resiliencia ante el CC en los paisajes Mayas de Petén, Verapaces y el Corredor Seco. Producto 1. Documento de análisis de los efectos del Cambio climático a nivel nacional y local. Documento de consultoría. Guatemala.

³² Government of Guatemala. Ministry of Environment and Natural Resources/ Ministerio de Ambiente y Recursos Naturales (MARN). 2015. Second National Communication on Climate Change /*Segunda comunicación nacional sobre cambio climático Guatemala*. Guatemala. Available at: <https://unfccc.int/sites/default/files/resource/gtmnc2.pdf>

³³ CEPAL. (2018). La economía del Cambio Climático. Documento técnico. Santiago de Chile: Naciones Unidas.

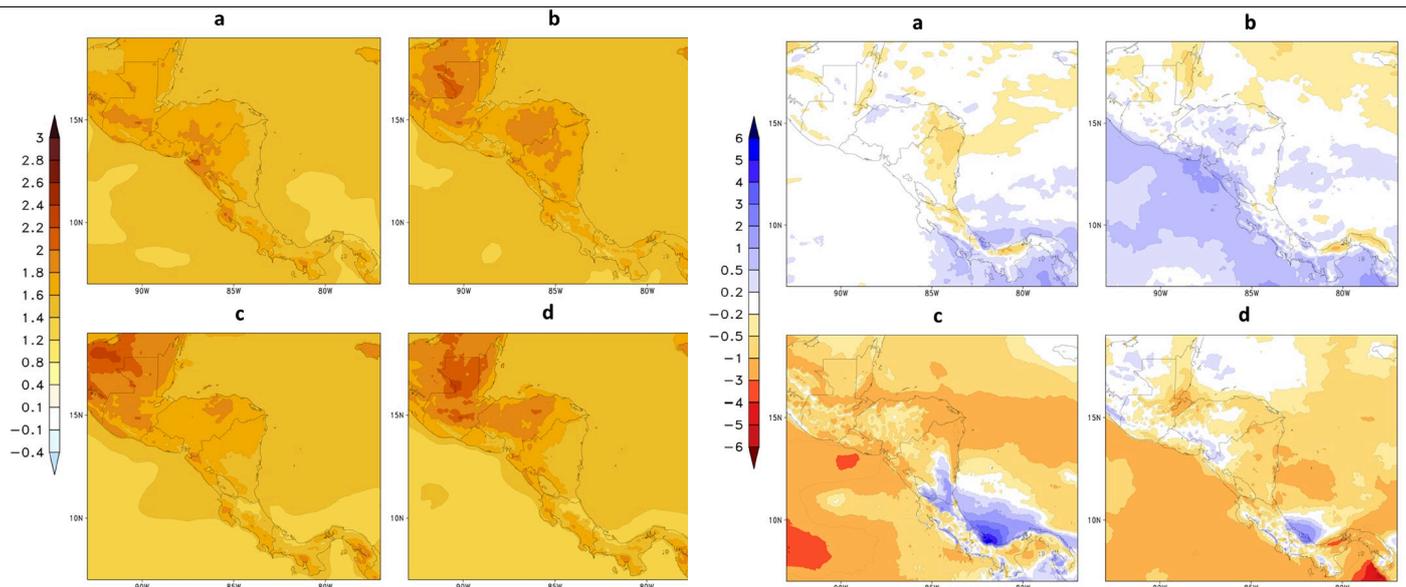


Figure 1. Temperature change in degrees Celsius and mean precipitation change (mm/day) projected for Central America for the (a) DJF, (b) MAM, (c)JJA, and (d) SON seasons. (Imbach et al, 2018).

20. An assessment on the aridity index shows an increase in aridity by 2030 in the project area with reference to baseline period 1960 – 1990 using RCP 4.5 (Figure 2) . Potential impacts from the increase in the aridity index could result in an increase in drought stress³⁴, drying or regressive death in plants and trees³⁵. At the same time, the simulations suggest an expansion from the eastern dry corridor area to the western dry corridor and increased aridity in certain areas of the Department of Zacapa that shift from the "semi-arid" class to the "arid" class. A detailed overview of climate projections and methodology used for the estimating the aridity index is outlined in Section C4 of the Feasibility Study.
21. The departments located in the Dry Corridor (Petén, Alta and Baja Verapaz), where part of the project area is located, will be among the most affected regions by 2050.³⁶ Larger precipitation reductions are expected during the rainy season, resulting in a longer MSD. Evidence shows that MSD in Guatemala are becoming more prolonged, increasingly variable, and harder to predict. During these periods, precipitation may decline by up to 40% from the maximum summer rainfall and its variable characteristics, including the timing, duration, and magnitude have significant influences on planting dates and crop yields. Evidence shows that smallholder farmers across Central America have experienced crop losses and reductions in yields due to change in distribution and intensity of rainfall.³⁷ Assessments show that farmers loose, on average, 55% of their basic grain production (maize and beans) during drought periods.³⁸ Additionally, the projected increase in temperatures and change in precipitation will influence the incidence and severity of rust in coffee plantations and pests and diseases in cacao, causing production losses.³⁹

³⁴ Malhi, Y., Aragao, L., Galbraith, D., Huntingford, C., Fisher, R., Zelazowski, P., & al., e. (2009). Exploring the likelihood and mechanism of a climate-change-induced dieback of the Amazon rainforest. *Proceeding of the National Academy of Sciences of United States of America (PNAS)*, 106(49), 20610-20615

³⁵ Cox, P., R. B., Jones, C., Spal, I. S., & Totterdell, I. (2000). Acceleration of global warming due to carbon-cycle feedbacks in a coupled climate model. *Nature*, 408, 184-187

³⁶ Pons, Brincker, & Castellanos, 2018. Asegurando la resiliencia ante el CC en los paisajes Mayas de Petén, Verapaces y el Corredor Seco. Producto 1. Documento de análisis de los efectos del Cambio climático a nivel nacional y local. Documento de consultoría. Guatemala

³⁷ Idem

³⁸ GoG, 2015. Second National Communication on Climate Change: <https://unfccc.int/sites/default/files/resource/gtmnc2.pdf>

³⁹ Avelino et al. 2015. The coffee rust crises in Colombia and Central America (2008–2013): impacts, plausible causes and proposed solutions. *Food Security*, 7(2), 303-321. doi:10.1007/s12571-015-0446-9

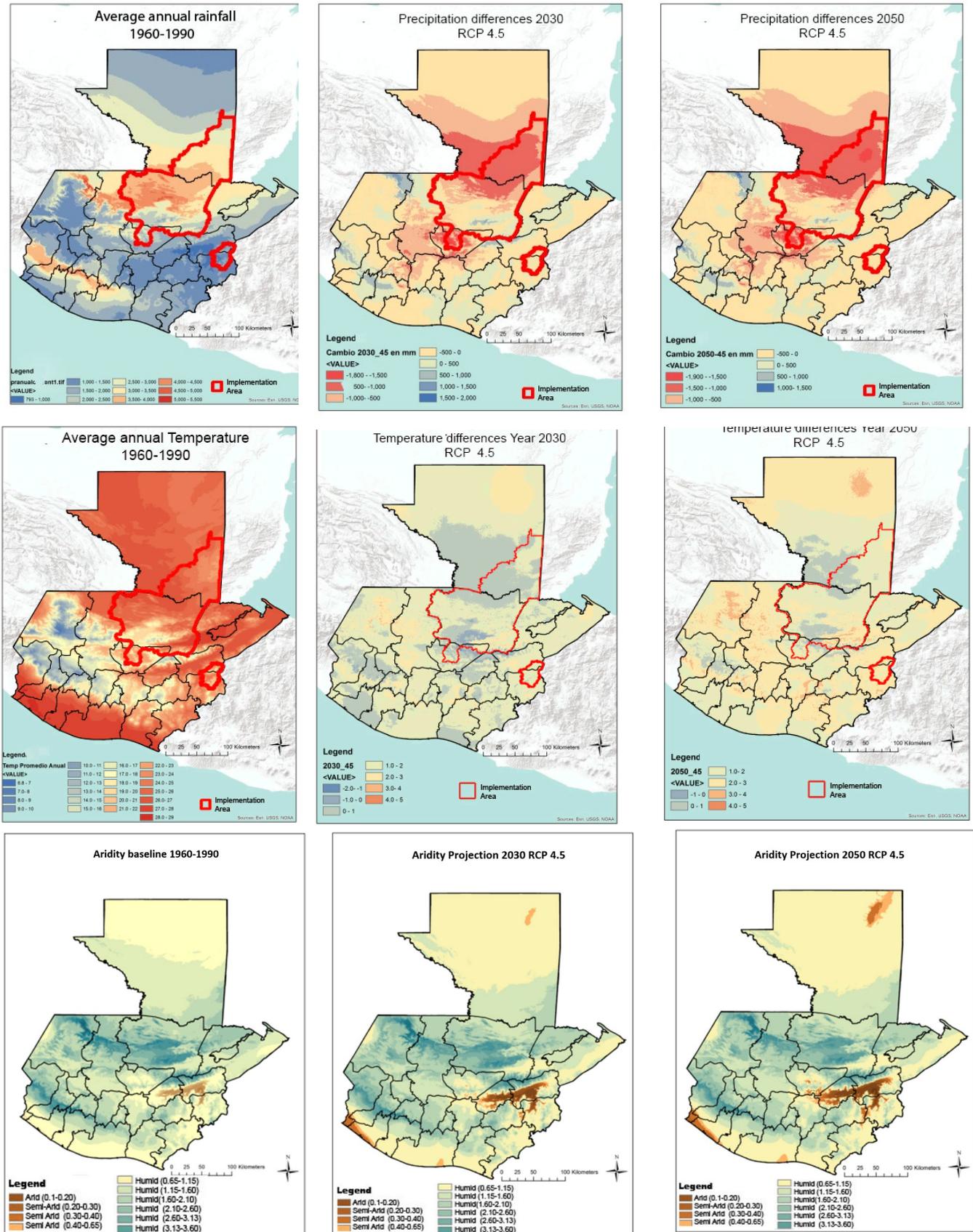


Figure 2: Projections for the annual average rainfall, mean temperature and aridity index, under the RCP 4.5 scenario for 2030 and 2050 (with baseline 1960 – 1990). (Note: The project area is delineated)

Vulnerability of smallholder farmers to climate change

22. Smallholder farmers cultivate marginal lands (e.g. steep hillside slopes, areas with poor soils or areas prone to soil erosion and water scarcity) and depend on rain-fed agriculture. The increase in aridity in the project area is the major climate risk. Maize and beans are the main staple crops, they are highly sensitive to change in aridity and moreover, the seeds used are of low quality and very sensitive to precipitation and temperature changes. Current agricultural practices such as slash and burn result in long-term loss of soil moisture and nutrients making the lands unproductive and leading to the conversion of forests to agricultural lands. Reduction of crop yields will put the food security of subsistence farmers at high risk. Projected impacts of climate change on crop yield for the project area by 2030 are shown in Table 1.

Table 1. Projected climate change impacts on crop yield by 2030 for the project area with baseline mean annual yield between 2001 – 2009.⁴⁰

Departments	Scenario B2			Scenario A2		
	Maize	Beans	Coffee	Maize	Beans	Coffee
Alta Verapaz	-5,1%	6,6%	-3,6%	-8,7%	-3,6%	-1,4%
Baja Verapaz	-2,2%	4,8%	-3,8%	-1,7%	-0,9%	0,2%
Petén	-10,3%	-7,7%	-18,9%	-13,3%	-11,5%	-13,8%
Chiquimula	-9,2%	-4,7%	-9,5%	-13,1%	-11,9%	-8,7%
Zacapa	-8,8%	-6,8%	-11,3%	-11,4%	-12,3%	-8,6%

23. **The impacts of climate change on agriculture would result in serious socio-economic implications leading to increase in poverty, food insecurity, malnutrition, and migration.** The majority of smallholder farmers in the Mayan Lowlands and the Dry Corridor, live in poverty conditions, which affects their capacity to cope with climate change due to lack of adequate climate information, limited knowledge of and access to adaptation solutions and insufficient income sources to purchase food in times of crises. Crop failure and land degradation have given rise to high migration levels of men abroad, thus leaving many women to head the household and the agricultural activities alone. Even coffee and cocoa producers and field workers are vulnerable to climate change as they depend only on these crops for income, therefore have low productive diversification and consequently run high financial risks.

24. **To address the abovementioned climate change threats, several measures are needed to enhance the resilience of ecosystems which sustain agricultural production, adapt the agricultural systems to achieve food security and build resilient livelihoods.** A combination of improved basin management, water-conservation technologies and improved seeds, will enable the shift towards adapted agricultural systems to new climate regimes. Tailored climate information services will be critical to inform farmers on the effective application of those practices and would be essential for wider adaptation efforts at a national level. Adequate management of forest cover can play a fundamental role in water resource regulation and availability in dry seasons. Resilient forestry can result in up to 25% more water during the dry season compared to vulnerable and poorly managed areas.⁴¹ At present, land degradation and deforestation are an underlying contributor to the sensitivity of the ecosystems and their hydrological services in the target regions. To enable these changes, public and private stakeholders at national and local level will require enhanced capacity and coordination. The links between these actions and the key climate change impacts & challenges outlined above are summarized in the Table 2.

⁴⁰ ECLAC, 2018. La economía del Cambio Climático en Guatemala. Documento técnico 2018. ECLAC: <https://repositorio.cepal.org/handle/11362/43725>

⁴¹ Álvarez, 2010. Influencia de la cobertura de bosque nativo en la generación de escorrentía en el sur de Chile: estudio comparativo de microcuencas (Tesis de Maestría). Santiago de Chile: Universidad de Chile. Obtenido de <http://repositorio.uchile.cl/handle/2250/102485>

Table 2. Key climate change threats, associated impacts and adaptation measures needed.

Key climate change threats in the project area	Major climate change impacts	Adaptation measures needed
Temperature increase will increase evapotranspiration resulting in increased aridity.	<p>Farming systems:</p> <ul style="list-style-type: none"> Increasing evapotranspiration and crop water requirements at farm/field level (even if overall water supply is not declining across the basin in the short run). Loss of crop yield of staple and cash crops <p>Farmers' livelihoods:</p> <ul style="list-style-type: none"> Increased food insecurity and malnutrition Migration Increased poverty 	Support climate resilient community micro-basin planning and management to ensure sustainable water management under different climate regimes.
Increased variability and distribution of precipitation.		Support farmers in adopting water and soil conservation practices for the agricultural systems and the use of climate information services especially relevant for drought conditions.
Increased risk of extreme weather events (droughts).		Enhance forest management to ensure the provision of hydrological services which sustain the agricultural systems.

Prioritization of project areas

25. The prioritization process of the project areas considered a combination of criteria relevant to climate risk and exposure combined with socio-economic indicators, which characterize the adaptive capacity of the population. The prioritization was conducted at two levels: (1) Areas with high climate risk and (2) Municipalities with low adaptive capacity of the population:
- 1) Areas with high climate risk: The prioritization criteria at this level considered a Risk Index that was developed to determine, which rural agricultural communities are (i) most exposed (as a % of the municipal territory dedicated to annual agriculture and/or coffee); (ii) there is high restoration potential (as a % of the municipal territory with forest restoration potential); and (iii) experience the highest climate threat (as a % change in aridity).
 - 2) Municipalities with low adaptive capacity of the population: The prioritization criteria at this level included (i) total poverty higher than the national average; (ii) extreme poverty is higher than the national average; and (iii) high and very high level of chronic malnutrition⁴².
26. Once the municipalities with high and very high-risk levels were identified, the municipalities which already are implementing projects relevant to climate change were excluded from the selection process. The final project area is comprised of five departments (Alta Verapaz, Baja Verapaz, Petén, Chiquimula and Zacapa) with 29 municipalities. The smallholder farmers in the prioritized project area practice subsistence agriculture and have high dependence on maize, beans, coffee, cocoa and family gardens both for food security and for income generation. Figure 3 shows the map of prioritized Municipalities. A detailed description of the prioritization criteria and process is included in Section D.2 of the Feasibility Study.

⁴² National Strategy for Chronic Malnutrition: <http://www.sesan.gob.gt/wordpress/wp-content/uploads/2017/07/Estrategia-para-la-Prevencion-de-la-Desnutricion-Cronica.pdf>

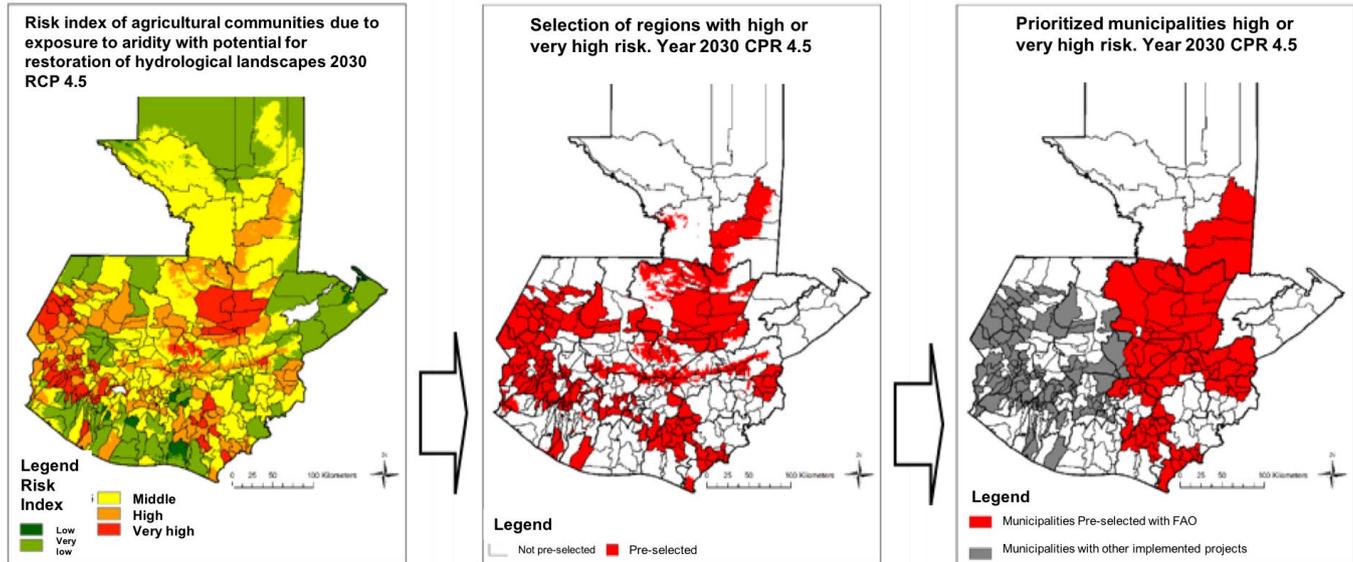


Figure 3 - Maps illustrating the prioritization process to identify project target areas: a) Map of risk index for 2030, b) Prioritization of regions with high risk and c) Municipalities with high and very high risk (red) and municipalities where other adaptation projects are being implemented (grey). The Municipalities in red color are the prioritized areas, where the project will be implemented.

Because the total number of municipalities (and hence the working area) was very large (73 in total, as shown in red in figure 2.c), a second prioritization was done based on the population vulnerability to CC. The following indicators were used for this purpose: (1) higher total poverty than the national average (more than 61%); (2) extreme poverty higher than the national average (higher than 25%); and (3) municipalities prioritized by the National Chronic Malnutrition Strategy (areas with high and very high chronic malnutrition).

Related projects/interventions

27. Guatemala has experience with implementing climate change projects. The RELIVE project will build upon the lessons learned and seek coherence with: (i) Inter-American Development Bank (IDB) funded project “Recovery of the Natural Capital of the Dry Corridor and Climate Adaptation of its Population”; (ii) The Adaptation Fund project “Project on Productive Landscapes Resilient to Climate Change and Strengthened Socioeconomic Networks in Guatemala”; (iii) the Forest Investment Program “Forest Governance and Livelihoods Diversification” and “Sustainable Forest Management”. See Section A4 – Table 13 of the Feasibility Study for detailed description of complementarity with other climate investments in Guatemala. The RELIVE project will also complement projects currently in implementation in the country such as the GCF - funded project “Building livelihood resilience to climate change in the upper basins of Guatemala’s highlands” (2019 – 2026) implemented by the International Union for Conservation of Nature (IUCN). RELIVE project will not overlap with this project but they will complement each other based on different geographic location, different beneficiary groups and different proposed activities. Additionally, RELIVE project will seek synergies with two GCF projects by CABI – (1) Ecosystem-based Adaptation to increase climate resilience in the Central American Dry Corridor and the Arid Zones of the Dominican Republic (*under review*) and (2) Productive Investment Initiative for Adaptation to Climate Change (CAMBio II) (*approved*). While these projects will work in the Dry Corridor, the project sites will not overlap with RELIVE project, but as they will work in a similar context, there is a high potential for synergies and complementarity (see Figure 4). In particular, on one hand replication of RELIVE agricultural resilient practices by CABI project areas and on the other hand, RELIVE will explore the suitability of the financial mechanisms promoted by CABI projects for the specific adaptation solutions and beneficiary groups. For detailed description of recent and on-going projects and their relation to the RELIVE project see Section A.4 of the Feasibility Study.

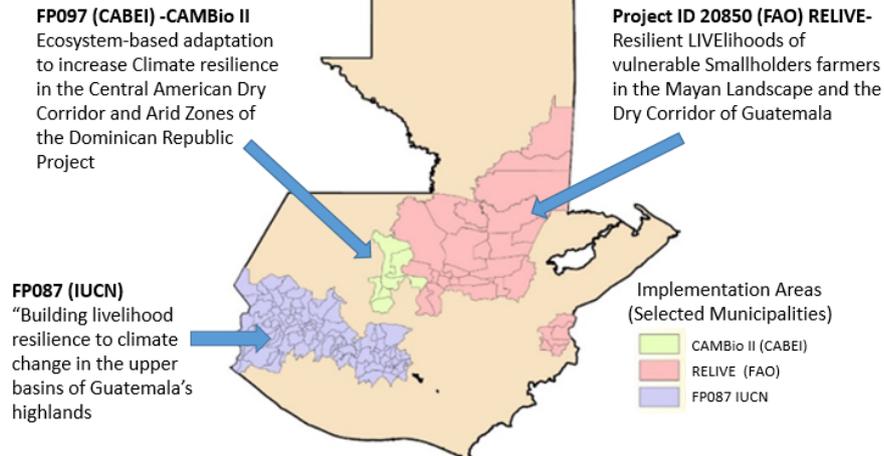


Figure 4 – Project sites of CABEI, IUCN and RELIVE projects

28. Coordination with CAMBIO II is extremely important, since it aims to institutionalize the provision of financial and technical assistance to the banking sector across seven countries (Guatemala included), thus removing barriers to access financial services for adopting and implementing climate change adaptation measures. While the beneficiaries of CAMBIO II are micro, small and medium sized enterprises, the project is serving as a demonstration platform to prove that investments on adaptation practices in agriculture can be attractive to commercial banks and financial institutions previously not experienced in environmental/adaptation projects. Both projects will work closely together, so the financial mechanisms promoted by CAMBIO II can be also available for the specific adaptation solutions and beneficiary groups of RELIVE.
29. The project is aligned with Guatemala's NDC adaptation commitments, which prioritize agriculture, livestock, and food security, with focus on food production for self-consumption and subsistence, forestry, conservation and management of strategic ecosystems, integrated approach to water resources, and a risk-reduction integrated approach. For more detailed information on other policies that this project supports and complements, refer to section B.5 of the FP.

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

Barrier analysis

30. There are several critical barriers to achieve climate resilient agriculture in Guatemala. A description of the barriers is presented below and a summary on how the project will address these barriers is presented in Table 3.

1) Information barriers

- **High uncertainty and lack of adequate local data to produce downscaled climate information for agriculture** – National institutions such as INSIVUMEH and MAGA have made important efforts in coordinating and complementing information and produce monthly bulletins on crop prices and hydrometeorological information. However, there are still constraints for farmers to effectively use the seasonal forecasts, such as: forecasts arrive too late to inform farmers, lack of information about season onset or length; coarse spatial scale lacks local information. Although a network of hydrometeorological stations is in place in the target micro-basins, they are not enough to generate accurate and downscaled information needed by farmers. Therefore, there is a need to upgrade existing stations and install new ones.
- **Lack of tailored climate information and inequitable access** - Extension officers have limited knowledge on how to use climate information, which hinders their capacities to make informed decisions regarding resilient agricultural strategies. Additionally, majority of farmers have limited knowledge and unequal access to climate information. Currently, it is delivered on a regional scale through monthly newsletters using format and communication channel that are not adequate for farmer needs and do not exist in local language.

2) Technical barriers

- **Limited knowledge and capacity of farmers on water resource management and CC resilient agricultural practices** - Actions implemented by national and local authorities, local farmers, and other users impact hydrological regulation and threaten food security especially during drought conditions. Additionally, farmers employ unsustainable practices described earlier and conventional crop varieties, and do not have a reliable and affordable means of accessing resilient alternatives that are compatible with decreasing water availability. Smallholder farmers

are often unaware of or do not have access to adequate information and adaptation solutions that will reduce their vulnerability and increase the resilience of their livelihoods.

- **Limited capacity of extension services to provide tailored technical assistance on climate change** - The extension services have a good knowledge of aspects related to the production of basic grains, coffee and cocoa, however, their knowledge in applying a climate change approach is limited. Current trainings and capacity building of extension services workers by the System for Rural Extension (SNER) do not integrate CC topics. The extension services face severe financial constraints that limit the ability of staff to travel to rural areas and work with smallholder farmers. The existing Learning Centers for Rural Development (CADER) are lacking the required capacity and access to information on CC to advice farmers.
- **Inadequate water and land-use management planning** – At present there is a lack in planning instruments at national level to guide local water resource and land-use management. This often results in unsustainable land and water use in the watersheds. In a context of decreasing water availability due to CC in the prioritised areas of the project, the lack of water and land-use management plans will exacerbate water scarcity problems and agricultural impacts.

3) Financial barriers

- **Relatively high cost of upfront investments** - Small-scale farmers in rural Guatemala generate insufficient cash surpluses to build their own resilience. It is therefore difficult for them to afford the up-front costs of many climate resilience investments (new seed varieties, water storage infrastructure, irrigation systems, etc.). Similarly, farmers cannot afford the up-front cost of technical studies and land title required to access the INAB forestry incentives. The same poverty that forces dependence on rainfed agriculture limits efforts to adopt climate resilient practices.
- **Refusal of commercial banks to lend for climate resilience-agriculture activities** - Critical resilience activities are not directly revenue generating and they do not generate appropriate collateral for commercial borrowing -At present farmers are highly vulnerable to climate risks and often their yield and quality of crops is conditioned by climate variability and may suffer high loss, making it impossible for farmers to generate any surplus income. As a result commercial banks consider small farmers to be high risk clients and therefore are unable or unwilling to provide capital required to invest in climate resilience measures.

4) Social barriers

- **Women are disadvantaged regarding access to resources and information** – Women are usually the demographic group that stays working at the farms (men often migrate to the city and abroad for better jobs). They only have access to smaller credit lines and usually at higher interest rates than men.⁴³ A detailed analysis of the gender gaps in Guatemala and in the project area is presented in the Gender Assessment (See Part I of Annex 8).
- **Language barriers** - To access knowledge and acquire skills regarding the management of natural resources, indigenous peoples face linguistic barriers as many do not speak Spanish. Critical information, including the requirements of the government institutions to access available support mechanisms such as the INAB forestry incentives such as PINPEP and PROBOSQUE, is available solely in Spanish.

5) Institutional barriers

- **Weak local and national governance of water resource management and climate change** – Institutions have limited capacity to lead multi-stakeholder collaboration processes on climate resilient agriculture and water resource management at different governance levels. Although the Government has well-developed technical capacities, it lacks the financial and technical resources required to meet the additional challenges posed by CC, and to bring about the paradigm shift that is needed in the provision of institutional support to those affected by CC impacts.
- **Limited capacity for knowledge management and sharing on climate change to inform policy making** – Although there are existing systems and sharing platforms for knowledge generation and management of climate information, these lack capacities and coordination mechanisms for exchanging knowledge and lessons learned to support farmer decision-making and inform policies.

Table 3. Summary of the adaptation barriers (information, technical, social, financial and institutional barriers) and how the project will address them.

	Adaptation barriers	How the project will address the identified barriers
Information barrier	Insufficient accuracy and lack of downscaled climate information for agriculture	The project will strengthen the generation of and access to tailored climate information and improve capacities of farmers and extension workers to use the information for decision making (Output 1.1 and Output 1.2). The project will support the generation of climate information specifically tailored to the agricultural production systems: maize, beans, cocoa and coffee. It will improve access of smallholder farmers (especially indigenous population and women)

⁴³ <https://elperiodico.com.gt/inversion/2018/01/04/mujeres-obtienen-menos-creditos-y-tasas-mas-altas/>

	Lack of tailored climate information and inequitable access	through culturally adapted information channels, such as SMS, in local languages.
Technical barriers	Limited knowledge and capacity of farmers on water resource management and resilient agricultural practices	The project will enhance knowledge sharing and capacity at multiple levels on climate resilient strategies for agriculture and water resources (Output 1.2, Output 2.1 and Output 2.2). The project will implement validated climate resilient agricultural practices and water management micro-infrastructure tailored to the specific conditions of the project area and needs of the population (Output 1.2 and 2.3). Training and capacity building approaches are tailored to address the specific knowledge and capacity needs of male and female farmers to effectively adopt climate resilient agricultural practices.
	Limited capacity of extension services to provide tailored technical assistance on climate change	The project will strengthen capacities of extension services to provide informed and tailored technical advice on climate resilient agricultural practices (Output 1.2 and 3.2)
	Inadequate water and land-use management planning	The project will strengthen capacities of local actors and support the development of community-led water management plans for the prioritized micro-basins (Output 2.1).
Financial barriers	Relatively high cost of upfront investments	<p>(1) The project helps to buy-down the up-front costs to access the forest incentive program for the poorest and most vulnerable beneficiaries. To ensure sustainability and scalability the project will work in close collaboration and will provide capacity building for the municipal forest agencies in order for them to prepare such technical studies at a very low/affordable price for the farmers. (Output 1.2)</p> <p>(2) The project will strengthen community-based organisations such as cooperatives, micro-enterprises, and farmers associations to facilitate access to affordable inputs and marketing products. The project will further promote seedbanks and "chain pass" (solidarity networks) to distribute vegetative material in municipal, community and MAGA nurseries in order to reduce the cost of acquiring seeds, plants and other vegetative materials (Output 1.2)</p> <p>(3) The project activities help to improve output, ensure a predictable yield and increase prices earned by growers, thereby making them more bankable. The project will create access to markets by linking with the private sector and Government institutions that will purchase RELIVE's production (Output 1.3.) In addition, the project promotes alternative strategies for income generation and forest incentives (under the PINPEP and PROBOSQUE programs) focusing on agroforestry systems to ensure that smallholder farmers have a safety net to avoid food insecurity in case of a drought (Output 1.3 and Output 2.2).</p> <p>(4) The project will strengthen community-based organizations such as cooperatives, micro-enterprises, and farmers associations to facilitate access to finance from commercial banks for climate resilience-agriculture activities (in coordination with the CAMBio II project). RELIVE will gather information from CAMBio II, to link commercial banks with RELIVE's beneficiaries to have access to loans. (output 1.2.)</p>
	Refusal of commercial banks to lend for in climate resilience-agriculture activities	
Social barriers	Women are disadvantaged regarding access to resources and information	Project activities consider gender-sensitive and transformative actions by adopting strong participatory approach and focusing specific activities to empower women and improve their economic situation (Output 1.2 and 2.2). The project promotes women-led seed banks as a key strategy for agricultural resilience. Additionally, a central focus of the project is to facilitate women-owned farms to access forest incentives for implementation of agroforestry and diversification through PINPEP and PROBOSQUE.
	Local traditions and language	The project ensures that all activities will consider the collection of local traditional knowledge and integrate it in science-related

		information to provide culturally relevant adaptation solutions and information in local languages.
Institutional barriers	Weak local and national governance of water resource management and climate change	The activities will enhance capacities of local and national institutions to develop governance mechanisms for water management and climate change (Output 3.1 and 3.2). This will be achieved through capacity building for mainstreaming climate change in existing governance mechanisms and establishment of multi-stakeholder dialogues. It includes facilitating MAGA and MARN planners to design and institutionalize a National Climate Change Adaptation Program, which will allow the channeling of public policy instruments to producers, both in the Project's area of influence and in other regions of the country. This will support the scalability of the project results.
	Limited capacity for knowledge management and sharing on climate change to inform policy making.	

31. The theory of change builds on the fact that reducing the vulnerability of smallholder farmers depends on maintaining or increasing agricultural production under various climate change scenarios and on promoting climate resilient livelihoods. By also promoting an enabling environment, the project will encourage such transformation through favorable policies and capable institutions. The transformational aspect of this project comes from its integrated approach, where strategies proposed at landscape (micro-basin level) and farm level are complementary. The project addresses specific needs of most vulnerable farmers using the combination of traditional and innovative climate resilient techniques for soil and water conservation. The sustainability and resilience of farm livelihoods depend on the appropriate management of water resources and restoration of lands. Farm management contributes to the ecological and hydrological functioning of the watershed as a whole. This represents a new model for climate-resilient rural development in Guatemala that combines integrated adaptation solutions focused on livelihoods and agroecosystem-based adaptation. The theory of change for the paradigm shift to be delivered through the project is illustrated in Figure 5. At farm level, Outcome 1 introduces tailored and accurate climate information accessible to farmers to better inform their climate resilient strategies and implements these practices. At watershed-level, Outcome 2 fosters planning processes for water resource management at micro-basin scale and invests in the restoration of degraded areas. Both outcomes will contribute to farmer-led planning, technology development and knowledge management needed for a transformational change to climate resilient livelihoods. Outcome 3 strengthens institutional capacities for governance and knowledge management at all levels in the context of climate change to allow for sustainability and scaling up.

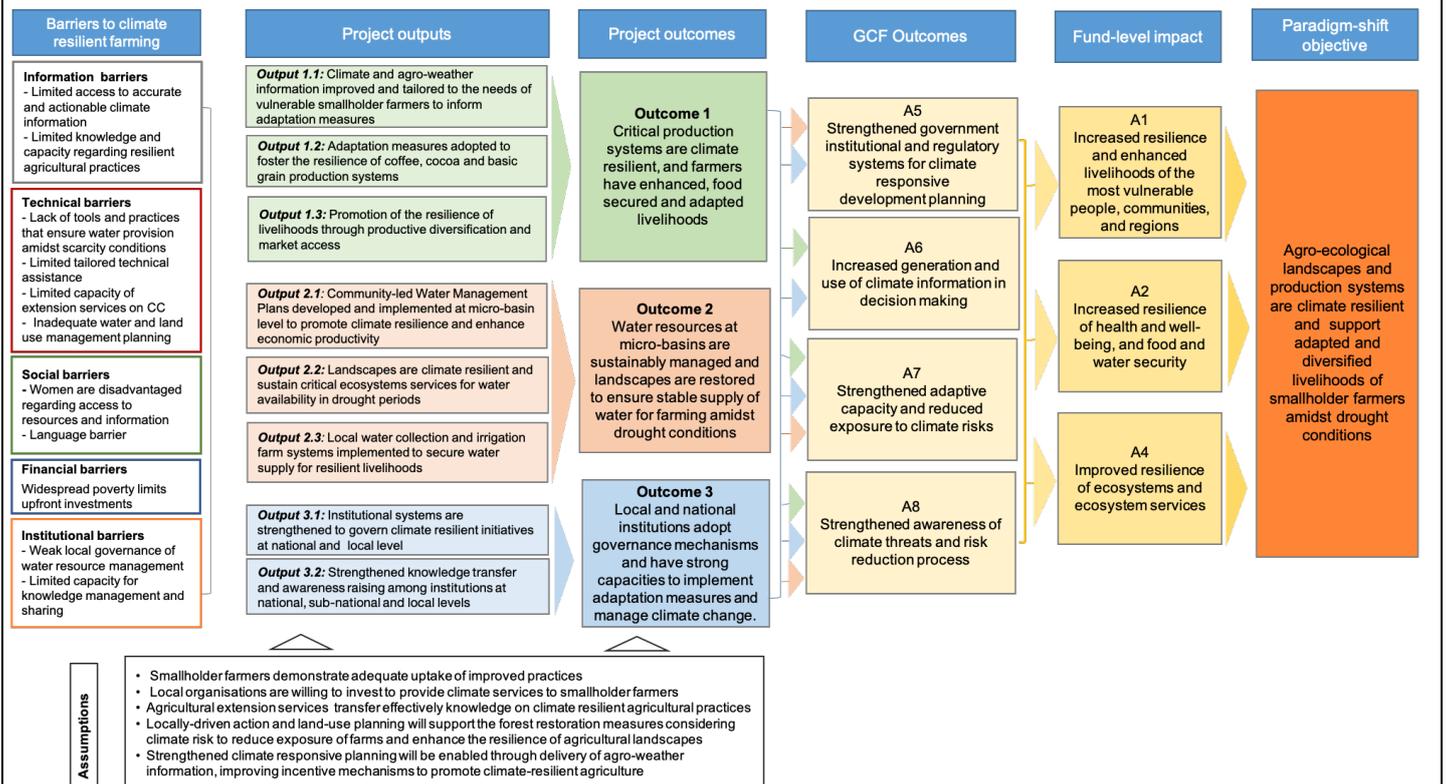


Figure 5. Theory of change for the paradigm shift to be delivered through the project.

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

Project objective

32. The project aims at building the resilience of Guatemala's most vulnerable farmers and their livelihoods against the impacts of climate change. The project will promote drought-resilient crop production systems by adopting a package of proven and validated adaptation measures. It will also be transformative in its focus on promoting women's equitable representation in project activities and enabling women's greater economic empowerment and participation in decision making. This project will address national climate change priorities, and government stakeholders including MARN, MAGA and INAB will have an active role. The project will select its beneficiaries using the general criteria: (i) Farmers who live in extreme poverty⁴⁴ and their production is below subsistence (ii) Farmers practice Family Agriculture (FA)⁴⁵, and (iii) Farmers owning up to 1 ha of available land for agricultural activity (own or rented). Section B.3 summarises the eligibility criteria used in the selection of the project beneficiaries.. The project will focus on the most vulnerable region of Guatemala to the effects of CC, namely the Departments of Petén, Alta Verapaz, Baja Verapaz, Zacapa and Chiquimula. The project has three key outcomes:

1. Critical production systems sustain productivity under droughts and heatwave, farmers have enhanced, food-secured and adapted livelihoods;
2. Water resources at micro-basins are sustainably managed and landscapes are restored to ensure stable supply of water for farming amidst drought conditions; and
3. Local and national institutions and governance mechanisms have enhanced capacities to implement adaptation measures to climate change.

Project Components

33. The objectives of the project will be achieved through three interlinked components (Figure 6). The first component will target agricultural climate resilience actions at local level, the second component will ensure access to water resources and management at watershed scale, and the third component will facilitate the necessary enabling conditions:

Component 1. Implementing climate resilient agricultural practices and enhancing farmers' livelihoods

Component 2. Supporting efficient water management for agriculture to reduce the impact of increased water scarcity

Component 3. Improved enabling conditions for climate resilient livelihoods

⁴⁴ Poor: the part of the population that does not reach the minimum income to cover a basket that meets their food and non-food needs. Extreme poor: those who are unable to cover the cost of minimal food consumption.

⁴⁵ Limited Access to productive land and capital resources; Predominant use of family labor. The head of the household takes part directly in the productive process; in other words, although there may be some division of labor, the head of the household does not act exclusively as manager, but is one of the workers in the household; agricultural/forestry/fishing aqua cultural activity is the household's main source of income, and may be complemented by other non-agricultural activities performed inside or outside the family unit (services related to rural tourism, environmental benefits, production of crafts, salt agro industries, occasional jobs, etc.).

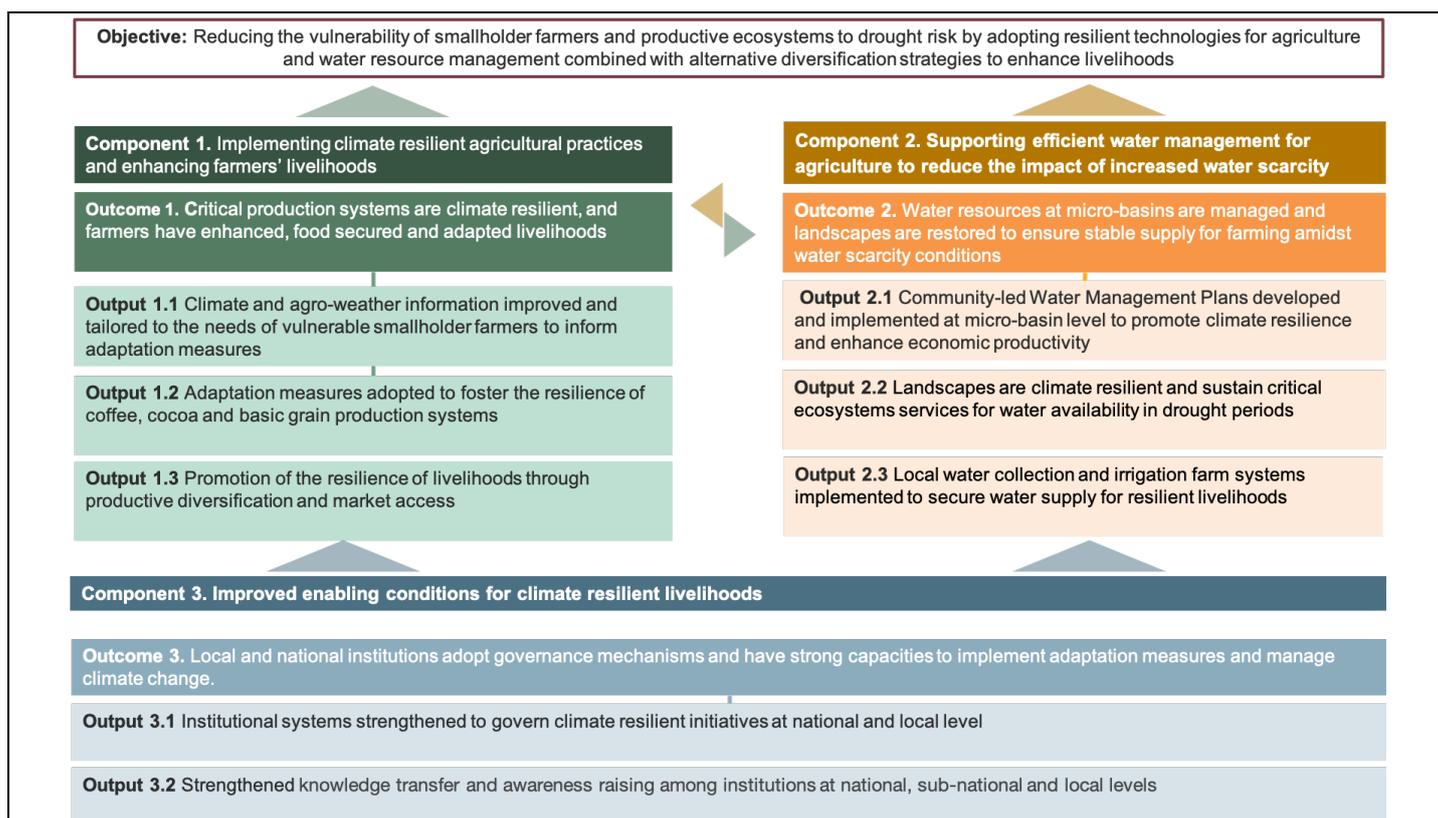


Figure 6. Structure of RELIVE project.

34. The technical solutions proposed by RELIVE in components 1 and 2, adopt tested solutions, which have proven to build resilience in the agricultural systems. The proposed adaptation solutions are based on the experience and lesson learned from initiatives implemented in other countries by FAO and the Tropical Agricultural Research and Higher Education Center (CATIE). They consist of innovative practices for the country and especially for the smallholder farmers in the project area, who currently use conventional and often unsustainable agricultural practices. Details on the innovative aspects of the proposed adaptation measures are described in Section D.6.2 of the Feasibility Study.

Component 1. Implementing climate resilient agricultural practices and enhancing farmers' livelihoods

GCF: USD 14,108,106
KOICA: USD 5,699,160
MAGA: USD 5,740,000

35. Component 1 is designed to promote resilience of agricultural producers at farm level. It will improve the capacity of farmers to reduce drought-related production losses by using climate information and adopting climate resilient agricultural practices. Table 4 lists a set of proposed selection criteria for beneficiaries additional to the general selection criteria. These criteria ensure that the farmers most in need will benefit from the project interventions (see Section C.3 of the Feasibility Study for more information on beneficiary selection).

Table 4. List of selection criteria for beneficiary selection under project activities under Output 1.2 and Output 1.3.

Project activity	Criteria for project beneficiary selection
Implementing adaptation practices for basic grains and family gardens	<ol style="list-style-type: none"> 1. <u>Farmers engage in growing maize and/or beans and possess family gardens</u> 2. <u>Household with 6 or more members.</u> 3. <u>Children under 7 with some degree of malnutrition.</u>
Implementing adaptation practices for coffee and cocoa	<p>The same criteria as above and additionally include:</p> <ol style="list-style-type: none"> 1. <u>Possess up to 1 ha of available land</u> for the agricultural activity (own or rented they can prove it) 2. <u>Engage in coffee growing with shade.</u>

36. Output 1.1: Climate and agro-weather information improved and tailored to the needs of vulnerable smallholder farmers to inform adaptation measures.

The project will address the lack of accurate and tailored climate information, while promoting equitable access to climate information needed by smallholder farmers to prevent damage to agricultural production. The activities will focus on improving collection, interpretation and dissemination of reliable downscaled climate information relevant for staple crops (maize and beans) and cash crops (coffee and cocoa). This information will allow farmers to make better decisions and manage climate variability and climate-related shocks for improved food security. For staple crops, the project will work with FAO developed Agricultural Stress Index System (ASIS)⁴⁶ and Famine Early Warning System Network (MFEWS)⁴⁷ (See Section B.3 of the Feasibility Study). An innovative aspect at regional level is that forecasts will be for the coming three months t, which will allow farmers to select the suitable seed variety and adaptation practices to be used in a timely manner. For coffee, the project will work with the Coffee Cloud application of ANCAFÉ (for more information on this, see section C.6 of Feasibility Study). For cocoa, a specialized tool will be developed to allow farmers to access timely climate information and recommendations for adaptation solutions. Although there are advances in monitoring of climate variability at a local scale, the available equipment is not sufficient to generate the required accurate climate information at a local scale. The project will install 13 hydrometeorological monitoring equipment as part of INSIVUMRH network system of monitoring stations in targeted areas of the project (for details on the installation sites see section C5 of the Feasibility Study).

37. INSIVUMRH will receive capacity building on the generation of agro-weather information and will continue managing and using the newly installed equipment (with GCF proceeds) after the project ends. This equipment will provide real time climate information needed by farmers. The project will enhance the coordination of agencies engaged in collection and dissemination of climate information. Climate information and agricultural advice will be delivered in local language and in a gender-sensitive manner via SMS, extension officers and existing local organizations. The use of the information will be encouraged through awareness raising on the importance of the information for adaptation strategies and local agro-ecological centers for climate change adaptation that will provide an experimentation field. All measures will be demonstrated through field visits to share knowledge on how to improve crops under different climate scenarios

38. MAGA extension workers will support the design of the agro-meteorological monitoring systems, they will support the provision and collection of information to respond to the needs of stakeholders, provide advice on the format and language employed for information dissemination, and the mechanisms to present information. KOICA will fund the Implementation of 4 agro-ecological centres for climate change adaptation and knowledge generation, from which GIZ will built 3 of them and one (already existing) will be renewed by GIZ., dissemination and use of tailored climate information products and awareness rising on policy instruments in support of agroforestry production, water resource management and production and marketing with a climate change approach. Project activities are designed and will be implemented in accordance with the Gender Action Plan to ensure the adoption gender sensitive approach (see Part II of Annex 8). KOICA will fund the Implementation of 4 agro-ecological centres for climate change adaptation and knowledge generation, from which GIZ will built 3 of them and one (already existing) will be renewed by GIZ Each of the agro-ecological center will have: 1) a capacity building room where key stakeholders will participate in training processes; and 2) experimental field plots where the climate resilient practices will be tested and validate. The location of the centers (Activity 1.1.4) follows a preliminary scoping that considered the assessment of similar initiatives in the project region, to avoid duplication and to ensure that the project is well represented in the different project districts.

39. An innovative aspect of the agro-weather information is the use of detailed satellite climate information such as the Normalized Difference Vegetation Index (NDVI) and data from the Climate Hazards Group InfraRed Precipitation with Station (CHIRPS). Another system that will be used is the Agricultural Stress Index System (ASIS) developed by FAO to detect agricultural areas where crops could be affected by drought. This system is based on 10-day satellite data (decadal) of vegetation and land surface temperature produced by the METOP-AVHRR sensor that has a resolution of 1 km. Additionally, the very innovative meteorological forecast system developed for Guatemala by INSIVUMEH (2020)⁴⁸ will also be an instrument made available to extension officers and farmers to access accurate and timely meteorological information relevant for the successful implementation and management of climate resilient agricultural systems. The climate data generated by the two existing platforms (platforms ASIS and CHIRPS) mentioned above and from INSIVUMEH will be used by the project free of charge. NDVI (Normalized Difference

⁴⁶ Agricultural Stress Index System (ASIS): <http://www.fao.org/resilience/news-events/detail/en/c/296089/>

⁴⁷ Famine Early Warning System Network (MFEWS): <http://fews.net/es/central-america-and-caribbean>

⁴⁸ Government of Guatemala. National Institute of Seismology, Volcanology, Meteorology and Hydrology (INSIVUMEH). <https://insivumeh.gob.gt/meteorologia/pronostico-wrf/wrf-kainfritsch/>

Vegetation Index), refers to information that can be obtained from available free of charge remote sensing imagery, such as LANDSAT 7 and LANDSAT 8 and SENTINEL.

Activity 1.1.1 Organize workshops for extension technicians and farmers regarding the importance of climate information and use in decision-making

Activity 1.1.2 Install 13 hydro-meteorological monitoring equipment for drought to inform climate resilient agricultural management strategies.

Activity 1.1.3 Disseminate climate information and response adaptation measures using locally-relevant delivery mechanisms as virtual platforms, electronic means, telecommunication and visits of the extension workers.

Activity 1.1.4 Implement 4 local agro-ecological centers for climate change adaptation for knowledge generation and sharing

Output 1.2: Adaptation measures adopted to foster the resilience of coffee, cocoa and basic grain production systems

40. The project will promote practices that will reduce farmers' vulnerability to crop losses caused by drought and heatwaves. This will be achieved through the implementation of gender-sensitive agricultural adaptation packages for staple crops (maize and beans) and cash crops (cocoa and coffee), which will bring together climate resilience agricultural practices. Each gender-sensitive agricultural adaptation package is described below listing practices and their expected adaptation results (Table 5). The proposed practices will be targeted and adjusted as necessary to reflect farm-specific, culturally-relevant and gender-responsive needs and priorities.
41. The project will overcome the limited purchase capacity and high up-front investments for agricultural inputs by the creation of community seed banks and farmer "solidarity networks" such as the so called "chain pass" (*pase en cadena*). These community-led mechanisms will be managed by women groups to distribute vegetative material in municipal, community and MAGA nurseries will reduce the cost of acquiring seeds, plants and other vegetative materials, thus provide incentives for new farmers to replicate the agricultural adaptation packages. Additionally, savings strategies will be promoted, such as Contingency Funds or Savings Groups, especially for women producers. These strategies contribute to strengthening entrepreneurial capacities of women via the management of seed nurseries and creating sources for alternative income generation, thus making them more resilient in cases where events of climate variability occur that affect productive systems. An innovative aspect of the proposed project interventions includes the development of a platform to provide timely information to seed suppliers on seed availability enabling producers to have a seed portfolio available and climate adapted. The access of farmers and extension services to technical assistance with a specific focus on climate change consist an innovative measure as well.
42. The proposed climate resilient agricultural measures are based on traditional practices in the region, enhanced with scientific knowledge and know-how to better address climate challenges such as droughts. This includes improved drought-resistant seeds and varieties, sustainable land management, diversification through the introduction of trees of nutritional value and post-harvest management for the conservation of seed for sowing and self-consumption. To enhance the wide adoption and replication of the agricultural resilient practices, the project applies a multi-level strategy for capacity building and technical advisory. The capacity building strategy is mainstreamed across the project activities and summarized in Figure 7. The 3-levels capacity building strategy consists of:
 - Level 1: The project will train 90 extension services and other technical staff from MAGA and INAB (Output 3.2, Activity 3.2.1)
 - Level 2: MAGA and INAB will train 300 community promoters, 80 CADERs, and 100 SNER experts (Output 3.2, Activities 3.2.2 and 3.2.3)
 - Level 3: The promoters, CADER and SNER will support 6195 family farms, represent a total of 37,770 direct beneficiaries, who will have direct support for the implementation of the agricultural resilient practices. (Output 1.2, Activity 1.2.2)

The activities in Output 1.2 are focused on local level interventions and the project will support the delivery of the capacity building sessions aimed for farmers (Level 3) with Activity 1.2.2.

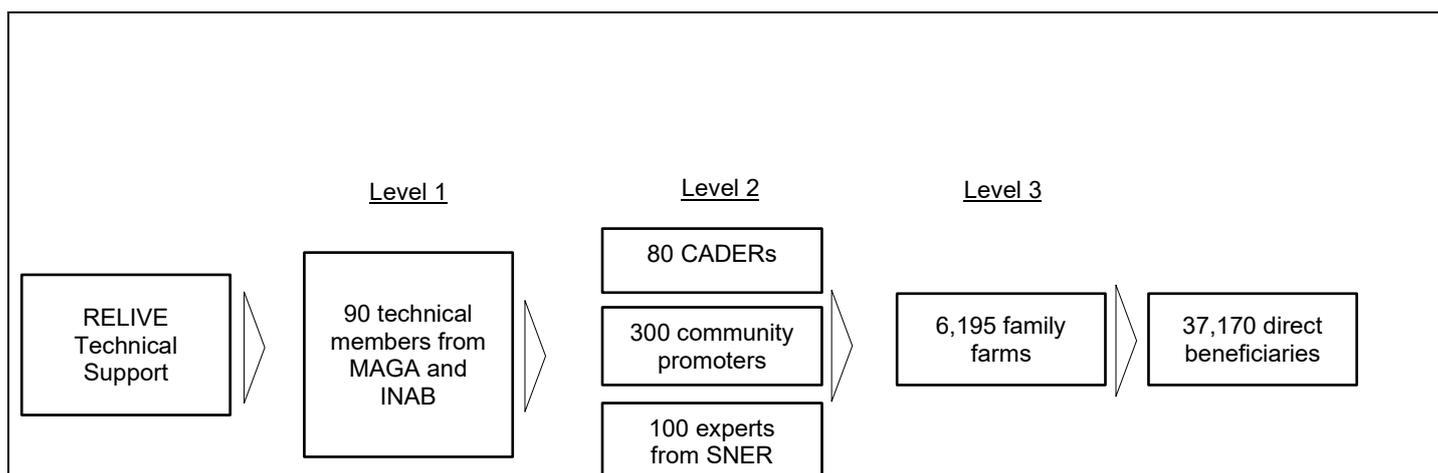


Figure 7. Multi-level approach to enhance the adoption of agricultural resilient practices.

The training and technology transfer process will be based on the existing MAGA and INAB platform, which will be reinforced by the project. For this, Farmer Field Schools, demonstration farms, training courses, and a learning-by-doing process will be used. As a result, the project will strengthen existing national agricultural platforms and it will foster the initiative to be scaled up to a greater number of beneficiaries. Farmers in Level 3 will further promote the agricultural resilient practices, especially within the same indigenous groups (where the same indigenous language is spoken), in other areas of the country. This will open the possibility to scale up the RELIVE model to other small farmers in the country. Capacity built in this output (Level 3) will unlock access of farmers and women in particular to financial services, which will be coordinated with CAMBio II project.

- 🔍 **Activity 1.2.1** Fund the implementation of the adaptation practices and gender-sensitive technology packages for staple crops, coffee and cocoa in 6,195 family farms.
- 🔍 **Activity 1.2.2** Implement at least 10 trainings to enhance the technical and organizational capacity of 6,195 farmers for climate-risk informed planning and implementation of agricultural adaptation measures at farm level
- 🔍 **Activity 1.2.3** Establish 28 women-led, farm-level seed nurseries for resilient crops and community forest nurseries
- 🔍 **Activity 1.2.4** Extension workers provide technical assistance through regular consultation sessions and field visits to 6,195 small farmers.

Table 5. Description of practices considered in the gender-sensitive agricultural adaptation packages and their adaptation benefits for basic grains, cocoa and coffee production systems

Gender-sensitive agricultural adaptation packages and activities	Adaptation benefits
Gender-sensitive agricultural adaptation packages for staple crops	
<p>The package includes the provision and use of drought-resilient varieties of maize and beans. This will maintain or increase the productivity of the crops, even during droughts and prolonged heat waves while contributing to food security. The package promotes the adoption of practices at farm-level to improve soil moisture retention capacity using agroecological approaches (for detailed description of the agroecological practices see section C.6 of the Feasibility Study). It promotes agrobiodiversity in family gardens by planting locally accepted species of fruit trees, timber trees and diversification with varieties of roots (see the list of selected tree varieties in Section C.6, Table 32 of the feasibility study). This will create microclimate and help ensure stable yields for food security⁴⁹.</p>	
<p>Prepare a seeds catalogue at community level and adopt climatically adapted seed varieties in collaboration with farmers and women's groups</p>	<ul style="list-style-type: none"> - Reduced crop failure in the event of rainfall failure during critical growth periods - Reduced harvest failure in the event of excessive rainfall during harvest

⁴⁹ These measures have been proven to be effective in other projects implemented by FAO such as Prácticas resilientes and Mesoamerica sin hambre.

<p>Diversify and adopt agrobiodiversity principles to create a favorable microclimate in the agriculture plot</p>	<ul style="list-style-type: none"> - Maintenance of microclimate conditions, resulting in reduced loss of soil moisture - Improved infiltration of runoff, recharging soil moisture reserves and contributing to aquifer recharge and stream flow stabilization at landscape level. - Input of soil organic matter, resulting in increased soil moisture retention.
<p>Improve organic matter content and soil moisture retention capacity</p>	<ul style="list-style-type: none"> - Increases in soil moisture reserves during unseasonal drought periods, associated with increased organic matter content - Reduced evaporative demand from crops - Maintenance of soil cover protects against temperature increases and resulting loss of soil moisture due to evaporation and decomposition of soil organic matter. - Reduction of soil disturbance and maintenance of cover reduces runoff and erosive losses during increasingly intense extreme rainfall events
<p>Post-harvest handling of basic grains</p>	<p>Improved grain storage technology for maize and beans to protect from extreme weather and pests to preserve them for longer periods, thus contributing to food security. The storage technology will be tailored to enhance resilience to climate change e.g. proper ventilation to avoid grain damage from excessive heat and moisture, and associated insects.</p>
<p>Gender-sensitive agricultural adaptation packages for coffee and cocoa productive systems</p> <p>The package promotes gradual renewal of coffee and cocoa productive systems with improved varieties. This is expected to result in an overall improvement of coffee production by 76% in 7 years with new varieties compared to business of usual scenario.⁵⁰ Additionally, other three species will be introduced for shade to increase resilience of coffee and cocoa planting. See list with proposed species for planting in section C.6 of Feasibility Study).</p>	
<p>Establishment of improved coffee and cocoa hybrids tolerant to rust and drought</p>	<p>Improved drought-resilient variety of coffee and cocoa decreasing the impacts from prolonged droughts, pest, diseases and coffee rust. The proposed varieties have already been used and are well accepted in other countries in the region as well as in other Departments in Guatemala (for more information see section C.6 of the Feasibility Study).</p>
<p>Adaptation and diversification of the structure of shade canopy for greater resilience to climate change</p>	<ul style="list-style-type: none"> - Maintenance of microclimate conditions, resulting in reduced losses of soil moisture - Improved infiltration of runoff, recharging soil moisture reserves and contributing to aquifer recharge and stream flow stabilization at landscape level. - Coffee: Density, spatial arrangements and pruning techniques allow for greater aeration in the coffee plantation to counteract temperature increases, and the particular architecture of the coffee plants allows better ventilation into the interior plants, especially in times of heavy rain, so that diseases such as rust cannot thrive. - Cocoa: The shade provides protection to cocoa plants from strong winds. Also, the shade contributes to cycling of nutrients, decrease in runoff (in the agroforestry system, runoff is 3% lower in comparison with full sun systems).⁵¹ Finally, the arboreal component helps to create favorable microclimate conditions for the growth of the main crop and is unfavorable for the development of diseases.
<p>Management of the nutrient balance of the coffee agroforestry system</p>	<p>Maintaining soil with the necessary nutrient stocks using compost and organic fertilizers will help plants to be less vulnerable to attack by pests and diseases and more likely to withstand extreme weather events. Climate information will inform farmers on the timing and amount of product application.</p>
<p>Management of coffee pests and diseases with emphasis on rust</p>	<p>Increased resilience of coffee towards pests and diseases by climate informed management practices e.g. the early warning for drought will inform farmers when to take specific measures to decrease the risk of pests and diseases.</p>

⁵⁰ Cerda et al., 2017. Primary and Secondary Yield Losses Caused by Pests and Diseases: Assessment and Modelling in Coffee. <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0169133>

⁵¹ Cerda, R. D. (2014). Contribution of cocoa agroforestry systems to family income and domestic consumption: looking toward intensification. *Agroforestry Systems*, 88(6), 957-981. doi:10.1007/s10457-014-9691-8

Output 1.3: Promotion of the resilience of livelihoods through productive diversification and market access

43. The project will promote alternative strategies for income generation to ensure that smallholder farmers create sustainable climate resilient assets as a safety net to avoid food insecurity in periods of crisis and total yield loss due to drought or heatwaves. Key diversification strategies will support climate-resilient value chain development for cocoa and coffee, diversification with family gardens and poultry, enhancement of business skills for better access to the market. Small-scale vegetable production and poultry to ensure greater dietary diversity will provide women with income-generating opportunities. The project will strengthen community-based organisations, such as cooperatives, micro-enterprises, and farmers associations to help linking small-scale rural entrepreneurs with private-sector players along the value chains in the long run.
44. Diversification is a climate risk-coping strategy. When smallholder farmers depend on limited number of climate-sensitive activities, this makes them highly vulnerable to climate risks such as prolonged drought. Diversification provides an opportunity for spreading the climate risk across different activities, therefore minimizing overall impacts and providing a safety net in the case of extreme drought. With more diverse production and activities, smallholder farmers will be given more options for coping strategies during prolonged droughts, thus increasing their resilience. The project will collaborate with the Government of Guatemala to link its nationally funded school meals program with the farmers and help catalyze the creation of a market for communities and stimulate local production and purchase. The smallholder farmers, beneficiaries of the RELIVE project, will be registered as suppliers of Family Agriculture (FA) and accredited by MAGA and Ministry of Education (MINEDUC) in order to participate in the selection of suppliers for the School Feeding Programs. The project will seek to create a formal agreement with the schools in the project region to purchase the farmers' products. Activity 1.3.1 includes proper coordination with MAGA, MINEDUC and local schools to ensure that the School Feeding Programs purchase this production, thus opening market opportunities for the 2,500 farm families.
45. The RELIVE project will promoting an inclusive and value-added innovative marketing model, focusing on quality analysis coffee, which will allow for coffee growers to be better positioned in specialised and competitive markets of high-quality coffee. Due to the potential and increased consumption of quality coffee at the national level, the roasting of specialty coffee will be promoted, by establishing coffee roasters in rural territories creating employment for women and young people.

Activity 1.3.1 Promote diversification of productive units in home gardens for 2,500 farm families and install 370 greenhouses micro-tunnel facilities for vegetables and poultry

Activity 1.3.2 Organize training for 2,500 farmers to improve technical skills for enhancing coffee and cocoa value chains and to strengthen organizational capacities of producers' associations to access markets infrastructure.

46. Trainings will include strategies to introduce coffee and cocoa products into the national and local market and adding value to retain it at the origin, thus improving their income as a way of increasing their resilience. Market access based on the differentiated characteristics of the national product will be promoted, by developing links to local and national markets through the association with coffee and cocoa guilds identified in a participatory manner by the farmers. Thus, the project will unlock potential private sector engagement with companies that will purchases RELIVE's production.

Component 2. Supporting efficient water management for agriculture to reduce the impact of increased water scarcity

GCF: USD 13,584,641

INAB: USD 24,100,000

KOICA: USD 328,442

47. Component 2 is designed to strengthen capacities of local actors to better manage water resources under conditions of projected increase in water scarcity due to CC. Community-led planning of water resource management at micro-basin level will secure water availability needed by smallholder farmers to achieve resilience to drought and

heatwaves. The selection criteria for the beneficiaries of the activities in addition to the general criteria is described in Table 6 lists a set of (see Section C.3 of the Feasibility Study for more information on beneficiary selection).

Table 6: List of selection criteria for beneficiary selection under project activities under Output 2.2

Project activity	Criteria for project beneficiary selection
<p>Forest incentives: for forest management for water protection and provision forest management for water production and provision and agroforestry systems.</p>	<p><u>Small landholders and landowners in the project area with a hectare or less of land for forestry activities in the above-specified incentive modalities and in accordance with the requirements of the current legislation on forest incentives.</u></p> <ul style="list-style-type: none"> • <u>Forestry Law (Decree 101-96):</u> in its chapters I, Forest Incentives, and II, Incentives for small owners); • <u>For PINPEP: Law on forest incentives for holders of small areas of land suitable for forestry or agroforestry (PINPEP, Decree 51-2010) and its regulations.</u> The criteria includes: <ul style="list-style-type: none"> a) <u>Guatemalan nationality;</u> b) <u>More than 18 years of age;</u> c) <u>Free exercise of civil rights;</u> d) <u>Forestry or agro-forestry land holders;</u> e) <u>The land size eligible for receiving incentives should be between 0. 1ha and 15ha;</u> f) <u>Submitted application to PINPEP Programme⁵²;</u> g) <u>Hold of document certifying possession of the land⁵³;</u> (h) <u>A copy of the applicant's identity card;</u> i) <u>a forest management plan drawn up by a technician registered with the National Forestry Register (INAB).</u> • <u>For PROBOSQUE: Law to Promote Forest Establishment, Recovery, Restoration, Management, Production and Protection in Guatemala (PROBOSQUE, Decree 02-2015) and its regulations.</u> The criteria includes:) <u>Submitted application;</u> b) <u>Forest management plan prepared by a technician or professional registered with the National Forestry Registry (INAB);</u> c) <u>Hold of document certifying rights on the land⁵⁴; ⁵⁵;</u> d) <u>copy of the personal identification document.</u>

Output 2.1: Community-led Water Management Plans developed and implemented at micro-basin level to promote climate resilience and enhance economic productivity

48. Activities under this output will address the lack of planning instruments for water resource management at micro-basin level and strengthen local governance. The project will support the creation of Local Water Committees at micro-basin level on the basis of existing local organizational structures, engaging other relevant key actors who have a role in water management in the area. The Committees will have the mandate to ensure climate risk-informed integrated water resource management at a micro-basin level and under climate change scenario. Increased water scarcity has resulted in water-related conflicts and the committees will act as platforms for planning, dialogue and conflict resolution. (more information on the key local organizations involved in water management, criteria for selection, are described in section C4 of the Feasibility Study). The Local Water Committees will develop climate risk-informed water management plans at micro-basin level, which will guide land restoration and agricultural activities. The project will provide technical assistance in the form of capacity building on climate-informed planning of water resources, strengthening organization capacity and facilitation to coordinate with other regional and local organisations. MARN and INAB subnational representatives will support the development of Local Water Committees. With the support of MAGA's extension workers, the technical team of the project will also provide technical assistance on the topics required by the watershed board members, especially on those issues related to development of watershed plans, basin governance and management, water monitoring, climate change monitoring and adaptation. Project technical staff, with MARN's team support, will be in charge of the support for climate risk-informed water management plans. Project activities are designed and will be implemented in accordance with the Gender Action Plan to ensure the adoption gender sensitive approach (See Part II of Annex 8).

⁵² in accordance with the format approved by INAB

⁵³ certification issued by the Mayor of the municipality

⁵⁴ certification issued by the Mayor of the municipality

⁵⁵ in the case of owners, certification from the Property Registry, and, in the case of social groups with legal status, occupying land owned by the municipalities, certification of the act in which the Municipal Council agrees that the social group will occupy land owned by that municipality

Activity 2.1.1 Establish or strengthen the capacity of 14 Local Water Committees for climate risk-informed integrated water resource management and planning instruments related to public policy on climate change

Activity 2.1.2 Provide technical assistance to Local Water Committees to develop and implement 14 climate risk-informed water management plans at micro-basin level which correspond to the project site.

Output 2.2: Landscapes are climate resilient and sustain critical ecosystems services for water availability in drought periods

49. The activities under this output will focus on watershed restoration as an adaptation strategy to increase forest cover, improve the hydrological cycle and increase the amount of available water. This is critical for agricultural production and underpins food security. The micro-basin water management plans will inform the planning of reforestation activities by prioritizing the key areas with high potential for restoring the hydrological cycle. This prioritization will be carried out together with the Local Water Committees. The project will deliver this output through the forest incentive programs PINPEP and PROBOSQUE. PINPEP and PROBOSQUE incentive programs are managed by INAB and that INAB will provide its co-financing through them (see Section C.6 in Feasibility Study). Without RELIVE project, the forest incentives will not be directed towards climate resilient practices and will remain largely inaccessible to the most vulnerable population. Therefore, the project aims to redirect INAB investment to support climate resilient practices such as agroforestry systems. Therefore, the project will work together with INAB to make sure that GCF project beneficiaries, who will adopt climate resilient practices, will become priority for granting incentives. Additionally, the improved access of smallholder farmers (in particular women farmers) to forest incentives to promote agroforestry are important for the sustainability of the project since disbursements will continue to be made once the project ends.
50. The beneficiaries for the forest incentives are identified by FAO (with MAGA support) using the pre-defined general criteria and specific criteria (Table 6). Only the beneficiaries who are selected by FAO under Activity 2.2.1 are eligible to benefit from INAB's incentive payments made under Activity 2.2.4. Once the beneficiaries are identified, FAO supports them with awareness and knowledge of forestry incentive programs (PINPEP and PROBOSQUE) so that the beneficiaries can decide whether or not to apply for incentives from these programs for reforestation projects, agroforestry systems or forest protection. Subsequently, FAO supports the beneficiaries to prepare the required application packages e.g. forest management plans. The beneficiary, with FAO's technical assistance, submits the application for its proposed project to INAB, who evaluates the applications and, if they qualify, INAB approves the incentives and notifies the landholder or owner. Agroforestry systems will be promoted in addition to protection and forest management. As agroforestry systems are a relatively new practice for INAB under PINPEP, technical expertise is limited, which limit the process. The project, via the co-financing of KOICA, will provide technical support to INAB and facilitate the access of smallholder farmers to the incentives, especially for women-owned farms. Project activities are designed and will be implemented in accordance with the Gender Action Plan to ensure the adoption gender sensitive approach (Part II of Annex 8).

Activity 2.2.1 Technical support to 19,239 smallholder farmers (women in particular) to access forest incentives

Activity 2.2.2 Training of 90 technicians from extension services, forest regents and INAB

Activity 2.2.3 Restore 13,000 ha through reforestation and agroforestry

Activity 2.2.4 Evaluate forest management plans and certify their compliance to manage and allocate the necessary funds to reforest and manage 13,000 hectares of plantations and agroforestry systems

Output 2.3: Local water collection and irrigation farm systems implemented to secure water supply for resilient livelihoods

51. The project will ensure the reliable supply of water for agricultural needs, even during drought by installing rooftop rainwater harvesting systems and farm-level drip irrigation system for using harvested water. ⁵⁶ The Local Water Committees will be responsible for the overall management, maintenance and operation of the water harvesting and irrigation systems. As the water harvesting and irrigation systems will be at farm level, it is envisioned that the project will train the farmers on how to repair the irrigation system (for more information see Annex 21 for the O&M). For more significant repairs and maintenance costs, the Local Water Committees will be able to cover them with savings or contingency funds created for this purpose. FAO will support the setting up of such savings mechanisms as it has a long-standing experience. The Water Local Committees will be registered as members of the Community Councils of Urban and Rural Development (COCODE) and will be able to apply for municipal funds to sustain financially the operation of the irrigation system. Technical staff of the project with the support of subnational representatives of

⁵⁶ Precipitation analyzes in the study area indicate that in 2070 the total annual rainfall will be approximately 16.2 billion cubic meters per year, when analyzing the total volume of water stored by the water harvesting and irrigation systems this volume is approximately 0.0007 % with which two things can be concluded. The first is that there is enough water to carry out the proposed activities, and the second is that the volume of water to be used does not affect the water recharge or the hydrological cycle of the work area.

MARN will develop the capacity building process of Municipalities, MAGA INAB, and community organizations' technical staff.

52. An innovative aspect of the rainwater collection systems are empirical techniques that have been developed over time in the Central American region, however they will be innovative for the smallholder farmers in the project area. Farmers will collect rainwater on the roof of a house, shed or building and then use drip irrigation by gravity.

Activity 2.3.1 Provide trainings to improve technical capacity of 2,500 local officials and members of community organizations on the implementation and maintenance of micro-basin infrastructure

Activity 2.3.2 Install farm-level drip irrigation system for using harvested water on 250 ha of farmland

Component 3: Improved enabling conditions for climate resilient livelihoods

GCF: USD 518,133

53. Component 3 will focus on strengthening the institutional capacities at all levels for comprehensive and climate risk-informed governance of water resources at a landscape level, by enabling inter-institutional platforms for coordination and enhancing knowledge management. These enabling factors will ensure the effective implementation and long-term sustainability of the activities under Components 1 and 2. This component is crucial to achieve replicability and upscaling of resilient agricultural practices at a landscape level and to accomplish the expected paradigm shift.

Output 3.1: Institutional systems strengthened to govern climate resilient initiatives at national and local level

54. The project will improve the comprehensive governance of climate adaptation and water resources by strengthening national and municipal environmental departments, CSOs, and communities, in order to promote effective water governance via water committees. To enable this, the project will create inter-institutional platforms and regional water roundtables to foster dialogue on climate adaptation and water resource management at the national and local level, through multi-level. MAGA and MARN are the key government institutions with a mandate for water management in the country, therefore they will lead the dialogues to mainstream climate change in water related sectors and territorial planning documents, guiding a common vision for integrated water resource management. In addition, MAGA and MARN will integrate the project's lessons learned and a catalogue with climate resilient agricultural practices in a National Climate Change Adaptation Program. This will ensure the scaling up of such practices at a national level. Project activities are designed and will be implemented in accordance with the Gender Action Plan to ensure the adoption gender sensitive approach (see Part II of Annex 8).

Activity 3.1.1 Provide training to 100 technicians from 28 municipal environmental units and other local government agencies on climate adaptation planning and climate resilient agricultural solutions

Activity 3.1.2 Facilitate 4 meetings of 2 water management and climate change thematic roundtables including the participation of MAGA, MARN and other relevant actors to integrate agricultural resilience practices in the national action plan on adaptation to climate change.

Output 3.2: Strengthened knowledge transfer and awareness raising among institutions at national, sub-national and local levels

55. The project will address the need to build the capacity of national, subnational and local institutions on climate change adaptation. At national level, the project will build on advances made by MARN and other organizations on establishing the National System for Information on Climate Change (SINCC); as well as MAGA's efforts to incorporate the Agricultural sector within the climate change agenda (NAP Agriculture Agenda). The key value added of the project will be to facilitate collaboration between the institutions by establishing dialogues, protocols and information channels to enhance the effective flow of information, between institutions at regional and local levels and farmers. At a subnational and municipal level, the project will work with SNER to provide training to its staff on analysis and use of climate information, for planning and development of strategies for resilient agriculture. This will directly enhance the delivery of technical assistance to beneficiaries in the 29 target municipalities. For these trainings, the project will work closely with the existing Learning Centers for Rural Development (CADER), which are field schools that are developed in a farming plot of a farmer in each community and works with around 30 producers to provide Training of Trainers on climate resilient agricultural practices. At the local level, the project will ensure that 80 CADER have strengthened capacity to further promote climate resilience agricultural practices in local languages at wider scale, (for more information on CADER see Section A.1.5.2 of the Feasibility Study). Project activities are designed and will be implemented in accordance with the Gender Action Plan to ensure the adoption gender sensitive approach (see Part II of Annex 8).

Activity 3.2.1 Train and assist 90 staff members from INAB, MAGA and MARN on the management and dissemination of climate information.

Activity 3.2.2, Train 100 experts at departmental and municipal level and agricultural extension workers and other staff from SNER on climate risk-informed agricultural adaptation strategies.

Activity 3.2.3 Train 300 community promoters on the use of climate information and planning instruments for agriculture adaptation strategies and strengthen the capacity of 80 CADERS

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

56. The following mechanisms for project execution, coordination and oversight have been agreed in close consultation with the Ministry of Environment and Natural Resources (MARN, the GCF NDA), the Ministry of Agriculture, Livestock and Food (MAGA) and the National Forestry Institute (INAB).

Governance arrangements

57. The project will be governed by the following entities:

- **FAO**, the Accredited Entity (AE), will act as an Executing Entity (EE) to some project activities and will be responsible for the GCF proceeds and for the overall quality assurance and oversight of the project.
- **MAGA and INAB** will be Executing Entities (EE) and will be responsible to manage and execute their co-financed funds but will not execute any GCF Proceeds. Both MAGA and INAB are mandated to coordinate and oversee the implementation of the project through the PSC.
- The **Project Steering Committee (PSC)**, the highest level of project governance, will guide the overall project implementation and ensure inter-institutional coordination. The PSC will be comprised of high-level representatives from MARN and from the MAGA and INAB, along with SEGEPLAN. The MARN will chair the PSC and FAO will act as the Secretariat. MARN is the climate change authority of the country and it's the National Designated Authority for GCF. In addition, MARN coordinates the Inter-Agency Coordination Group (GCI), which is the mechanism where MARN, MAGA and INAB review the national climate change agenda and the conservation of natural resources. FAO will keep the documentary and logistical record for the operation of the PSC.
- The **Technical Committee (TC)** will be responsible for the overall project coordination and for ensuring its strategic approach, coordination among the partners and consistency of the outputs with the strategic framework. The TC will be comprised of technical staff from MAGA and INAB and chaired by technical staff from the MARN. FAO will act as the technical secretariat and provide support to the TC.
- For the execution and implementation of the project, a **Project Management Unit (PMU)** will be responsible. The PMU is the technical-administrative unit for the project. The PMU will be established in Guatemala City, either at MAGA's headquarters, campus or other premises, and will coordinate and support project implementation and day-to-day activities during the project lifecycle, in close consultation with the governing structures of the project. The PMU will only be located physically at MAGA's headquarters, and it will be under the supervision of FAO, as implementing agency. The PMU will follow FAO's operative procedures and will operate according with the Annual Work Plan approved by the Steering Committee and the Technical Committee of the project. All the administrative matters of the project: acquisition plan, financial plan, periodic reports, will be approved by the Steering Committee and the Technical Committee.
- The day-to-day project monitoring and implementation responsibility rests on a National Coordinator that will lead the PMU. S/he will be supported by a technical officer, a financial officer, thematic advisers, a monitoring and evaluation specialist and administration and operational staff. At the local level, **Territorial Operating Units** will be established to serve as the key channel of communication between the PMU and local stakeholders and to assist with the implementation of stakeholder participation and engagement plan. They will comprise representatives of municipalities, local staff from MAGA and INAB, Civil Society Organizations (CSO), Non-Governmental Organizations (NGOs) producer associations, representatives of project beneficiaries, and project staff such as the local technical staff, gender experts, among others. The aim of the Project is for the Territorial Operating Units to be established at MAGA or INAB

58. The governance and implementation structure and flow of funds for the project are shown below (Figure 8). A detailed organigram of the PMU is included in Section C.6.1 of the Feasibility Study:

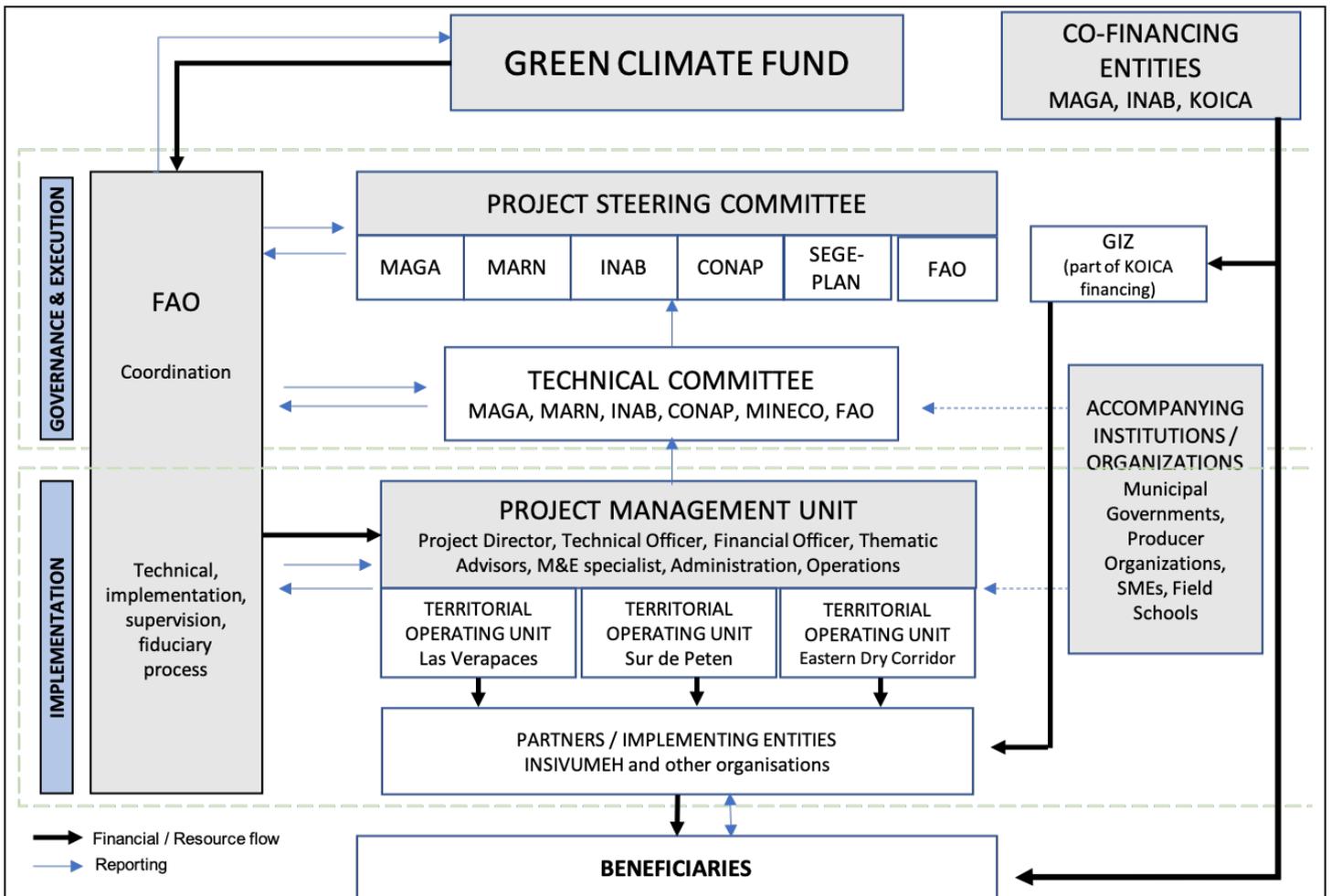


Figure 8: Governance structure of the project.

59. Table 7 presents the roles and responsibilities of key entities involved in project execution and oversight.

Annual reports

60. The PMU will prepare the Annual Report for each year of implementation and FAO will review/clear the annual reports. The Project Director of the PMU and the M&E Specialist will ensure that the indicators in the results framework are monitored annually. The Annual Reports will be shared with the TC and other stakeholders. The annual performance reports will be due to GCF 60 days after the end of the calendar year. The final project annual report and the terminal evaluation report will serve as the final project report package.

Table 7: Roles and responsibilities of the key governance entities.

ROLES AND RESPONSIBILITIES	
Steering Committee (PSC)	<ul style="list-style-type: none"> • Provide political and strategic orientation to the implementation of the Project • Provide highest-level political decision-makers and sectors actors information on project progress, results and impacts. • Ensure alignment of the project with national policies • Ensure transparency of processes • Permit ownership of actions for addressing climate issues by national authorities • Ensure sound inter-institutional coordination • Ensure sound inter-institutional coordination • Ensure co-financing from government agencies is delivered in a timely manner

<p>Technical Committee (TC)</p>	<ul style="list-style-type: none"> • Review and approve the annual work plans and budget • Monitor implementation, and safeguards compliance • Invite, where relevant, representatives of accompanying institutions. • Mobilize timely technical expertise from the participating institutions as per agreed annual work plan. • Serve as a key channel of communication between PMU and key local stakeholders • Assist in the implementation of the stakeholders' participation and engagements plan • Assist in communication strategy of the project at the local level
<p>Project Management Unit (PMU)</p>	<p>Prepare the annual work plan and budget for review and approval by the PSC and FAO</p> <p>Reports to FAO on execution (physical and financial)</p> <p>Establish and supervise the Territorial Operating Units for project implementation at the local level. The PMU will establish three Territorial Operating Units (Las Verapaces, Sur de Petén, and Easter Dry Corridor) to ensure sound implementation at the local level.</p> <p>Ensure recommendations of the Territorial Operating Units are discussed and addressed ensuring project adaptive management.</p> <p>Manage the procurement, contracting, administrative and accounting process needed under the direct and permanent control, monitoring and supervision of FAO.</p> <p>Collect data and ensure reporting to the PSC in accordance with the reporting to be provided to GCF.</p>
<p>FAO</p>	<p>Responsible for the reporting, monitoring, implementation and fiduciary management of activities funded by the GCF Proceeds</p> <p>Responsible for the reporting, monitoring, implementation and financing of the co-financed activities.</p> <p>Responsible for supervising the performance of the PMU and the timely delivery of management services provided by the PMU.</p>

Financial flow

61. FAO is the AE and will act as the Executing Entity (EE) for some project activities. FAO is the AE to the GCF and, at the request of MARN (the NDA) it will also act as Executing Entity (EE) for the GCF Proceeds, through the FAO-Guatemala Country Office. FAO in its role of EE will manage the GCF funds, manage financial expenditures against budgets, execute payments, and provide technical and secretariat assistance to the PSC and TC. The GCF and FAO will enter into a FAA, under which FAO shall administer the relevant GCF Proceeds to be used for the financing of the project, in accordance with the FAA and AMA. Accountability on the use of financial resources will be facilitated through the review of annual and bi-annual project reports, as well as through audit and monitoring reports.
62. MAGA and INAB will not execute any GCF proceeds. These institutions will only be responsible to manage and execute their co-financed funds (the in-kind contribution from MAGA and the PINPEP/PROBOSQUE incentives from INAB) in accordance with the annual work plan of the project as approved by the PSC. KOICA's co-financing of USD 7,000,000 will be executed through FAO (USD 5,000,000) and GIZ (USD 2,000,000). FAO will have an agreement with KOICA as a co-financing entity, and will sign co-executing agreement with GIZ as an EE. MARN and SEGEPLAN will not execute any project activities. MAGA, INAB and GIZ are Executing Entities.
63. FAO in its role of AE shall sign a *Project Agreement* with SEGLEPLAN⁵⁷ which is mandated as the only government entity in Guatemala in charge of Non-Reimbursable International Cooperation. It is legally responsible to sign on behalf of the government. Under its status, SEGEPLAN is to represent Guatemala for the implementation of the entire project and thus will represent MAGA and INAB. SEGEPLAN, will sign the project agreement, and MAGA and INAB will be part of the agreement as executing entities of the project. SEGEPLAN will delegate the execution of the project to MAGA and INAB and will not be stated as an Executing Entity (EE). The *Project Agreement* will:
- Include the obligation of INAB and MAGA to provide their co-financing,
 - reflect the governance arrangements,

⁵⁷ Secretaria General de Planificación (SEGEPLAN)

- govern the implementation of the project,
- be legally binding,
- detail the roles and responsibilities of FAO, MAGA and INAB,
- contain the relevant provisions for FAO's compliance with the requirements from the AMA and FAA that need to be transferred to the co financiers and co executing entities,
- contain provisions on the applicability of the Convention on the Privileges and Immunities of the Specialized Agencies (the "the Specialized Agencies Convention") to FAO, including to the GCF Proceeds held by FAO.

64. MAGA and INAB will be directly accountable to FAO for the performance of their respective obligations under the Project Agreement, such that FAO can enforce those obligations directly against MAGA/INAB without reference to SEGEPLAN.

65. Every year the PMU will prepare the annual work plan and budget including a rolling procurement plan for the next 18 months. The TC will approve the plan and FAO will spend funds according to its covenants, rules and standards. A yearly financial and results-based report will be submitted to the GCF Funds from the co-financiers will be managed by MAGA and INAB respectively. KOICA's co-financing will be managed by GIZ and FAO.

Track record of the AE and EEs

FAO

66. FAO promotes climate resilient agriculture as a way to increase productivity, adapt and build the resilience of food systems and, wherever possible, reduce GHG emissions. As an example, the FAO project Climate Smart Agroforestry Systems for the Dry Corridor of Central America supports farmers in Guatemala and Honduras to increase the uptake of climate resilient agroforestry systems through the farmer field school approach. Many of these lessons learned are applied to this project.

FAO Guatemala

67. FAO Guatemala's efforts have been directed toward the development of agriculture in the rural environment, climate change adaptation, and the strengthening of public policies to guarantee food and nutritional security. The Country Programming Framework (CPF) 2017-2021 identifies the support of national efforts to respond to climate change impacts as a priority and defines three priority areas: a) Food and nutritional security; b) Territorial rural development; and c) climate change adaptation and mitigation to support resilience and integrated management of renewable energies. FAO Guatemala has implemented several projects on climate resilient agriculture sector (See Section A.5 of the Feasibility study).

68. FAO Guatemala has a robust fiduciary and technical oversight and quality assurance system with specific functions carried out by a segregated quality assurance process, which include: FAO-Guatemala Country Office, the sub-regional Office for Mesoamerica (SLM), the Regional Office for Latin America and the Caribbean (RLC) and Headquarters. This process ensures independent project oversight and monitoring. In SLM and RLC, there is a team of officials and specialist consultants in the areas of forestry, natural resources, risk management, and climate change, who are available to assist with the implementation of the project, in coordination with FAO Headquarters personnel. In addition, The FAO Guatemala office has professional full-time staff and specialized national consultants with a wide thematic experience to support the implementation of the project. Table 8 shows a detailed description of funding source and responsible Executing Entity per activity.

Table 8: Detailed list of activities with financing source and responsible Executing Entity

Component	Output	Activity Title	Financing source	Executing Entity	EE engage a procured party	Beneficiaries	Major contractual arrangements
Component 1	Output 1.1	Activity 1.1.1 Organize workshops for extension technicians and farmers regarding the importance of climate information and use in decision-making	KOICA	FAO		Extension Technicians /small farmers	

		Activity 1.1.2 Install 13 hydro-meteorological monitoring equipment for drought to inform climate resilient agricultural management strategies.	GCF	FAO	X	INSIVUMEH as a direct beneficiaries/ MARN/ Small farmers as indirect beneficiaries	Contracts for services (ITB, RFP) Contracts of personnel (CQS)	
		Activity 1.1.3 Disseminate climate information and response adaptation measures using locally-relevant delivery mechanisms as virtual platforms, electronic means, telecommunication and visits of the extension workers.	GCF	FAO	X	INSIVUMEH / GCI Institutions (MARN MAGA/INAB/CONAP)/Sm all farmers	Purchase of equipment (ITB), Contracts of personnel (CQS), Travel (ITV)	
		Activity 1.1.4 Implement 4 local agro-ecological centers for climate change adaptation for knowledge generation and sharing	KOICA	GIZ	X	The direct beneficiaries will be the MAGA'S Extension Technicians / and as Indirect beneficiaries are the small farmers		
	Output 1.2	Activity 1.2.1: Fund the implementation of the adaptation practices and gender-sensitive technology packages for staple crops, coffee and cocoa in 6,195 family farms.	GCF	FAO	X	Small farmers	Purchase of seeds, fertilizers, and plants (ITB), Contracts of personnel (CQS), Travel (ITV)	
		Activity 1.2.2 Implement at least 10 trainings to enhance the technical and organizational capacity of 6,195 farmers for climate-risk informed planning and implementation of agricultural adaptation measures at farm level	KOICA	Level 1:FAO; Level 2 MAGA / INAB; Level 3: MAGA		Technicians of MAGA and INAB, Small farmers/		
		Activity 1.2.3 Establish 28 women-led, farm-level seed nurseries for resilient crops and community forest nurseries	KOICA	FAO		Women small farmers		
		Activity 1.2.4 Extension workers provide technical assistance through regular consultation sessions and field visits to 6,195 small farmers.	MAGA	MAGA		Small farmers		
	Output 1.3	Activity 1.3.1 Promote diversification of productive units in home gardens for 2,500 farm families and install 370 greenhouses micro-tunnel facilities for vegetables and poultry	GCF	FAO	X	Small farmers	Contracts for services, and Purchase of 9 vehicles (ITB), Contracts of personnel (CQS), Travel (ITV)	
		Activity 1.3.2 Organize training for 2,500 farmers to improve technical skills for enhancing coffee and cocoa value chains and to strengthen organizational capacities of producers' associations to access markets infrastructure	KOICA	FAO		Small farmers / Producers organizations /		
	Component 2	Output 2.1	Activity 2.1.1 Establish or strengthen the capacity of 14 Local Water Committees for climate risk-informed integrated water resource management and planning instruments related to public policy on climate change	GCF	FAO	X	Water committees	Purchase of office furniture and equipment (ITB) Contracts of personnel (CQS), Travel (ITV)
			Activity 2.1.2 Provide technical assistance to Local Water Committees to develop and implement 14 climate risk-informed water management plans at micro-basin level which correspond to the project site.	GCF	FAO	X	Water committees	Procurement of services (ITB, RFP), Contracts of personnel (CQS), Travel (ITV)
		Output 2.2	Activity 2.2.1 Technical support to 19,239 smallholder farmers (women in particular) to access forest incentives	KOICA	FAO		Small farmers	
			Activity 2.2.2 Training of 90 technicians from extension services, forest regents and INAB	GCF	FAO	X	Technicians from extension services, forest regents and INAB	Letters of Agreements, and procurement of services (ITB, RFP) Contracts of

							personnel (CQS), Travel (ITV)
		Activity 2.2.3 Restore 13,000 ha through reforestation and agroforestry	GCF	FAO	X	Small farmers	Contracts for services, and Purchase (ITB, RFP) Contracts of personnel (CQS), Travel (ITV)
		Activity 2.2.4 Evaluate forest management plans and certify their compliance to manage and allocate the necessary funds to reforest and manage 13,000 hectares of plantations and agroforestry systems	INAB	INAB		Small farmers	
	Output 2.3	Activity 2.3.1 Provide trainings to improve technical capacity of 2,500 local officials and members of community organizations on the implementation and maintenance of micro-basin infrastructure	GCF	FAO	X	Local officials and members of community organization/Community	Procurement of services (ITB), Contracts of personnel (CQS), Travel (ITV)
		Activity 2.3.2 Install farm-level drip irrigation system for using harvested water on 250 ha of farm land	GCF	FAO	X	Small farmers	Contracts for services, and Purchase (ITB) Contracts of personnel (CQS), Travel (ITV)
Component 3	Output 3.1	Activity 3.1.1 Provide training to 100 technicians from 28 municipal environmental units and other local government agencies on climate adaptation planning and climate resilient agricultural solutions	GCF	FAO	X	Technicians from 28 municipal environmental units and other local government agencies/ Government Local /Technicians of Local producer organizations	Procurement of services (ITB) Contracts of personnel (CQS), Travel (ITV)
		Activity 3.1.2 Facilitate 4 meetings of 2 water management and climate change thematic roundtables including the participation of MAGA, MARN and other relevant actors to integrate agricultural resilience practices in the national action plan on adaptation to climate change.	GCF	FAO	X	Representatives from MAGA, MARN, INAB, CONAP, MINECO, SEGEPLAN, academia, private sector and civil society	Procurement of services (ITB), Contracts of personnel (CQS), Travel (ITV)
	Output 3.2	Activity 3.2.1 Train and assist 90 staff members from INAB, MAGA and MARN on the management and dissemination of climate information.	GCF	FAO	X	Staff members from INAB, MAGA and MARN	Procurement of services (ITB, RFP), Contracts of personnel (CQS), Travel (ITV)
		Activity 3.2.2 , Train 100 experts at departmental and municipal level and agricultural extension workers and other staff from SNER on climate risk-informed agricultural adaptation strategies.	GCF	FAO	X	Agricultural Extension workers at departmental and municipal level	Procurement of services (ITB), Contracts of personnel (CQS), Travel (ITV)
		Activity 3.2.3 Train 300 community promoters on the use of climate information and planning instruments for agriculture adaptation strategies and strengthen the capacity of 80 CADERS	GCF	FAO	X	Community promoters at the CADERS	Procurement of services (ITB), Contracts of personnel (CQS), Travel (ITV)
	PMC	PM C	PMC Project Management Costs	GCF	FAO		
			KOICA	FAO			

Co-financing entities

69. MAGA and FAO Guatemala have been collaborating on projects linked to adaptation for the last 10 years (See Section A.3 of the Feasibility Study). Through the FAO projects, and many others with various IFIs and other multilateral organizations, MAGA has gained practical experience on climate issues and with inter-institutional coordination and developed competencies in planning and organization based on a shared vision and common goals around climate change adaptation. The governance structures established during the implementation of FAO-supported projects, especially those for climate change adaptation purposes and territorial planning, serve as a strong foundation for this project. These prior experiences will support the implementation of the project.
70. The project will also work with the INAB. INAB has a forest incentive program called PINPEP (Forest Incentive Program for Small-Holders) to promote forestry and agroforestry systems (See section B5 for more details on the additionality of PINPEP incentives and Table 10 Section A.3.1 of the feasibility study “Strength and weakness analysis of National Forestry Institute legal instruments linked to the project”). This program promotes forestry development through sustainable management of forests, reducing deforestation on land with forest vocation, promoting reforestation on forest areas currently without forest, and raising productivity. PINPEP stems from a perpetual law and the minimum forest parcel size eligible for incentives under PINPEP can be as small as 0.1 ha. Natural forest management is promoted through command-and- control mechanisms, for which the main instrument is forest licensing. In the past 6 years, INAB has invested over US\$32 million⁵⁸ under PINPEP and has currently formally committed at least US\$24.1 million to be invested in the project area during the life of the project. In addition to PINPEP, INAB implements the PROBOSQUE Incentive Program, which also provides incentives to producers who develop forest landscape restoration practices, including plantations, natural forest recovery, agroforestry systems and plantations. This program applies at the national level and to small-scale producers (0.5 ha onwards), with registered land ownership, whether individual or as a group.
71. Both institutions MAGA and INAB have important comparative advantages linked to their technical human resources, infrastructure, presence in the territories, and implementation of policies linked to land management, water, forestry, agriculture, and climate change. They have personnel with wide experience and subject expertise, and territorial presence.
72. MARN is the National Designated Authority (NDA) and in accordance with its mandate as the government body that coordinates watershed management and water resource management policies (jointly with MAGA), it will lead the political dialogue with MAGA to strengthen the institutionalizing of a national climate change adaptation programme. This intersectoral dialogue will seek to foster the integration of projects lessons learned and best practices on resilience agricultural measures in agricultural, public and private sectors. These sectors will be encouraged to apply instruments promoted by the Law on Climate Change and of the National Plan of Climate Change (PANC). This will reinforce the intersectoral dialogue in the framework of the National Council of Climate Change that presides the President of the Republic of Guatemala.
73. KOICA has been working in Guatemala since 2004, promoting initiatives related to rural development, environment, and women (among others). Since 2018 the agency has been developing projects related to climate change, such as Building livelihood resilience to climate change in the upper basins of Guatemala's highlands and Adaptation of rural communities to CC (Managed by FAO). KOICA will co-finance the project with USD 7 million⁵⁹, with special focus on activities under Components 1 and 2.

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

74. The proposed GCF project will overcome critical barriers to strengthen the resilience of vulnerable farmers against the impacts of climate change through the promotion of climate-resilient agricultural and water management practices, resulting in improved food security and more sustainable and resilient livelihoods. The additional value of the GCF involvement will be the delivery of climate-resilient agriculture benefits by scaling-up proven practices that increase the food security of vulnerable farmers in Guatemala. **GCF involvement is required because of the limited**

⁵⁸ Source from SIFGUA website SIFGUA is a project that belongs to the Forestry Sector of Guatemala, and which is supported by the International Tropical Timber Organization (ITTO) which consolidates, analyzes and disseminates information generated from the main forestry activities in the country: <http://www.sifgua.org.gt/Pinpep.aspx>

⁵⁹ These funds will be executed through FAO (5 millions) and GIZ ((2 millions).

availability of public and private funding to support transformation in Guatemala's rural agricultural and water sector:

75. GCF grant support is required to overcome the barriers to climate resilience among vulnerable farmers in Guatemala. The project seeks the minimum possible level of concessionality within the context of Guatemala's economic situation. Although the Government of Guatemala (GoG) is taking actions to implement climate change related food security initiatives and to build a policy and legal framework to enable climate change action, structural barriers to accessing finance remain. Public resources are insufficient to achieve meaningful reductions in climate change vulnerability, to improve resilience of beneficiary farmers and to reach the NDC goals. Per capita public financing on environmental issues in Guatemala is the lowest in the Central American region⁶⁰. In the case of Guatemala, public revenues in 2017 were USD 8 billion and public debt USD 18 billion. The debt balance as a percentage of tax revenue is 220%.⁶¹ The threshold recommended by the International Monetary Fund (IMF) is 250%, the country's economy barely produces and sells enough goods and services to pay off its debts without incurring more debt. Guatemala spent USD 301 million on climate change adaptation in 2014 (MARN, 2016), approximately 0.5% of GDP. Taking into account the modelled scenarios in which the climate change burden will reach between 38% and 64% of GDP in 2100, climate change actions are clearly severely under budgeted. It is beyond the country's means to fully address this financing gap using internal resources. **Due to the nature and extent of the climate change risks, the government is not able to build resilience of farmers at scale without grant support from the GCF.**
76. Given the national debt, financial instruments such as loans and guarantees are not appropriate financial instruments for this project, as this would increase the country's public debt burden even further. Among the causes of low economic development of the country is the budget deficit that Guatemala has been incurring at least since 1999. Although the total size of the fiscal deficit is low (-2% on average), it demonstrates structural failures to finance public spending. These include low tax collection rates and a commercial deficit ranging from 9.68% - 10.92% of GDP in 2015 and 2016 respectively. Guatemala has the lowest tax collection record in Latin America, equivalent to 12.4% of GDP, compared to an average of 22.8% for the region.
77. Reimbursable grants are not an appropriate financial instrument for the project because the proposed project focuses on the poorest regions of Guatemala, and interventions will have limited income generation. Economic benefits of these activities include improved food security and reduced need for investment in measures to remedy health and livelihood impacts from climate change. However, the effects of the proposed practices will take place over time and will be financially viable in a 20-year horizon. In the municipalities targeted by the project, rates of poverty (in some municipalities it reaches 96%) are extremely high, with a majority of farmers being poor or extremely poor. The beneficiary farmers generate insufficient cash surpluses to build their own resilience while reimbursing the cost of GCF support (as described in Annex 3). Women, usually the demographic group that stays working at the farms (men often migrate to the city for better jobs), obtain smaller credit lines and usually at higher rates than men⁶². The adoption of climate resilient agricultural techniques needs to be undertaken with urgency, since family farmers are already facing climate related stress due to changing weather conditions. In the short term it is necessary to provide limited "pump-priming" investment support to resource and asset poor family farmers (for example in the form of additional agricultural inputs and equipment) to overcome barriers to uptake. **The urgent need to help infra-subsistence and subsistence farmers address food security and livelihood challenges caused by climate change, coupled with the inability of this population to afford debt finance for the proposed activities, justifies grant funding, which is not available at the scale needed from sources other than the GCF.**⁶³
78. The target population of RELIVE, vulnerable infra-subsistence and subsistence smallholder farmers (mostly indigenous people) are most exposed and vulnerable to the impacts of climate-induced droughts and heat waves:

⁶⁰ MARN, 2016. Documento base del Pacto Ambiental en Guatemala. URL:<http://www.marn.gob.gt/Multimedios/2547.pdf>

⁶¹ Deuda pública: Banco de Guatemala. (4 de Julio de 2019). Banco de Guatemala. Estadísticas macroeconómicas. Sector Fiscal. Obtenido de <http://www.banguat.gob.gt/inc/main.asp?id=115099&aud=1&lang=1>

⁶² <https://elperiodico.com.gt/inversion/2018/01/04/mujeres-obtienen-menos-creditos-y-tasas-mas-altas/>

⁶³ The cap for funding is USD 10 million per project for the GEF and USD 10 million country for the Adaptation Fund. Therefore, the proposed project cannot be funded by these funds.

- Direct beneficiaries 116,353 people (0.7% of the national population and 20% of the population in the project area), of which 46,541 female.
- Indirect beneficiaries 583,146 farmers (3,9% of the population), of which 300,320 female

79. They will benefit from reduced vulnerability through the use of improved climate information systems, adoption of improved crop varieties and soil and water management techniques, as well as income diversification. Crop failure and land degradation have given rise to high migration levels of men abroad, thus leaving many women as household –heads and in charge of the agricultural activities. Even coffee and cocoa producers and field workers are vulnerable to climate change as they depend only on these crops for income, therefore have low productive diversification and consequently run high financial risks.

80. At the same time, small farmers that are beneficiaries of the project do not have access to credit, due to the refusal of commercial banks to lend for climate resilience-agriculture activities. At present farmers, are highly vulnerable to climate risks and often their yield and quality of crops are conditioned by climate variability and may suffer high loss, making it impossible for farmers to generate any surplus income. As a result, commercial banks consider small farmers to be high-risk clients and are unable or unwilling to provide capital. This creates a vicious circle where a lack of credit means farmers cannot invest in climate resilience measures that would help make yields more predictable and make the farmers more bankable. The project will invest in strengthening community-based organizations such as cooperatives, micro-enterprises, and farmers associations to facilitate access to finance from commercial banks for climate resilience-agriculture activities

81. The Government makes available some resources (via PINPEP, the forest incentives program) to promote afforestation/reforestation, however improvements are required in the modalities and use of these incentives to make them accessible to poor farmers. The introduction of new and more adapted measures promoted by RELIVE will address these constraints and make the difference. For example, current forest incentives are not directed towards climate resilient practices such as agroforestry and are not attuned to the needs of the most vulnerable population. Among other challenges, the incentive program requires an up-front financial investment in technical studies to document land ownership and land use management plans, which poorer farmers cannot afford. GCF grant support will redirect INAB investment to support climate resilient practices such as agroforestry systems, **thus greatly leveraging an existing resource to achieve resilience** against aridity and drought, and contributing to the project's sustainability. The GCF grants will support (1) trainings to extension technicians and INAB staff to better integrate agroforestry systems in their standards and requirements and strengthen the technical capacities and effective support to smallholder farmers (Activity 2.2.2) and (2) the planning and implementing of forest conservation interventions on 13,000 ha through reforestation and agroforestry (Activity 2.2.3). GCF grants will create long-term impacts by integrating a climate lens in the forest incentives program thus providing opportunities for smallholder farmers to access finance for climate resilient agricultural practices. To ensure sustainability and scalability the project will work in close collaboration with and will provide capacity building to the municipal forest agencies in order for them to prepare the management plans and the required technical information to access incentives at very low/affordable price for the farmers.

82. In conclusion, GCF support is essential to introduce climate resilient agricultural measures and agro-ecological landscape management, increase knowledge and institutional governance capacity to support vulnerable producers, and improve climate information services at scale. Without GCF involvement to reinforce and transform national efforts, address farmer capacity building requirements and to crowd-in investment, the GoG would not be able to invest in all the actions required to help farmers prepare for growing climate impacts. Without GCF support the majority of Guatemala's small farmers would remain vulnerable to climate hazards that threaten their livelihoods. GCF grant support will provide the minimum concessional funding necessary to make the project viable. Concessional GCF support will address several market barriers (described in Guatemala's NDC) including food security (with priority given to those actions dedicated to food production for self-consumption and subsistence), and the need for small-scale farmers (and especially women and indigenous people) to access information, knowledge, and technology to address the challenges of climate change.

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

83. The sustainability of the project is ensured by creating a virtuous circle where farmers who adopt climate resilient practices become more creditworthy and thus better able to make such investments in future. Sustainability is further ensured by involving the relevant actors since the beginning of its planning and throughout its implementation. These stakeholders include Government institutions involved in the project, particularly MARN, MAGA and INAB. Additionally, consultations were carried out at different levels of government in prioritized territories to define the most important issues (that were incorporated into the project) and working directly with them, promotes ownership of the actions by local actors. As such, these stakeholders will also participate financially to the execution of the project through their in-kind contributions (work days and working spaces in the communities). Project sustainability will be ensured in the long run through the following features of the project:

Country ownership

84. FAO projects implemented in Guatemala have always ensured the active engagement of decision-makers from partner institutions. The proposed project objectives and activities are fully aligned with the national policies on climate change and food security (See Section D.5). National institutions have been closely involved in project planning and will participate fully during project implementation. The project will receive policy support and access to financial and in-kind resources from MAGA and INAB. This will guarantee GoG commitment to systematically drive investment in adaptation beyond project lifetime, in the framework of the institutionalization of a National Plan for Adaptation to Climate Change with emphasis on the (agro) forestry sector.

Engagement with local communities and institutions

85. Private sector need to understand the importance of supplying improved varieties to the farmers, and also of being willing to pay higher prices for more sustainably produced items. The project has been designed to create enabling conditions for the effective and sustained participation of private sector actors (i.e. beneficiary farmers under components 1 and 2 and the private sector actors in the agriculture value chain such as fertilizer and seed providers, the wholesalers who buy coffee and cacao from the farmers) and public sector actors involved in the climate change and development agenda. The project has been formulated from the beginning in close consultation with and involvement of relevant government agencies, beneficiaries in farming communities and other stakeholders (i.e. COCODEs and CADER as well as newly formed Local Water Committees), in order to maximize buy-in and long-term ownership. The proposed activities have been identified through a participatory approach engaging both women and men and based on community priorities (See Annexes 7 and 8). In the case of O&M during the project implementation period the total cost will be USD 5,954,426 and will be covered by KOICA, GCF, and small producers Local producers, and organizations of small producers will be in charge of the operation and maintenance of the equipment provided by the project such as the cleaning, supervision of pipes, collection structures and water storage tanks, or the cleaning and revision of the macro-tunnels (further details are provided in Annex 21. Operations & Maintenance)

86. The proposed project will also focus on supporting the establishment of the Local Water Committees in the project area. The Local Water Committees will have a traditional water-sharing arrangement and will be responsible for monitoring irrigation channels and responsible use of water resources. This will be an important element of the overall response, especially to ensure long-term sustainability of the management of the catchment area. The formation and function of these Local Water Committees will seek formal recognition in the Decentralization Law of Guatemala. Identifying viable future revenue streams will be critical for the Local Water Communities to effectively fulfil their role. These are: payment for ecosystem services (PES) related to climate-resilient micro-watershed protection interventions to safeguard the sustainable supply of water quantity and quality, including water source protection, changes in the tax code, etc.)

87. Farmer organizations will receive training to undertake the O&M of the equipment provided by the project beyond the project lifetime. To help with the strain on public resources, financial mechanisms and enhanced data collection for analyses are integrated into each of the outputs to support planning and sustainability.

88. The project will allow beneficiaries to access financing for adaptive practices. The investment cost of these technologies ranges per hectare and per year from US\$266.85 (basic grain production systems) to US\$465.5 (Cocoa production systems) in and USD 292.4 per hectare and per year in the case of the Family Gardens irrigation systems (see Annex 4). The beneficiaries targeted in the project are in a climate induced precarious situation with little ability to service loans. With better capacities to cope with climate change, beneficiaries will have access to financial services.
89. Additionally, the creation of links to the private sector will open market niches to ensure the farmers' production is purchased and access to national and local markets will increase farmers' income, thus guaranteeing the continuous implementation of resilient practices.

Capacity building for locally owned solutions on climate resilient agriculture and water resource management

90. The key objective of Component 3 is to strengthen the capacities of local institutions (such as the existing decentralized extension services for local farmers and producers, and the municipal forestry, water and gender offices and Local Water Committees) to plan for and implement climate-risk informed local water management solutions, adopt technologies and systems for climate resilient agricultural production, sustain climate resilience infrastructures and integrate climate information and advisories for water management ensuring their financial viability post-project. These local institutions are key to ongoing operations and maintenance of project infrastructure⁶⁴ after project implementation ends.
91. Institutional arrangements have been defined to facilitate political processes between the central government, local governments and the project and to establish the roles and responsibilities of each stakeholder, in particular in relation to operations and maintenance of project infrastructure. More details on how the sustainability of operation and maintenance of acquired equipment will be guaranteed is explained in section C.6 of the feasibility study.

Effective knowledge transfer and dissemination of information on benefits

92. Under Component 3, the project will strengthen knowledge management at the local and national levels and systematize and disseminate the results of economic analyses of returns achievable from climate resilient investments. Knowledge and learning will be promoted through a participatory approach including the use of CADER which will provide spaces for farmers to share experiences, test and validate alternatives, and innovate in order to develop sets of adaptation measures that are farmer-driven.
93. The uptake of climate services and alternative livelihood strategies by farmers will create conditions for investments by public and private sector actors. Farmers will see concrete benefits in a variety of ways, for example through better allocation of resources, increased productivity, and better access to markets. By delivering a tangible economic benefit to beneficiaries that adopt climate-resilient agriculture and efficient water management practices, the project will stimulate economic activity in Guatemala's rural areas even under conditions of climate change.

⁶⁴ Institutional arrangements will be defined to facilitate political processes between the central government, local governments and the project and will establish the roles and responsibilities of each stakeholder, in particular in relation to operations and maintenance of project infrastructure.

C. FINANCING INFORMATION						
C.1. Total financing						
(a) Requested GCF funding (i + ii + iii + iv + v + vi + vii)		Total amount			Currency	
		29,837,169			million USD (\$)	
GCF financial instrument		Amount	Tenor	Grace period	Pricing	
(vi)	Grants	29,837,169				
(b) Co-financing information		Total amount			Currency	
		36.84million			million USD (\$)	
Name of institution		Financial instrument	Amount	Currency	Tenor & grace	Seniority
KOICA		Grant	7	million USD (\$)	Enter years Enter years	Options
MAGA		In kind	5.74	million USD (\$)	Enter years Enter years	Options
INAB		Grant	24.1	million USD (\$)	Enter years Enter years	Options
(c) Total financing (c) = (a)+(b)		Amount			Currency	
		66.7			million USD (\$)	
(d) Other financing arrangements and contributions (max 0.5 page)		94. The MAGA has estimated its in-kind support to a total US\$5.74 million and will be provided mostly in the form of personnel for institutional involvement and support to the project (both from central and municipal offices) specifically integrating climate change aspect in the extension services. Operational costs of field activities will be considered as well. MAGA will invest the co-financing in the creation and support (providing salaries) of a climate change Task Force consisting of agricultural extension workers. The Task Force will promote the institutionalization of climate change in MAGA through thematic meetings and bring transformation of the extension services towards climate agricultural resilience. Additionally, MAGA will provide technical training on climate change and resilient agriculture. The institution will further supervise the professionals for agricultural extension processes (extensionists). This in-kind contribution is supported by letters from MAGA. See Annex 13.				
		95. In the project 7 years, INAB has formally committed at least US\$24.1 million in the form of financial incentives under the PINPEP and PROBOSQUE forest incentive program to be invested in the project area during the life of the project, provided local producers can qualify. The forestry incentive program includes various production modalities, including agroforestry systems, timber plantations, forest restoration and management of natural forest for protection or production purposes. For local producers to access these resources they need to meet a series of technical requirements. Most of the beneficiary farmers do not have the capacity to apply for PINPEP and PROBOSQUE incentives and the GCF support will help to remove the technical barriers preventing them from accessing these incentives. The concessional grant co-financing from INAB will be combined with capacity building to farmers using GCF grant resources. GCF grant support will catalyse funds from PINPEP and PROBOSQUE for the benefit of project beneficiaries who would otherwise not access them. On the other hand, KOICA will co-finance the project with USD 7 million, with special focus on activities under Components 1 and 2.				
C.2. Financing by component						

Component	Output	Indicative cost USD (\$)	GCF financing		Amount USD (\$)	Co-financing	
			Amount USD (\$)	Financial Instrument		Financial Instrument	Name of Institutions
Component 1 Implement climate resilient agricultural practices and enhance farmer's livelihoods	Output 1.1: Climate and agro-weather information improved and tailored to the needs of vulnerable smallholder farmers to inform adaptation measures	3,628,043	978,934	Grants	2,649,109	Grants	KOICA
	Output 1.2: Adaptation measures adopted to foster the resilience of coffee, cocoa and basic grain production systems	18,785,389	12,582,869	Grants	462,520	Grants	KOICA
					5,740,000	In-kind contributions	MAGA
	Output 1.3: Promotion of the resilience of livelihoods through productive diversification and market access	3,133,833	546,303	Grants	2,587,531	Grants	KOICA
Component 2. Supporting efficient water management for agriculture to reduce the impact of increased water scarcity	Output 2.1: Community-led Water Management Plans developed and implemented at micro-basin level to promote climate resilience and enhance economic productivity	1,130,222	1,130,222	Grants		Grants	
	Output 2.2: Landscapes are climate resilient and sustain critical ecosystems services for water availability in drought periods	32,948,939	8,520,497	Grants	328,442	Grants	KOICA
					24,100,000	Grants	INAB
	Output 2.3: Local water	3,933,922	3,933,922	Grants		Grants	

Component 3: Improved enabling conditions for climate resilient livelihoods	collection and irrigation farm systems implemented to secure water supply for resilient livelihoods	285,220	285,220	Grants			
	Output 3.1: Institutional systems strengthened to govern climate resilient initiatives at national and local level						
	Output 3.2: Strengthened knowledge transfer and awareness raising among institutions at national, sub- national and local levels	232,914	232,914	Grants	Enter amount	Choose an item.	Click here to enter text.
M&E Unit		853,130	853,130				
PMC Project Management Costs		1,745,556	773,158		972,398	Grants KOICA	
Indicative total cost (USD)		66,677,169	29,837,169		7,000,000 KOICA	24,100,000 INAB	5,740,000 MAGA

Table below lists the project outputs under their corresponding GCF result areas and indicates the share of GCF contribution for each result area.

	GCF Contribution (USD)	Share of GCF contribution
Result area A1: Most vulnerable people, communities and regions		
Output 1.1: Climate and agro-weather information improved and tailored to the needs of vulnerable smallholder farmers to inform adaptation measures	978,934	
Output 1.2: Adaptation measures adopted to foster the resilience of coffee, cocoa and basic grain production systems	12,582,869	
Output 1.3: Promotion of the resilience of livelihoods through productive diversification and market access	546,303	
Output 3.1: Institutional systems strengthened to govern climate resilient initiatives at national and local level	285,220	
Output 3.2: Strengthened knowledge transfer and awareness raising among institutions at national, sub-national and local levels	232,914	
Total Result area A1	14,626,240	52%
Result area A2: Health and well-being, and food and water security		
Output 2.1: Community-led Water Management Plans developed and implemented at micro-basin level to promote climate resilience and enhance economic productivity	1,130,222	
Output 2.3: Local water collection and irrigation infrastructure implemented to secure water supply for resilient livelihoods	3,933,922	

Total Result area A2	5,064,144	18%
Result area A4: Ecosystem and ecosystem services		
Output 2.2: Landscapes are climate resilient and sustain critical ecosystems services for water availability in drought periods	8,520,497	
Total Result area A4	8,520,497	30%

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

C.3.1 Does GCF financing fund capacity building activities?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
C.3.2. Does GCF financing fund technology development/transfer?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

96. GCF resources will be invested in building capacity for climate-resilient, integrated solutions for water resource management and agriculture. The project promotes institutional planning and coordination across government officials and communities to overcome the sectoral and piecemeal approach to agriculture that had been adopted in the past. The project aims to enhance organizational capacity of farmers to plan for and implement resilient local agricultural and water management solutions, adopt technologies and systems for climate-smart agricultural production, ensuring their financial and human resource viability post-project. In particular, the activities that will fund capacity building are conducted at three governance levels: (1) Local level trainings for farmers and promoters (Activities 1.1.1, 1.2.2 and 3.2.3) and water communities (Activity 1.2.2); (2) Municipal level trainings (Activity 3.1.1 and 3.2.2) and (3) National/institutional level trainings for extension services officers and technicians from INAB, MAGA and MARN (Activities 2.2.2 and 3.2.1). Capacity building to women will include improvement of capacities on how to apply for PINPEP incentive and also on how to apply for commercial loans.

97. The project will develop and transfer a set of adaptation technologies and practices to ensure that household resilience is strengthened. A detailed description of the technologies is presented in Table 3. Activity 1.2.1 will provide gender-sensitive technology which will include: (i) Improved, drought-resistant and open pollination basic grain seeds; (ii) Agrobiodiversity diversification, (iii) Improving the organic matter content and soil humidity retention capacity; (iv) Post-harvest management to prevent maize production losses; (v) Rain water harvesting for families' productive systems; (vi) Improved, rust and drought-resistant coffee hybrids; (vii) Cacao pest and disease management practices; (viii) Coffee and cocoa plant spatial arrangement and architecture to minimize climate change effects forecasted for the region, among others.

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)

98. The proposed GCF project helps vulnerable farmers in Guatemala to adapt to the impacts of climate change through the adoption of climate resilient agriculture and water management practices. As a result, food security will be improved to enhance livelihood resilience in conditions of climate-induced droughts and heatwaves. Smallholder farmers will benefit from reduced vulnerability through the use of improved climate information systems, adoption of improved crop varieties and soil and water management techniques, as well as income diversification.
99. The project prioritizes measures to address the resilience needs of small farmers - who have limited access to markets, financial instruments, agricultural and climate technological advice and who suffer from poor basic infrastructure – and of vulnerable groups such as women and indigenous people. The project will benefit 116,353 people directly (0.7% of the national population and 20% of the population in the target area), of which over 40% are women, who are vulnerable to drought and prolonged heatwaves. Around 583,146 farmers are expected to benefit indirectly (3.9% of the population). The beneficiaries of the project will be infra-subsistence, subsistence and surplus smallholder farmers the majority of whom are indigenous people (see methodology for selection of beneficiaries in section C 3.2 of the Feasibility Study). The project aims to have 40% of women as part of the beneficiaries considering their important role in rural agriculture. The gender assessment and the action plan describe how all project activities have been designed considering the differing roles played and challenges faced by women and girls. Women's active participation during the implementation stages will be promoted to favor inclusion and promote their contribution to the sustainability of food systems and the use and management of natural resources.
100. The project has been designed to deliver on the adaptation goals set out in Guatemala's National Climate Change Strategy and the NDC and to contribute to three of the GCF's adaptation results areas:
- GCF adaptation results area 1 (A1) – Increased resilience of vulnerable people, communities and regions: The project will increase the resilience of 115,434 vulnerable farmers (19,239 families) in the Departments of Alta and Baja Verapaz, Petén, Zacapa and Chiquimula of Guatemala against drought and heatwaves. Of this total, an estimated 13,800 people are adult women, who tend to be more vulnerable than men, and 23,600 are indigenous people. See section C.3.2: Estimate of the Number of Beneficiaries of the Feasibility Study for further details on the methodology used to estimate the number of beneficiaries).
 - GCF adaptation results area 2 (A2) – Increased resilience of health and well-being, and food and water security: The project will contribute to food and water security by encouraging resilient agricultural practices that reduce climate change related crop losses, by diversifying incomes, and by encouraging improved water management. The project works in an area where households already are facing significant food insecurity; the project will maintain or increase the numbers of food secure households in the project area despite climate impacts. Actions to increase access to safe water supply will ensure that 20,000 families will be water secure in the face of drought and heatwaves (See section C.3.2 of the feasibility study).
 - GCF adaptation results area 4 (A4) – Increased resilience of ecosystem and ecosystem services: The project will contribute to improving ecosystems and ecosystem services by promoting soil and water conservation, agroforestry activities, and appropriate basin-scale management measures. The project will help community members manage ecosystem services on a watershed level. As part of project co-financing the national forest incentive program PINPEP will provide funding for 13,090 hectares of climate resilient agroforestry measures.
101. The project will also contribute to the following GCF outcomes:
- GCF Outcome (A5): The proposed GCF project will engage Guatemalan institutions as implementing partners, enhancing the capacity of these actors, including those at the local governmental and community levels (extension services and farmer organizations), to promote climate change adaptation mainstreaming. Specific project activities are aimed at improving institutional coordination and local governance.
- GCF Outcome A6 and A7 Strengthened): Activities under Component 1 will enhance the generation and use of improved climate and weather information tailored to the needs of vulnerable smallholder farmers and will strengthen

their adaptive capacity and reduce their exposure to climate risks. The climate information systems are expected to directly inform adaptation measures undertaken during the project and beyond project closure.

GCF Outcome A8: Awareness raising activities under component 3 will strengthen awareness of climate threats and risk reduction process.

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

102. The proposed GCF project will lead to a paradigm shift away from an agricultural system that is highly sensitive to climate change to drought-resilient crop productive systems which ensure food security for infra-subsistence and subsistence farmers. Achieving reduced vulnerability and increased resilience requires a shift in agricultural practices in Guatemala. GCF funding will support agricultural transformation amongst the most vulnerable group of people. As a result of the project, agro-ecological landscapes and production systems in the Departments of Alta and Baja Verapaz, Petén, Zacapa and Chiquimula in Guatemala will be climate resilient and support vulnerable farmers' adaptation and livelihood diversification measures amidst drought conditions. The proposed practices will improve soil humidity and introduce efficient irrigation systems and new seed varieties tolerant to droughts and heat waves to prevent the expected crop losses and help the country reach its target in terms of food security.

103. The project will overcome information, technical, financial, social and institutional barriers that prevent a transition from conventional practices by delivering a package of proven and validated measures that improve the resilience of local production systems, increase the efficiency of agricultural water management at the basin and farm level, and improve inter-institutional coordination and local governance capacity. The project is also transformative in its focus on promoting women's equitable representation in project activities and enabling women's greater economic empowerment and participation in decision making.

104. The paradigm shift will be achieved by adopting a systemic approach to replication and scaling-up of the project's results. The project will set a transformational process in motion, and enable government, farmers and other stakeholders to continue driving this process – replication and scaling up– to achieve impact beyond the project investments and project closure. In order to achieve this, the project design integrates a range of institutional, financial and policy mechanisms. These mechanisms ensure that the replication and scaling-up pathways will achieve a Guatemala's transformational towards climate resilient agricultural systems. The mechanisms include:

- ***The project will strengthen technical and operational capacities of the agricultural extension services and technical staff from INAB at a national level and provincial levels to enable the replication of project best practices in other provinces in Guatemala.*** Thus, the project ensures that there is the needed capacity at local and provincial levels to promote the replication of the resilient agricultural practices through Farmer Field Schools, CADRs and climate centers beyond the project. The agricultural adaptation packages will be demonstrated on pilot farms and further promoted through MAGA extension services, farmer-to-farmer schools, producers' organizations at a national scale.
- ***The project will provide incentives to smallholder farmers to encourage the wider adoption of the agricultural adaptation practices.*** Smallholder farmers beneficiaries to the project will further increase local awareness of and the demand for these climate adaptation approaches to farming for a mass number of farmers, especially farmers of indigenous origin (Indigenous population accounts for 43.8% - 8.7 million - of the total population).

- Example of such incentives include:
 - o Incentives for new farmers to access affordable and improved seeds and tree seedlings via established community-led seed banks and solidary networks (chain pass). The establishment of women-led seed banks in the form of micro enterprises will aim to collect, store, exchange and locally sell seeds such as coffee, cocoa, tree seedlings and basic grain seeds. This will address the need of smallholder farmers to purchase improved and affordable seeds at a more appropriate scale and schedule while contributing to improve livelihoods of women (*Project Output 1.2*). *Demonstration of the effectiveness of the seed banks will encourage other communities / municipalities to create seed banks. Additionally, the project will facilitate the creation of a regional network of seedbanks to allow for exchange of seeds.*
 - o Enhancing cooperation and collaboration for replication of knowledge and practices through regional and national farmers' networks as such as CADER that will support dissemination of lessons learned and promotion of the implemented approaches beyond the target areas.
- **The project will provide incentives for adopting integrated and climate resilient micro-basin management.** The Local Water Committees will be responsible for the maintenance of the irrigation systems and oversee the water management activities in the micro-basin. These Committees will be registered as members of the Community Councils of Urban and Rural Development (COCODE), which belong to the National System of Development Councils of Guatemala. Once the Local Water Committees are registered with COCODE, they will be able to apply for funding from the regional budget thus ensuring financial sustainability of the irrigation systems. (*Project Output 2.2*)
- **The project will seek to catalyze institutional and policy change by demonstrating the effectiveness and efficiency of practices, technologies and models, thereby removing barriers to uptake by a larger number of practitioners.** The project aims to mainstream project's lessons learned in national climate change and agricultural strategies. Key policy and financial mechanisms supporting this pathway include:
 - o Forest incentive programs (PINPEP and PROBOSQUE) will finance climate resilient practices such as agroforestry systems and will be widely accessible for smallholder farmers and women in particular, at a national scale.
 - o The demonstration of effective adaptation measures will result in a portfolio of measures to be integrated as best practices in the **National Action Plan on Climate Change (PANCC)** and mainstreamed in the agricultural sector.

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

105. The project will contribute to the achievement of several U.N. Sustainable Development Goals in Guatemala: SDG1, SDG2, SDG5, SDG6, SDG13, and SDG 15. More specifically, the project will deliver the following co-benefits:
106. **Environmental co-benefits:** Project activities will deliver a number of specific environmental benefits that include:
- a. soil conservation and reduction of erosion of approximately 250,000 tons during the seven years of the project;
 - b. The restoration of degraded lands will reduce the runoff by 35 million cubic meters in the seven years of the project.
 - c. improved tree cover in home gardens and river basin areas, which will have several interlinked environmental benefits, such as improved micro-climate, improved soil structure, and increased biodiversity;
 - d. restoration of ecosystem integrity, functions and services; and
 - e. conservation of biodiversity in home gardens, forests
107. The project will improve habitat value and biological connectivity in the selected micro-basins and river buffer zones and enhance ecosystem services (e.g. protection of water sources, water cycle regulation, nutrient cycle regulation) as a result of the restoration of 13,090 ha of degraded lands. Reforestation of upstream watershed areas, protecting village forests and increasing tree cover in home gardens will yield multiple environmental benefits. Soil conservation measures introduced in upstream farms and home gardens will not

only prevent siltation of reservoirs and micro-infrastructure for water harvesting, but also increase soil moisture and improve ground-water yields by allowing greater percolation, thus sustaining river flows within and beyond the project areas. Improved water yields will have a positive impact on water availability during the dry season to both humans and wildlife.

108. Climate change co-benefits: crop emission reductions through the reforestation activities will result in approximately 988,260 tons of CO₂ over the lifespan of the project and 345,891 Ton CO₂eq over the 7 years of the project implementation
109. **Economic co-benefits:** The project will enhance the agricultural production of 19,239 smallholder farmer families (115,404 people) and increase productivity and incomes through improved access to stable water provision for irrigation, adoption of climate resilient agricultural practices, and improved market linkages. In addition, the building of micro-infrastructure for water will create seasonal employment in the targeted communities. This is estimated to generate altogether 12,500 work days which will benefit around 2,500 families. Indirect employment opportunities will also be created, as the local economy will be stimulated by the project activities. The project will support the community productive assets (e.g. soil and water conservation measures, resilient seed nurseries, coffee and cocoa processing tools, etc.) with multiple benefits. Increased agricultural activity, resulting from enhanced provision of climate-oriented technical support and inputs such as drought-tolerant beans and maize varieties and high value tree crops, will result in surplus production for income generation. Moreover, the project proposes to substantially improve decision making among farmers by providing climate information coupled with a greater understanding of climate related food security and climate risk management issues. This will allow farmers to rationalize their inputs and assess cultivation options for the coming months, preventing undue losses of crops and inputs.
110. **Social co-benefits:** Through training and through experience gained during project implementation, farmers will increase their capacity to engage with government officials and the private sector in the agriculture value chain. By working in partnership with community groups, the project will create significant social capital through co-designing and co-managing the agricultural adaptation strategies. The micro-basin water management plans will act as a conflict management instrument for the use of water resources; thus, the project will indirectly promote social cohesiveness among upstream and downstream villages. Moreover, by ensuring sustained water availability in drought conditions, the project will ease the pressure on farmer households, especially on women-owned farms and house gardens. Additionally, the project will result in health and nutritional improvement for the participating families. This is an indirect benefit of increases in crop diversity aimed at reducing exposure to the risks of climate change-related crop failure.
111. **Gender-sensitive development impact:** The project will result in positive outcomes related to access resources, improve livelihoods, and income generation for women through the various project interventions (especially Output 1.2 and 2.2). The project will engage women in project planning, investment and decision making from the start. With opportunities to generate additional income, women will be more likely to respond to incentives that address their family's basic needs, such as better health and nutrition, linking to agriculture and food security improvements. Women will benefit from training and educational activities related to climate change, agriculture, water management, leadership, entrepreneurship and decision making. More information on gender-sensitive impacts can be found in Part I of the Annex 8.

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

112. **Vulnerability of the country and/or specific vulnerable groups, including gender aspects**
Guatemala is the second most vulnerable country to climate change in Latin America and the 11th worldwide.⁶⁵ & ⁶⁶ Around 76% of the rural population and 79% of the indigenous people live in poverty

⁶⁵ Eckstein, Künzel & Schäfer, 2018. GLOBAL CLIMATE RISK INDEX 2018. Who Suffers Most From Extreme Weather Events? Weather-related Loss Events in 2016 and 1997 to 2016. Bonn: Germanwatch e.V. Available at: <https://germanwatch.org/en/download/2043>

⁶⁶ Mapplecroft, 2014. Índice de vulnerabilidad y adaptación al cambio climático en la región de América Latina y Caribe. Banco de Desarrollo de América Latina. Corporación Andina de Fomento.

conditions.⁶⁷ Poverty among the indigenous population is 1.7 times higher than among the non-indigenous population.⁶⁸ Chronic malnutrition affects 53% of children in rural areas and 61% of children from indigenous origin. Rural production systems are highly dependent on rain fed agriculture, therefore climate change threatens to worsen an already untenable situation. Poor farmers rely on family labour and have limited access to the human, physical and financial resources required for adaptation.

113. Vulnerable farmers are at the greatest risk of being pushed into conditions of extreme food insecurity due to climate change. Climate change projections show that the project's implementation areas are expected to be the worst affected areas in the country. The effects of climate change include reduced precipitation, increased numbers and duration of heat waves, decreased agriculture productivity levels, and decreased water availability.⁶⁹ Land is primarily used for agriculture, due to the lack of conservation practices and poor soil management, 3.9 million ha (36%) are degraded with high levels of soil erosion.⁷⁰ Such management practices and loss of forest cover reduce the landscape's capacity to regulate the hydrological cycle. The baseline scenario will result in significant water scarcity as climate change affects the region in the long term.
114. Due to the predominantly male labour migration, rural population are mostly women, who face structural difficulties in accessing finance. They traditionally manage household water and family gardens and are thus on the frontline of managing the impacts of reduced water availability and crop failure. In the project area, women are particularly vulnerable to climate change impacts. This poses threats to their families' food security, especially in periods of prolonged droughts. Further information regarding women's vulnerability to climate change is presented in Part I of the Annex 8.
115. The project design is informed by the outcomes of a series of stakeholder consultations at national and local levels. At local level there were eight stakeholder consultations with 165 representatives of indigenous organizations and 184 persons representing the communities (women - 104 and men - 80). The outcomes of these consultations provided key information regarding specific needs of men and women to better adapt to climate change and highlighted the importance of integrating traditional knowledge in the adaptation solutions. At a national level a number of work meetings have been convened between FAO, MAGA, MARN and INAB to define the project design. In March 2019 took place the validation workshop for the RELIVE project, which resulted in technical inputs regarding information gaps and identification institutional coordination mechanisms for knowledge transfer. The project proposal was approved by all stakeholders. Details on the consultation process and outcomes is included in Annex 7.
116. The project will address the needs of the most vulnerable groups identified to be the infra-subsistence and subsistence farmers who are highly dependent on rain-fed agriculture and suffer food insecurity due to climate-induced prolonged drought periods (see Section C.3.4 from the Feasibility Study). The project will build their resilience through tested climate resilient soil and water management practices and landscape restoration practices. Climate resilient production and livelihood diversification strategies are expected to reduce production losses and improve food security of the beneficiaries. At the same time, the project will generate capacities among the rural population and public institutions to incorporate climate information into territorial planning to improve adaptive capacities. It will further promote improved coordination and knowledge sharing among national and local actors to create enabling conditions for resilience of smallholder farmers.

Absence of alternative sources of financing and need for strengthening institutions and capacity

⁶⁷ Pons, Brincker & Castellanos, 2018. *Asegurando la resiliencia ante el CC en los paisajes Mayas de Petén, Verapaces y el Corredor Seco. Producto 1. Documento de análisis de los efectos del Cambio climático a nivel nacional y local. Documento de consultoría.* Guatemala.

⁶⁸ INE, 2015. República de Guatemala: Encuesta Nacional de Condiciones de Vida 2014. Principales resultados. Guatemala: INE.

⁶⁹ INSIVUMEH, 2018. Variabilidad y Cambio Climático en Guatemala. Guatemala: Instituto Nacional de Sismología, Vulcanología, Meteorología e Hidrología (INSIVUMEH).

⁷⁰ Mesa de Restauración del Paisaje Forestal de Guatemala, 2015.

117. While Guatemala is a medium-income country and has the largest economy in Central America, it also has one of Latin America's highest rates of inequality and among the highest rates of poverty and malnutrition, especially in areas with high percentage of indigenous population. Public investment is essential to overcome poverty and climate change vulnerability; however, it is constrained by lack of resources. As described in Section B.4 the current budgetary situation of the GoG limits its ability to invest in building climate resilience for family farmers.
118. Additionally, the Government of Guatemala has limited capacity to mobilise sustainable, local-level public financing for sustainable land and water resource management. It lacks adequate financial resources and the technical capacity to implement specific projects to promote climate resilient agriculture and restore degraded lands. The lack of resources also limits the ability of the government to collect, manage and disseminate agro-weather information that is needed to guide the government's and farmers' decisions. The MAGA extension service, SNER, is constrained by workforce and resource shortages.

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

119. The project has been designed to align with national and sub-national development policies, strategies and plans on development, climate change and food security in Guatemala. A summary of the project alignment and contribution to government priorities is presented in Table 3.

National climate strategy

120. Guatemala's legal framework on climate change actions is led by the Climate Change Framework Law (LMCC). The LMCC regulates the reduction of vulnerability, the mandatory adaptation to the effects of climate change, and the mitigation of greenhouse gases (Decree 7-2013). The implementation of the LMCC is via the National Climate Change Action Plan (PANCC). The project is aligned with PANCC and specifically supports several adaptation objectives.⁷¹ For detailed description on the Legal Framework on Climate Change in Guatemala see Section A.2 of the Feasibility Study.

Alignment with existing policies such as NDCs, NAMAs, and NAPs

121. The project is aligned with Guatemala's NDC commitments which include as adaptation priorities the following sectors: human health, agriculture, livestock, and food security – with priority given to those actions dedicated to food production for self-consumption and subsistence, forestry, conservation and management of strategic ecosystems, integrated approach to water resources, and a risk-reduction integrated approach. On adaptation, the NDC prioritises actions that have a direct effect on food production, mainly for self-consumption and subsistence in priority areas and provide producers with the necessary tools and technology to deal with climate change and encourage the adjustment of agro-productive systems to the changing environment of the climate and its derivations. RELIVE project directly contributes to abovementioned adaptation priorities. The project will contribute specifically to continuity in implementation and compliance with forest management policy instruments. Chief among these are forest recovery, restoration, management, production and protection in Guatemala (PROBOSQUE, Decree 02-2015), the Forest Incentive Program (PINFOR) and the Forest Incentive Program for Holders of Small Tracts of Land suitable for Forestry or Agro-Forestry (PINPEP, the National Strategy for Restoration of the Forest Landscape, the Strategy on the Links among Forests, Industry and the Market and the National Strategy for Combating Illegal Logging.
122. The project is also aligned with and will learn from the NAP-Agriculture - Integration of Agriculture into the National Adaptation Plan (see Section A.2 from Feasibility Study). NAP-Agriculture aims to improve irrigation,

⁷¹ 1) Strengthening early warning systems on food and nutritional security and harvest forecasting for vulnerable farmlands; 2) Providing technical assistance to agriculture and livestock producers to implement adaptation and water and soil conservation practices; 3) Increased food productivity through adaptation activities to reduce the vulnerability of families affected by climate change and guarantee their food and nutritional security; 4) Reduction of losses in the agricultural sector caused by climate events; 5) Promoting the establishment of agroforestry systems in areas repeatedly affected by the effects of climate change; and 6) Sustainable management of forest ecosystems to reduce vulnerability to climate change.

adaptation to climate change in the country's agricultural sector and the institutional capacities through the development or improvement of policy and planning instruments at the national, sectoral and local levels. Finally, the project is aligned with the forest policy as it will contribute to the continuity of the implementation and compliance of forest management policy instruments such as the PINPEP. Further information related to the national legal and political framework is provided in section A.4 of the Feasibility Study.

Table 8: Project alignment with government priorities

<i>Project Components</i>	<i>NDC</i>	<i>PANCC</i>	<i>LMCC</i>	<i>Forest Policy</i>
<i>Component 1. Implementing climate resilient agricultural practices and enhancing farmers' livelihoods</i>	X	X	X	
<i>Component 2. Supporting efficient water management for agriculture to reduce the impact of increased water scarcity</i>	X	X		X
<i>Component 3: Improved enabling conditions for climate resilient livelihoods</i>		X	X	

GCF country program and other GCF projects in Guatemala

123. The Country Programming Framework (CPF) 2017-2021 identifies the support of national efforts to respond to climate change impacts as a priority and defines three priority areas: a) Food and nutritional security; b) Territorial rural development; and c) climate change adaptation and mitigation to support resilience and integrated management of renewable energies. The RELIVE project is directly contributing to the three priority areas with particular focus on addressing the specific needs of indigenous populations. While there are other GCF approved projects in Guatemala, RELIVE is the only project that directly benefits the indigenous populations, which are considered to be the most vulnerable to climate change in the country. RELIVE project will complement projects currently in implementation in the country such as the GCF - funded project "Building livelihood resilience to climate change in the upper basins of Guatemala's highlands" (2019 – 2026) implemented by the International Union for Conservation of Nature (IUCN) and will seek synergies with two GCF projects by CABEI – (1) Ecosystem-based Adaptation to increase climate resilience in the Central American Dry Corridor and the Arid Zones of the Dominican Republic (under review) and (2) Productive Investment Initiative for Adaptation to Climate Change (CAMBio II) (approved). RELIVE project will generate lessons learned and best practices for agricultural resilience and promote their replication in CABEI project areas. Additionally, RELIVE will learn from the financial mechanisms promoted by CABEI projects for the specific adaptation solutions and beneficiary groups and explore the suitability of such mechanisms for the project area. Section B.1 (para 23) provides a map and description of the synergies and complementarity between these projects and RELIVE project. Section A.4 of the feasibility study describes how the proposed project will learn from these projects and coordinate with them.

Capacity of Accredited Entities or Executing Entities to deliver

124. The FAO Guatemala country office was established on 1964. FAO has been supporting the Guatemalan Government in the development of agricultural, food and nutritional security, climate change and sustainable management of natural resources policies, through a territorial rural development approach and through the construction of institutional capacities in such issues. (See Section A5 of the feasibility study for more details).
125. FAO Guatemala has implemented projects on: (1) production and post-harvest management; (2) processing and commercialization of agricultural and forestry products; (3) fisheries development; (4) use and conservation of natural resources; (5) sustainable rural development; (6) food and nutritional security; (7) poverty reduction; and (8) strengthening of the legal framework. FAO Guatemala is authorized to perform all financial, administrative, and managerial processes for the execution of projects funded by different donors.

126. Both MAGA and INAB are mandated to coordinate and oversee the implementation of the project. They have extensive past experience in executing large foreign funded projects and are also currently managing an ongoing portfolio of foreign and government funded development projects.

Role of the National Designated Authority

127. The GCF NDA is the Ministry of Environment and Natural Resources (MARN). MARN requested FAO to develop the project, and has been actively involved in its design, as well as in the project validation workshops. The project enjoys strong political support from MARN which will have a leading role in the project as the chair of the Project Steering Committee and the Technical Committee. This will ensure that the project is being implemented according to the proposed objectives and are aligned with the overarching climate national policies.

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

128. The total Project cost is USD 66.7 millions, comprising USD 36.8 millions of co-financing (USD 24.1 million in the form of financial incentives under the INAB/PINPEP and PROBOSQUE programs, 5.7 million in the form of in-kind contribution from MAGA and USD 7 million in the form of grants from KOICA) and USD 29.8 millions of GCF funding in the form of grants. This corresponds to a co-financing ratio of 1:1.1.

129. The request for grant financing is justified by i) the needs of the recipient, which includes some of the poorest farming communities in Guatemala (mainly of indigenous descent), and ii) lack of viable climate resilience alternative measures. Even though Guatemala has the status of upper-middle-income country⁷², it is one of the poorest countries in the region⁷³ with the most unequal distributions of income⁷⁴ and is marked by social indicators that often fall below those of countries with far lower per capita income. More than half of Guatemala's population lives in rural areas⁷⁵, and of that 70 % live in poverty. Indigenous people in Guatemala (main beneficiaries of this project⁷⁶) account for 43.8% (8.7 million) of the total population and 79% of these communities live in poverty. As a result, indigenous communities are often excluded from the political and social mainstream, making this group particularly vulnerable to climate change. The project will benefit the indigenous population by providing opportunities for higher net incomes at household level and reinforcing the opportunity for a self-financed investment in climate resilient agriculture in a long run. Thus, indigenous communities will become less risk-averse to climate change and have access to equal opportunities to improve their livelihoods.

130. The Government of Guatemala and in particular the Ministry of Agriculture does not offer financial mechanisms that serve smallholder farmers in poverty conditions. With no access to banking services and producer credit, a grant is the only option to address the underlying barriers to equitable access to financial resources that hinder farmers' resilience.

131. The GCF support in the form of grant is a key element to reduce market barriers that are currently affecting vulnerable farmers (See Section B.2 for more details on the market barriers):

- The project will serve to decrease information asymmetries, by demonstration and dissemination to other farmers and public institutions for which the set of environmentally-friendly and climate resilient agricultural practices constitute a practical and viable alternative for adaptive capacity, strengthening food security and increasing production. This is a key element of the project, as it is expected to be replicated in other areas of the country.
- The project will support smallholder farmers with the elaboration of the technical studies requested to access the forest incentives under PINPEP.

⁷² <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups>

⁷³ Overall, 62.46% of the population in Guatemala is poor and 29.6% lives in extreme poverty.

⁷⁴ 2016 Guatemala Gini Index 48.3, and Latina America Gini index 46.2

⁷⁵ <http://www.fao.org/3/a-i4124e.pdf>

⁷⁶ The project will work with the Q'eqch, Achi, Poqomchi and Chori Indigenous ethnic groups

- The project will provide access of smallholders to public services, such as extension, technical assistance, innovation and knowledge. Also, with the project it is expected that farmers will have access to quality inputs, such as quality seeds.
- The project will give value to non-market ecosystem services through the restoration of degraded areas. The project will create positive environmental externalities for services that don't have markets, such as erosion prevention.
- GCF grant support will provide the minimum concessional funding necessary to make the project viable. Concessional GCF support will address several market needs including food security, and the need for small-scale farmers to access information, knowledge, and technology to address the challenges of climate change.

Efficiency and effectiveness of the project

132. The economic and financial analyses of RELIVE indicate that it is a strong project with the capacity to create economic value chains for the society, with due consideration to the productive, environmental and climatic impacts. The marketable (agricultural production) and non-marketable benefits (the three ecosystem services considered) are aggregated to obtain the overall estimation of the economic value of the project, considering the total investment cost of US\$66.7 million (US\$29.8 million from Green Climate Fund, US\$7 million from KOIKA, US\$5.7 million from MAGA and US\$24.1 from INAB). This corresponds to a co-financing ratio of 1:1.1.
133. A financial analysis was performed to evaluate the results of four adaptation packages in a midterm horizon: 10 years.
134. The results show that only Basic Crops presents a positive incremental net present value in a midterm analysis of 10 years horizon. The medium-term profitability indicators in 3 of 4 packages are negative in financial terms, which is due to the high initial investment and to the fact that the results of the system improvements are observed gradually over time.
135. If the project lifespan is considered (20 years) all adaptation packages generate financial benefits to rural families that are higher than costs. The IRR ranges from 15% to 22%. This means that families will have new income generating opportunities, equivalent to US\$14/ha and US\$177/ha per year as a result of the adoption of the agronomical practices that also promote restoration of the landscape and provision of ecosystem services. The difference between 10 and 20 years analysis is due to the fact that the adaptation packages present incremental negative cash flows during first 4 years for cocoa, coffee and family gardens, but from then on cash flows are in all cases significantly superior to the without-adaptation option. This result is not unexpected since the benefits of the restoration of degraded landscape will be evident at a longer period. In addition, both operational centers to add value to coffee and cocoa are financially viable. The EFA considers the benefits generated from these investments in technology packages and takes into account all investment costs of the project, from all sources of financing.
136. It should be noted that RELIVE will contribute to strengthening the resilience of other ecosystem services whose value has not been quantified: biodiversity conservation, genetic resources conservation, medicinal resources and recreation. Nor was possible to quantify important social benefits that have a direct impact on the well-being of families, such as the impact of food production on family health and the foregone time to fetch water. None of these important benefits was possible to quantify in the economic analysis due to lack of information.⁷⁷ (For more details see Annex 3: Economic/Financial Analysis).

⁷⁷ In a 20 years horizon, all adaptation packages are financially viable with IRR that ranges from 15% to 22%. This means that families will have new income generating opportunities, equivalent to US\$14/ha and US\$177/ha per year as a result of the adoption of the agronomical practices that also promotes restoration of the landscape and provision of ecosystem services. Also, both operational centers to add value to coffee and cocoa are financially viable.

⁶⁷ Examples of initiative includes the one developed by the "Consejo Nacional de Áreas Protegidas" (CONAP) in the protected area Sipacate-Naranjo, Defensores de la Naturaleza in the river basin of Río Lato.

137. The economic net present value per beneficiary integrates two key aspects: (1) the majority of beneficiaries are located in remote areas and therefore they often remain neglected by projects due to higher costs for the interventions and (2) the majority of the beneficiaries are indigenous communities and the introduction of innovative climate resilient agricultural practices needs to be carefully tailored and translated in local languages. These two aspects incur additional costs to the project interventions.
138. The effectiveness of the proposed adaptation solutions is based on evidence and has been validated in a number of FAO projects at varying scale in the Central American region and worldwide (See section B5 of Feasibility Study). This project builds on those lessons of cost-effectiveness and efficiency of delivery. The project will build synergies with other projects in the same geographical location and working on same issues as water resource development and management, forest management and climate resilience to maximize effectiveness (For more information on these projects see Section B4 of Feasibility Study).
139. Costs of the infrastructure investments have been estimated using comparable benchmarks from other projects. The micro-infrastructure for water harvesting can support varying number of farm-level irrigation systems. On average the cost of the construction and the implementation of the micro-infrastructure and the irrigation systems, is about in USD 5,000 (more details in Section C.6 of the feasibility study). Average costs for implementation of adaptation practices (agroforestry, USD 2,000) and construction of community seed nurseries (USD 4,000), infrastructure for the processing of coffee (USD 1,500) and cocoa (USD 83,000) have been derived from the benchmarks of other projects discussed in Section A4 of Feasibility Study.
140. Finally, community participation in the implementation and operational stages will ensure cost-effectiveness of the investments. Previous experience shows that in some instances (e.g. for river basin protection) labor is usually volunteered. ⁷⁸ The micro-basing water management plans will be managed by the community, thereby reducing the operation and maintenance costs for the governance in the long term. Similarly, the community contribution to the management of hydro-meteorological stations can make the maintenance cost-effective because this will reduce the inputs (travel, salaries and accommodation) from the project.

Application of best practices

141. This project includes the uptake of agricultural management and ecosystem restoration measures to improve climate resilience of smallholder farmers. All of the proposed measures have been extensively tested through other FAO projects and research studies in comparable conditions in Guatemala and elsewhere in the region (See section A.5 of the feasibility study). The gender-sensitive agricultural adaptation packages promoted in Output 1.2 (see table 3) as well as the diversification of the productive systems in Output 1.3 were developed based on lessons learned from experiences in Latin America and the Caribbean on solutions for climate resilient agriculture for food security.⁷⁹ The resilient agricultural practices in Output 1.2 were further tailored through a preliminary option analysis conducted by CATIE and described in detail in Section C.6 of the Feasibility Study. The project will also build on the lessons learned and best practices developed through the IDB project “Recovery of the Natural Capital of the Dry Corridor and Climate Adaptation of its Population” and the project “Adaptation to Climate Change in the Dry Corridor of Guatemala” implemented in the same targeted project area.
142. RELIVE seeks to strengthen the farmer ownership of the agricultural resilient practices by encouraging them to cover for O&M costs of the equipment and productive infrastructure. This approach was used by the project “Reducción de Vulnerabilidades para Contribuir al Desarrollo Rural en cinco Municipios de las Cuencas de los Ríos Coatán y Alto Suchiate en el Departamento de San Marcos” implemented from 2010 to 2014

⁷⁹ AECID, 2018. Lecciones Aprendidas sobre *sobre agricultura resiliente al cambio climático para contribuir a la seguridad alimentaria y al derecho a la alimentación en América Latina y el Caribe*. URL: http://www.aecid.es/Centro-Documentacion/Documentos/Publicaciones%20AECID/Agricultura_resiliente.pdf

by. Lessons learned from this project have been incorporated in two on-going projects: “Practicas resilientes” and “Mesoamerica sin hambre”. In these two projects, smallholder farmers were provided with macro-tunnels facilities and rainwater collection bins for drip irrigation. RELIVE draws on lessons learned from these projects aiming to replicate sustainability aspects that are at the same time accompanied by extension and capacity building activities (workshops and trainings) to strengthen local technical capacities and allow producers to be able to operate and maintain the equipment not only during the life of the project but also after the project finishes.

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 ₂ eq) to be reduced or avoided (mitigation only)	Annual	Click here to enter text. t CO ₂ eq
	Lifetime	Click here to enter text. t CO ₂ eq
E.2.2. Estimated cost per t CO ₂ eq, defined as total investment cost / expected lifetime emission reductions (mitigation only)	(a) Total project financing	<u>66,677,169</u> USD
	(b) Requested GCF amount	<u>29,837,169</u> USD
	(c) Expected lifetime emission reductions	_____ t CO ₂ eq
	(d) Estimated cost per t CO₂eq (d = a / c)	_____ Choose an item. / t CO ₂ eq
	(e) Estimated GCF cost per t CO₂eq removed (e = b / c)	_____ Choose an item. / t CO ₂ 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 only)	(f) Total finance leveraged	<u>36,840,000</u> USD
	(g) Public source co-financed	<u>36,840,000</u> USD
	(h) Private source finance leveraged	_____ USD
	(i) Total Leverage ratio (i = f / b)	<u>1.23</u>
	(j) Public source co-financing ratio (j = g / b)	<u>1.23</u>
	(k) Private source leverage ratio (k = h / b)	
E.2.4. Expected total number of direct and indirect beneficiaries, (disaggregated by sex)	Direct	<u>116,353</u> 40% of female
	Indirect	<u>583,146</u> 35% of female
<i>For a multi-country proposal, indicate the aggregate amount here and provide the data per country in annex 17.</i>		
E.2.5. Number of beneficiaries relative to total population (disaggregated by sex)	Direct	<u>0.7%</u> (Expressed as %) of country(ies) – 69,242 males and 46,162 females
	Indirect	<u>3.39%</u> (Expressed as %) of country(ies)
<i>For a multi-country proposal, leave blank and provide the data per country in annex 17.</i>		

E.3. Fund-level impacts

Select the appropriate impact(s) to be reported for the project/programme. Select key result areas and corresponding indicators from GCF RMF and PMFs as appropriate. Note that more than one indicator may be selected per expected impact result. The result areas indicated in this section should match those selected in section A.4 above. Add rows as needed.

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.)	National livelihood survey ⁸⁰	0	Total = 40,402 farmers Female = 16,160 farmers Male = 24,241 farmers	Total = 115,434 farmers Female = 46,174 farmers Male = 69,260 farmers	Adequate uptake of improved practices and replicated traditional practices secures buy-in from communities and long-term commitment to promoted climate resilient actions
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)	National livelihood survey ⁸¹	0	3,000 food secure households	6,195 food secure households	Absence of extreme natural disasters and economic shocks affecting yields and household economies; migration patterns do not significantly affect the number and status of households.
	A2.3 Number of males and females with year-round access to reliable and safe water supply despite climate shocks and stresses	National livelihood survey ⁸²	0	Total = 5,000 farmers Female = 2,000 farmers Male = 3,000 farmers	Total = 14,700 farmers Female = 5,880 farmers Male = 8,820 farmers	
A4.0 Improved resilience of ecosystems and ecosystem services	A4.1 Coverage/scale of ecosystems protected and strengthened in response to climate variability and change	Annual Forest Statistics Bulletin ⁸³ Catalogue of GIS maps	0	6,500 ha	13,000 ha	No perverse incentives (policies, prices, monoculture industries that affect natural capital) are introduced in the project area. The project's area is not seriously disrupted by a major climate extreme event affecting restored areas.

⁸⁰ The National Livelihood Survey is conducted each 3 years by the National Statistics Institute

⁸¹ The National Livelihood Survey is conducted each 3 years by the National Statistics Institute

⁸² The National Livelihood Survey is conducted each 3 years by the National Statistics Institute

⁸³ The Forest Statistics Bulletin is prepared and published by the Forest Information System in Guatemala (SIFGUA in Spanish)

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	A5.2 Number and level of effective coordination mechanisms	Inter-ministerial meeting report ⁸⁴	0	1 national water management and climate change inter-ministerial working group	1 national water management and climate change inter-ministerial working group	Constructive relations for collaboration between Government agencies, municipalities and social organizations to refine policy, regulatory and planning frameworks.
A6.0 Increased generation and use of climate information in decision-making	A6.1 Use of climate information products/services in decision-making in climate sensitive sectors	Interim Evaluation and Final Evaluation report Published agrometeorological bulletins	0	Total = 8,000 farmers using climate information products in decision-making to use resilient agricultural practices Female = 3,200 farmers using climate information products in decision-making to use resilient agricultural practices Male = 4,800 farmers using climate information products in decision-making to use resilient agricultural practices	Total = 19,239 farmers using climate information products in decision-making to use resilient agricultural practices Female = 7,696 farmers using climate information products in decision-making to use resilient agricultural practices Male = 11,543 farmers using climate information products in decision-making to use resilient agricultural practices	Relevant national organisations are willing to invest to provide climate services to the required standards and number of people Beneficiaries are interested in climate information
A7.0 Strengthened adaptive capacity and reduced exposure to climate risks	A7.1 Use by vulnerable households, communities, businesses and public-sector services of Fund-supported tools instruments, strategies and activities to respond to climate change and variability	Interim Evaluation and Final Evaluation report National livelihood survey ⁸⁵	Maize: ⁸⁶ 1.3 – 3.8 ton/ha Beans: 0.74 ton/ha Coffee: 1.05 ton /ha Cocoa: 275 kg/ha	Increased agricultural yield (30%) due to watershed restoration and adaptation practices	Increased agricultural yield (50%) due to watershed restoration and adaptation practices	The agro-meteorological network managed by the Meteorological Institute is strengthened and provides adequate coverage in the 5 targeted municipalities / project sites.
	A7.2 Number of males and females reached by [or total geographic]	Interim Evaluation and	0	Total = 15,000 Female = 6,000	Total = 41,900	

⁸⁴ The meeting report is part of an institutional reporting process coordinated by the Inter-Institutional Coordination Group and presented at the National Climate Change Roundtable

⁸⁵ The National Livelihood Survey is conducted each 3 years by the National Statistics Institute

⁸⁶ The baseline for the selected crops is derived from: FAO/CATIE (2018).

	<i>coverage of climate-related early warning systems and other risk reduction measures established/strengthened</i>	Final Evaluation report Guatemala National Meteorological Institute report		Male = 9,000	Female = 16,790 Male = 25,100	
A8.0 Strengthened awareness of climate threats and risk-reduction processes	<i>A8.1 Number of males and females made aware of climate threats and related appropriate responses</i>	Interim Evaluation and Final Evaluation report Training report	0	Total = 81,447 people Female = 32,578 Male = 48,869	Total = 116,353 people Female = 46,541 Male = 69,812	Farmers remain interested and actively participate in project activities

E.5. Project/programme performance indicators

The performance indicators for progress reporting during implementation should seek to measure pre-existing conditions, progress and results at the most relevant level for ease of GCF monitoring and AE reporting. Add rows as needed.

Expected Results	Indicator	Means of Verification (MoV)	Baseline	Target		Assumptions
				Mid-term	Final	
Component 1: Implementing climate resilient agricultural practices and enhancing farmer livelihoods						
1.1 Climate and agro-weather information improved and tailored to the needs of vulnerable smallholder farmers to inform adaptation measures	Number male and female farmers use climate information to inform agricultural practices	Semi-Annual Project Progress Report ⁸⁷ Annual Project Progress Report ⁸⁸ Interim Evaluation and Final Evaluation report	0	Total = 8,000 farmers Female = 3,200 farmers Male = 4,800 farmers	Total = 19,239 farmers Female = 7,696 farmers Male = 11,543 farmers	Farmers remain interested and actively participate in project activities
1.2 Adaptation measures adopted to foster the resilience of coffee, cocoa and basic grain production systems	% of farmers (gender desegregated) adopt climate resilient agricultural practices on their fields	Semi-Annual Project Progress Report Annual Project Progress Report Interim Evaluation and Final Evaluation report	0	At least 70% of farmers (of which 40% female)	At least 90% of farmers (of which 40% female)	Prices of agricultural inputs remain stable.
1.3 Promotion of the resilience of livelihoods through productive diversification and market access	% of increased income of smallholder farmers due to diversified activities	Semi-Annual Project Progress Report	USD 750/year ⁹⁰	5% increase in income	20% increase in income	Prices of key cash crops remain stable.

⁸⁷ The Semi-annual Progress Report is a reporting process performed by FAO.

⁸⁸ The Annual Progress Report is a reporting process performed by the EE institutions (MAGA and INAB) as part of their institutional reporting.

⁹⁰ MAGA, 2012.

		Annual Project Progress Report National livelihood survey ⁸⁹				The project's area is not seriously disrupted by a major climate extreme event affecting agricultural production.
Component 2. Supporting efficient water management for agriculture to reduce the impact of increased water scarcity						
2.1 Community-led Water Management Plans developed and implemented at micro-basin level to promote climate resilience and enhance economic productivity	Number of micro-basin plans developed and implemented	Published micro-basins plans in the municipality and national information portals	0	7 Micro-basin plans	14 Micro-basin plans	Local organizations and communities support the initiative and are willing to participate
2.2 Landscapes are climate resilient and sustain critical ecosystems services for water availability in drought periods	Area (ha) with established incentive mechanism for adaptive forest management and agroforestry systems	Annual Forest Statistics Bulletin ⁹¹	0	6,500 ha	13,000 ha	The project's area is not seriously disrupted by a major climate extreme event affecting restored areas
2.3 Local water collection and irrigation farm systems implemented to secure water supply for resilient livelihoods	Area (ha) of arable land under assured irrigation via water harvesting and drip irrigation farm systems	Semi-Annual Project Progress Report Annual Project Progress Report Interim Evaluation and Final Evaluation report	0	480 ha	1000 ha	Water supply is not disrupted by a major drought event.
	Total local water collection capacity from rainwater harvesting systems (m ³ /year)	Semi-Annual Project Progress Report Annual Project Progress Report Interim Evaluation and Final Evaluation report	0	70,000 m ³ /year	150,000 m ³ /year	
Component 3: Improved enabling conditions for climate resilient livelihoods						
3.1 Institutional systems strengthened to govern climate resilient initiatives at national and local level	Number of national policy instruments integrating agricultural resilience practices	Semi-Annual Project Progress Report Annual Project Progress Report Inter-ministerial	0	1 national policy instrument	1 national policy instrument	National government maintain political commitment to mainstream climate change in policy instruments

⁸⁹ The National Livelihood Survey is conducted each 3 years by the National Statistics Institute

⁹¹ The Forest Statistics Bulletin is prepared and published by the Forest Information System in Guatemala (SIFGUA in Spanish)

		meeting report ⁹²				
	Number of municipalities with improved capacity provide technical assistance	Semi-Annual Project Progress Report Annual Project Progress Report Interim Evaluation and Final Evaluation report Training report	0	18 Municipalities	28 Municipalities	Municipalities attract and retain trained personnel in charge. Local government maintain political commitment to support climate resilient agricultural practices.
3.2 Strengthened knowledge transfer and awareness raising among institutions at national, sub-national and local levels	Number of technical officers supporting national level adaptation planning in relevant government institutions (MAGA, MARN and INAB)	Semi-annual and Annual Project Progress Report Interim Evaluation and Final Evaluation report Training report	0	National level: 70	National level: 90	Institutions attract and retain trained personnel in charge of offering technical assistance.
	Number of male and female farmers have access to technical assistance on resilient agricultural practices provided by the Learning Centers for Rural Development (CADER)	Semi-annual Project Progress Report Annual Project Progress Report Interim Evaluation and Final Evaluation report Training report	0	Total = 1,000 farmers Male = 600 farmers Female = 400 farmers	Total = 2,000 farmers Male = 1,200 farmers Female = 800 farmers	Centers attract and retain trained personnel in charge of offering technical assistance.

E.6. Activities

All project activities should be listed here with a description and sub-activities. Significant deliverables should be reflected in the implementation timetable. Add rows as needed.

Activity	Description	Sub-activities	Deliverables
Component 1 Implementing climate resilient agricultural practices and enhancing farmers' livelihoods			
Output 1.1: Climate and agro-weather information improved and tailored to the needs of vulnerable smallholder farmers to inform adaptation measures			
1.1.1 Organize workshops for extension technicians and farmers regarding the importance of climate information and use in decision-making	Improve the accessibility and use of real-time climate information for decision-making on the implementation of adaptation practices.	1.1.1.1 Awareness raising of communities on using agro-weather information products 1.1.1.2 Develop agro-weather newsletters for water management and application of agricultural practices for maize, beans, coffee and cocoa among other crops.	Awareness raising knowledge products such as newsletters, posters and short videos.

⁹² The meeting report is part of an institutional reporting process coordinated by the Inter-Institutional Coordination Group and presented at the National Climate Change Roundtable

<p>1.1.2 Install 13 hydro-meteorological monitoring equipment for drought to inform climate resilient agricultural management strategies.</p>	<p>Improve the generation of real-time and downscaled agro-weather information to inform agricultural practices. Install agro-weather advisories and warnings for both agriculture and water management and dissemination through media including SMS and radio.</p>	<p>1.1.2.1 Training of field officers and other municipal and local staff on operations & maintenance of equipment 1.1.2.2 Install and operate agro-meteorological stations in key agricultural zones to monitor weather and climate conditions in real time 1.1.2.3 Install and operate automatic rainfall gauges to improve the coverage for rainfall monitoring in the selected micro-basins</p>	<p>Installation and operational guidelines for agro-meteorological equipment</p>
<p>1.1.3 Disseminate climate information and response adaptation measures using locally-relevant delivery mechanisms as virtual platforms, electronic means, telecommunication and visits of the extension workers.</p>	<p>Tailor the climate information and translate in local language. The agro-weather advisories will be especially for the production of staple grains (maize and beans) and cash crops (coffee and cocoa). Disseminate the climate information products via appropriate communication channels with consideration of the gender dimension.</p>	<p>1.1.3.1 Identify the specific needs of all groups of the beneficiaries with regards to the access to climate information 1.1.3.2 Synthesize and tailored information on prolonged droughts and heatwaves through mobile and other platforms 1.1.3.3 Identify and develop the most appropriate delivery mechanisms</p>	<p>Protocols of the design and use of the information delivery mechanisms</p>
<p>1.1.4 Implement 4 local agro-ecological centers for climate change adaptation for knowledge generation and sharing</p>	<p>Implement 4 local agro-ecological centers for climate change adaptation to enhance the knowledge generation and sharing for the smallholder farmers.</p>	<p>1.1.4.1 Identify key locally relevant climate knowledge to be included and disseminated through the centers 1.1.4.2 Establish the 4 agro-ecological centers for climate change.</p>	<p>Management plan of the agro-ecological centers</p>

Output 1.2: Adaptation measures adopted to foster the resilience of coffee, cocoa and basic grain production systems

<p>1.2.1 Fund the implementation of the adaptation practices and gender-sensitive technology packages for staple crops, coffee and cocoa in 6,195 family farms.</p>	<p>Provide technical assistance for the adoption of the integrated packages of agricultural adaptation measures</p>	<p>1.2.1.1 Co-design and tailor the agricultural adaptation measures for the specific needs of farmers (especially women-led farms) 1.2.1.2 Provide technical assistance for the application of agricultural resilience measures 1.2.1.3 Provide materials and equipment for the application of climate change adaptation measures</p>	<p>Catalogue with tailored and gender-sensitive agricultural adaptation measures</p>
<p>1.2.2 Implement at least 10 trainings to enhance the technical and organizational capacity of 6,195 farmers for climate-risk informed planning and implementation of agricultural adaptation measures at farm level</p>	<p>Support government extension services to develop and promote tailored and tested agriculture adaptation through the Learning Centers for Rural Development (CADERS).</p>	<p>1.2.2.1 Conduct Training of Trainers for the implementation of climate resilient agricultural practices 1.2.2.2 Provide technical assistance to farmers for the implementation of agricultural adaptation packages</p>	<p>Trainer of Trainers Manual for the implementation of climate resilience agricultural practices</p>
<p>1.2.3 Establish 28 women-led, farm-level seed nurseries for resilient crops and community forest nurseries</p>	<p>Create community-led seed banks and promote the leadership and entrepreneurial skills of women groups to manage them.</p>	<p>1.2.3.1 Train women groups on the identification, presentation and storage of seeds. 1.2.3.2 Construct seeds banks with species adapted to climatic, cultural and commercial conditions of the area.</p>	<p>Catalogue of local and improved seeds and Manual for preservation and storage practices</p>
<p>1.2.4 Extension workers provide technical assistance through regular consultation sessions and field visits to 6,195 households.</p>	<p>Provide technical assistance on resilient agricultural practices via extension workers.</p>	<p>1.2.4.1 Identify smallholder farmers needs for technical assistance 1.2.4.2 Conduct regular consultation sessions led by the extension workers 1.2.4.3 Conduct short trainings and demonstration field visits</p>	<p>Catalogue with tailored and gender-sensitive agricultural adaptation measures</p>

Output 1.3: Promotion of the resilience of livelihoods through productive diversification and market access

<p>1.3.1 Promote diversification of productive units in home gardens for 2,500 farm families and install 370 greenhouses micro-tunnel facilities for vegetables and poultry</p>	<p>Collaborate with the Government of Guatemala to link its nationally funded school meals program with the farmers and help catalyze the creation of a market for communities and stimulate local production and purchase.</p>	<p>1.3.1.1 Market study to establish potential revenue generating services for agricultural, water management and drought information/warnings in the micro-basins</p>	<p>Catalogue with tailored and gender-sensitive agricultural adaptation measures</p>
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<p>1.3.2 Organize training for 2,500 farmers to improve technical skills for enhancing coffee and cocoa value chains and to strengthen organizational capacities of producers' associations to access markets infrastructure</p>	<p>Improve the value chain of cocoa and cacao via resilient infrastructure for processing to protect from unfavorable weather conditions as prolonged drought and extreme temperatures. The project will encourage the organization of producers in local associations and facilitate the access to the market.</p>	<p>1.3.2.1 Promote the organization of smallholder farmers in local producers' associations for cocoa and coffee 1.3.2.2 Train coffee and cocoa producers on business development and management skills for better access to market 1.3.2.3 Construct /rehabilitate community-level climate-proof infrastructure for storage/ processing for cocoa and coffee 1.3.2.4 Develop participatory market mapping and support market linkages between smallholder producers and private sector actors for coffee, cocoa and vegetables production.</p>	<p>Training manual on business development and management for smallholder producers' associations</p>
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Component 2. Supporting efficient water management for agriculture to reduce the impact of increased water scarcity

Output 2.1: Community-led Water Management Plans developed and implemented at micro-basin level to promote climate resilience and enhance economic productivity

<p>2.1.1 Establish or strengthen the capacity of 14 Local Water Committees for climate risk-informed integrated water resource management and planning instruments related to public policy on climate change</p>	<p>Strengthen the organizational capacities of existing Local Water Committees at micro-basin scale or create new.</p>	<p>2.1.2.1 Validate participatory mapping of stakeholders to determine the structure of the Local Water Committees 2.1.2.2 Facilitate the legal registration of Local Water Committees in micro-basins 2.1.2.3 Assist in the management and administration of the Local Water Committees</p>	<p>Manual on the management of the Local Water Committees</p>
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<p>2.1.2 Provide technical assistance to Local Water Committees to develop and implement 14 climate risk-informed water management plans at micro-basin level which correspond to the project site.</p>	<p>Develop micro-basin level water management plans and guidelines in a participatory, multi-stakeholder approach. Improve collaboration for planning and equitable water sharing between users in the micro-basin. The plans will be implemented through the Local Water Committees and farmer committees.</p>	<p>2.1.2.1 Develop multi-stakeholder, climate-risk informed cascade level water resources development and management plans for micro-basins.</p>	<p>Water Management Plans</p>
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Output 2.2: Landscapes are climate resilient and sustain critical ecosystems services for water availability in drought periods

<p>2.2.1 Technical support to 19,239 smallholder farmers (women in particular) to access forest incentives</p>	<p>Facilitate the access of smallholder farmers to forest incentives from the program PINPEP/INAB. The activity will invest in technical support to facilitate smallholder farmers, especially women, to qualify for forest incentives and promote agroforestry systems.</p>	<p>2.2.1.1 Evaluate conservation and restoration opportunities in the micro-basin 2.2.1.2 Assist the beneficiaries (especially women) for the preparation of technical reports required for accessing forest incentives.</p>	<p>Technical reports required for accessing forest incentives.</p>
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<p>2.2.2 Training of 90 technicians from extension services, forest regents and INAB</p>	<p>Conduct trainings to extension technicians and INAB staff to better integrate agroforestry systems in their standards and requirements and strengthen the technical capacities and effective support to smallholder farmers.</p>	<p>2.2.2.1 Support extension technicians and INAB staff and provide technical assistance in the supervision of the implementation of agroforestry systems</p>	<p>Training manual on the supervision of the implementation of agroforestry systems</p>
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<p>2.2.3 Restore 13,000 ha through reforestation and agroforestry</p>	<p>Assist in the planning and implementing of forest conservation interventions to manage the forest cover and ensure the generation of environmental goods and</p>	<p>2.2.3.1 Plant agroforestry systems in designated areas according to the Micro-basin Water Management Plans 2.2.3.2 Implement forest conservation practices as controlled fire and forest management</p>	<p>Monitoring report for the restoration activities.</p>
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	services, mainly the provision and regulation of water resources.		
2.2.4 Evaluate forest management plans and certify their compliance to manage and allocate the necessary funds to reforest and manage 13,000 hectares of plantations and agroforestry systems	INAB will perform technical evaluation of the application packages for funds received by the smallholder farmers and will follow required procedures for the allocation of approved applications and required funds.	2.2.4.1 Prepare protocols for the evaluation of the proposal packages 2.2.4.2 Conduct an evaluation process for the application packages.	Guidelines for application to access forest incentives Technical reports on compliance with agroforestry projects

Output 2.3: Local water collection and irrigation farm systems implemented to secure water supply for resilient livelihoods

2.3.1 Provide trainings to improve technical capacity of 2,500 local officials and members of community organizations on the implementation and maintenance of micro-basin infrastructure	Strengthen the technical knowledge and skills of local communities and organizations for the installation and maintenance of water collection and irrigation infrastructure. This will ensure the long-term maintenance of the infrastructure through local capacities and will encourage ownership.	2.3.1.1 Train local community to construct rooftop rainwater collection tanks for domestic purposes 2.3.1.2 Conduct capacity building for farmers on installing/upgrading agriculture irrigation systems.	Technical manual for the construction of rooftop rainwater collection tank and installation of micro-irrigation system
2.3.2 Install farm-level drip irrigation system for using harvested water on 250 ha of farm land	Design and install/upgrade community-based water irrigation systems and roof-top water collection tanks by combining traditional and new technology design elements. This activity will upgrade/Install village irrigation systems and rooftop tanks and improve water access in prolonged drought conditions.	2.3.2.1 Design and install rooftop water collection tanks 2.3.2.2 Upgrade and climate-proof village irrigation systems 2.3.2.3 Develop a multi-year maintenance and financing plan for each irrigation system	Installation guidelines and protocols for farm-level drip irrigation and water harvesting system

Component 3: Improved enabling conditions for climate resilient livelihoods

Output 3.1: Institutional systems strengthened to govern climate resilient initiatives at national and local level

3.1.1 Provide training to 100 technicians from 28 municipal environmental units and other local government agencies on climate adaptation planning and climate resilient agricultural solutions .	Strengthen the national and municipal environmental units, local development associations, and communities, to promote their active participation in water administration boards and contribute to water collection, management, and sustainable use with a landscape approach.	3.1.1.1 Capacity building of local level institutions, organizations on coordination and management of water resource management	Technical manual on climate risk -informed water resource management for local actors.
3.1.2 Facilitate 4 meetings of 2 water management and climate change thematic roundtables including the participation of MAGA, MARN and other relevant actors to integrate agricultural resilience practices in the national action plan on adaptation to climate change.	Promote an interagency dialogue on climate adaptation and water resource management at the national and local level. This activity will fund the creation of a national inter-institutional platform and micro-basin water roundtables for participatory and multi-governance dialogues on water resource management and climate change.	3.1.2.1 Promote of discussion platforms, dialogues and thematic roundtables for inter-institutional coordination of water resources. 3.1.2.2 Facilitate water and climate change roundtables for inter-institutional collaboration at all levels.	Meeting report

Output 3.2: Strengthened knowledge transfer and awareness raising among institutions at national, sub-national and local levels

<p>3.2.1 Train and assist 90 staff members from INAB, MAGA and MARN on the management and dissemination of climate information</p>	<p>Raise awareness and strengthen the capacities of national institutions to generate and transfer knowledge regarding climate change adaptation. The activity will invest in Strengthening the National System for Information on Climate Change (SINCC).</p>	<p>3.2.1.1 Raise awareness and strengthen capacities of 3 governmental institutions (INAB, MAGA, MARN) at national level on climate adaptation planning including gender sensitization. 3.2.1.2 Support the collection and dissemination of climate information for agriculture to complement SINCC. 3.1.2.3 Build awareness and train municipal staff and local communities on climate-risk informed planning and management of water resources at micro-basin level</p>	<p>Guidelines on climate adaptation planning</p>
<p>3.2.2 Train 100 experts at departmental and municipal level and agricultural extension workers and other staff from SNER on climate risk-informed agricultural adaptation strategies</p>	<p>Conduct training for extension service agents to provide extension support during the life of the project, the project will invest in the training of in-house SNER technicians in order to develop their capacities to design and promote adaptation strategies beyond the life of the project, thereby contributing to innovation, sustainability and scaling up of impacts.</p>	<p>3.2.2.1 Build awareness and train municipal staff and local communities on climate-risk informed planning and management of water resources at micro-basin level 3.2.2.2 Capacity building to SNER technicians on the design and promotion of adaptation strategies</p>	<p>Catalogue with tailored and gender-sensitive agricultural adaptation measures</p>
<p>3.2.3 Train 300 community promoters on the use of climate information and planning instruments for agriculture adaptation strategies and strengthen the capacity of 80 CADERs</p>	<p>Build awareness through, exchange visits and training to CADERs, Local Water Committees, COCODES and other local governance organizations to support integrated water resource management based on physical parameters, water availability, climatic conditions and forecasts.</p>	<p>3.2.3.1 Strengthen CADERs as local knowledge hubs for the project and as coordination and communication mechanism for the climate- resilient integrated agricultural solutions 3.2.3.2 Provide awareness building and capacity strengthening to local governance organizations as COCODES to use climate information for decision-making community-level planning for resilience.</p>	<p>Knowledge products such as posters, videos, presentations and flyers on climate change risks, vulnerabilities and adaptation solutions for agriculture and livelihoods in different local languages</p>

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

143. In its role as Accredited Entity, FAO will oversee and supervise the implementation of this project in accordance with the agreement signed between FAO and the GCF. FAO will be responsible for the establishment of the M&E Unit. Throughout the reporting period, the project-level monitoring and evaluation will be performed by FAO Guatemala in compliance with FAO policies. FAO Guatemala will implement tools and methods to facilitate monitoring and evaluation of the project. The logical framework contains performance indicators by component and sub-component, which will be jointly monitored by the TC and FAO during program implementation **via two six-monthly supervision missions and via regular monitoring and evaluation procedure established for the project at inception.**

144. The M&E Unit will set up a monitoring system to be staffed by project officers in connection with the three core project components. Table 9 shows the staff that will form the M&E Unit.

Table 9. Staff of the M&E Unit.

OED Evaluation Team Leader	External Evaluation (short term consultancy)
OED Evaluation Team Leader / Midle evaluation	External Evaluation (short term consultancy)
OED Evaluation Team Leader	External Evaluation (short term consultancy)
OED Evaluation Team Leader / Final Evaluation	External Evaluation (short term consultancy)
Consultants field monitoring	To be hired by the project, under the supervision of the National Project coordinator
National consultants for field monitoring	
Base line	
Contract for base line	

145. Within the monitoring system, specific attention will be given to articulate the project workplan and the action plans for gender, indigenous people, biodiversity and the social and environmental framework to safeguard and

ensure a comprehensive and holistic monitoring system. Project components will be monitored separately as well as in relation to the achievement of higher-level project results and overall GCF goals. The project will put particular attention in ensuring the monitoring of differential impacts by sex, age and vulnerability. Particular attention will be placed in monitoring project relevance to indigenous people.

146. The PMU will be responsible for the day-to-day project monitoring and implementation. It will use specific tools to monitor activities and prepare reports to the TC, that combine financial reporting and progress toward achieving results as set out in the logical framework. The methodologies for monitoring and reporting of the key outcomes of the project will be elaborated in a detailed monitoring plan that will be discussed at inception. The methods used will support vertical monitoring, from the beneficiaries to management, and will facilitate comparative and standardized monitoring. Monitoring of impacts and results will be guided by the logical framework, which will be the basis for the Performance Management Framework. The first activity will be to verify and update the baseline information included in this proposal. **Monitoring of results will take place on a biannual basis**, with the Territorial Operating Units providing inputs to the PMU. FAO will assist with the development of tools and methodologies for efficient data collection.
147. The Territorial Operating Units and project beneficiaries will be directly involved in the monitoring and evaluation processes. The PMU will ensure that all project staff maintain a high level of transparency, responsibility and accountability in monitoring and reporting project results. The PMU will inform the TC and FAO Country Office of any delays or difficulties during implementation, including M&E plan, so that appropriate and corrective measures can be adopted. Additional M&E and implementation quality assurance and troubleshooting support will be provided by FAO as needed.
148. **Mid-term and final evaluations (see Annex 11 for more details on the monitoring and evaluation plans)**
In accordance with the AMA between FAO and GCF, the FAO Office of Evaluation will be responsible for the independent interim and final evaluations. The evaluations will be conducted using a question-driven approach, and may include assessments against the criteria of relevance, effectiveness and sustainability, among others. The interim evaluation will be instrumental in contributing – through operational and strategic recommendations –to improve implementation, setting out any necessary corrective measures for the remaining period of the project. The final evaluation will assess the relevance of the intervention, its overall performance, as well as sustainability and scalability of results, differential impacts and lessons learned. The evaluation should also assess the extent to which the intervention has contributed to the Fund's higher-level goal of achieving a paradigm shift in adaptation to climate change in Guatemala .To measure attributable changes, the evaluation will draw on mixed-methods, using qualitative methods (e.g. participatory rural appraisal) in combination with counterfactual analysis (e.g. quasi-experimental methods, depending on the existence of reliable control group data from the project's baseline and completion surveys, which will be confirmed during project inception). In addition to primary data collected by the evaluators and secondary national data, both interim and final evaluations will draw on the monitoring reports and activities prepared by project staff. Careful attention will be paid to the disaggregation of data, results and outcomes by gender.

F. RISK ASSESSMENT AND MANAGEMENT

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

Please describe financial, technical, operational, macroeconomic/political, money laundering/terrorist financing (ML/TF), sanctions, prohibited practices, and other risks that might prevent the project/programme objectives from being achieved. Also describe the proposed risk mitigation measures. Insert additional rows if necessary.
For probability: High has significant probability, Medium has moderate probability, Low has negligible probability
For impact: High has significant impact, Medium has moderate impact, Low has negligible impact
Prohibited practices include abuse, conflict of interest, corruption, retaliation against whistleblowers or witnesses, as well as fraudulent, coercive, collusive, and obstructive practices

Selected Risk Factor 1

Category	Probability	Impact
Governance	Medium	Low
Description		
Turnover of key project personnel and related technical and coordinating staff of implementing agencies could impact the pace of the project implementation and delay decision-making processes.		
Mitigation Measure(s)		
The risk that new officials will not support the project will be mitigated through information sessions to update them on the project actions and benefits to their constituencies. The development of micro-basin water management plans under Component 2 and inter-institutional arrangements under Component 3 will guide the work of new staff. The on-going capacity-building processes and the preparation of project reports and institutional reports and processes will also allow for knowledge transfer for new staff.		

Selected Risk Factor 2

Category	Probability	Impact
Governance	Medium	Medium
Description		
Changes of central and local government leadership and in overarching policy priorities can lead to a lack of support for project activities.		
Mitigation Measure(s)		
The alignment of project activities with multiple overarching development policies, mainly the Framework Law for Climate Change and the National Action Plan for Climate Change, NDC, K'atun 2030, as well as Forest Law makes this a medium risk. While one or more government policies may change the project is likely to remain in alignment with at least some of these policies. Additionally, under Component 3 the project will help strengthen implementation and institutional arrangements that mitigate this risk and increase the likelihood that project activities in the territories will continue uninterrupted. The institutional arrangements strengthened throughout the project will facilitate political processes between the central government, local governments and the project. The implementation of agreements at the micro-basin level will enable the engagement with local government.		

Selected Risk Factor 3

Category	Probability	Impact
Technical and operational	Medium	Low
Description		
Poor coordination / communication among stakeholders at the national and local level can lead to inefficiencies in the implementation and impact of the project.		
Mitigation Measure(s)		
The FAO will develop cooperation agreements with government agencies and the key stakeholders that will establish clear communication channels and procedures for project coordination with stakeholders involved in the project.		

The PMU team involves stakeholders from key institutions and is set to be maintained throughout the timeframe of the project in collaboration with the Territorial Operational Units. The PMU will ensure that communication and technical actions can continue. Under Component 3, institutional agreements will be established to share information between INAB and MAGA, which will improve the collection and dissemination of agro-climate information to farmers. Both agencies are full partners in the project, with roles and responsibilities to be clearly delineated at inception.

Selected Risk Factor 4

Category	Probability	Impact
Technical and operational	Medium	Medium

Description

The institutions linked to the development of the project do not have the personnel and / or resources required to carry out the project activities.

Mitigation Measure(s)

Under component 3, clear institutional arrangements with MAGA and INAB will allow the project to use their institutional capacities and human resources across the targeted municipalities to reach the identified target communities. FAO has access to skills and experience across its international team and will play a strong role in monitoring the actions and goals proposed in the institutional agreements with the partners. FAO will assess partners' capacity, provide real-time monitoring and feedback, and where appropriate will provide technical support to ensure effective and efficient project delivery.

Selected Risk Factor 5

Category	Probability	Impact
Other	Low	Medium

Description

Cultural barriers limit the participation of women, youth and ethnic groups.

Mitigation Measure(s)

The consultative process was carried out with the participation of women and indigenous groups to ensure that consultations were responsive to various gender needs and roles and cultural aspects such that project activities effectively respond to the unique needs of women and girls, men and boys, and promote equal opportunities to participate, and receive comparable social and economic benefits. Capacity building sessions, training and communication materials and technical assistance will be provided in local languages to ensure the engagement of indigenous families and that they benefit equally from the project and support its activities. The training processes will consider topics discussing the importance of the participation of all family members and ethnic groups in the decision-making spaces.

Selected Risk Factor 6

Category	Probability	Impact
Technical and operational	Medium	Low

Description

Unfavorable changes in market prices of coffee, cacao and staple crops and in the prices of agricultural inputs.

Mitigation Measure(s)

Local farmers have limited ability to affect volatile global commodity prices. Instead this risk will be mitigated by reducing exposure. Many of the crops supported by the project are for local consumption, not for sale to wholesalers. For cash crops, the project will identify niche markets, develop differentiated products and partner with supply chain actors willing to pay fair prices. In addition, the project aims to enhance alternative sources of revenue and help farmers diversify incomes. In case of low prices of a crop that generates cash, the family will have other products for sale, which will help to offset the decrease in income.

Selected Risk Factor 7

Category	Probability	Impact
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Other	Medium	Low
Description		
Extreme climate events and climate shocks could affect the successful implementation of project activities. For example, crop demonstrations could be hindered by drought and heatwaves.		
Mitigation Measure(s)		
Technical training sessions will help beneficiaries understand the impacts of climate change and the benefits of investing in climate resilient agriculture techniques. The monitoring and use of climate information will be promoted not only amongst project beneficiaries, but also project implementation teams, in order to ensure timely corrective and security actions, in case extreme events are forecasted to affect project activities. The use of demonstration plots will help farmers gauge the comparative benefits of climate resilient agricultural techniques, even in times of climate stress. While traditional crops varieties may outperform in normal years, the benefits of more resilient varieties will become more apparent during extreme events.		
Selected Risk Factor 8		
Category	Probability	Impact
Other	Medium	Medium
Description		
Security challenges could hinder the ability of the project team / extension agents to work with farmers.		
Mitigation Measure(s)		
Security risks are an ongoing challenge for extension services in Guatemala. The project will reduce the risk of security related disruptions through a combination of informal and formal measures. To the extent possible, project staff will be recruited locally. Project staff will receive detailed briefings prior to working in areas with known security challenges and receive training on how to react to potential security events. The project team will liaise with local leaders and seek their active endorsement when starting activities in a prioritized area. More broadly, project activities will promote family cohesion and reduce livelihood challenges that contribute to insecurity by directly involving vulnerable groups in project activities.		

G. GCF POLICIES AND STANDARDS

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

149. During the development of this funding proposal, an environmental and social management framework has been developed. An initial risk assessment has been carried out against FAO's environmental and social safeguards and the project is considered to be medium risk. While negative impacts from the project are not expected, the project activities are focused on the territories of indigenous peoples. This implies a series of important considerations in the formulation of the project, to avoid affecting their livelihoods, exclusion and inequality. Therefore, FAO led a Free, Prior and Informed Consent process described below.
150. The Social and Environmental Impact Assessment (Annex 6) classified project risk as moderate, although large-scale, significant or irreversible environmental impacts are not expected. The potential impacts identified are mainly impacts associated with activities that include community participation, especially of indigenous communities, on a purely voluntary and on-demand basis, which can be mitigated effectively and are addressed through the project's selection criteria and social and environmental plan of action.
151. Potential environmental impacts identified include:
- (i) Proliferation of pests and diseases due to poor water storage conditions;
 - (ii) Environmental pollution by the discarded materials from the greenhouses built;
 - (iii) Seed losses due to poor storage conditions in silos.
152. The project will proactively work to lessen environmental impacts in fragile areas through the following mitigation actions:
- (i) promote integrated pest management approach only to control pests and diseases in buffer zones and other areas;
 - (ii) strengthen capacities for good practices based on traditional knowledge for collection and conservation of open pollinated seeds and engage especially with indigenous populations; and
153. Potential social impacts identified include:
- 1) inequality and exclusion of vulnerable populations (women, youth and indigenous communities) from the activities and benefits of the project due to discrimination; and
 - 2) initial decrease in the income of families in the short term; and
 - 3) exclusion of potential beneficiaries due to lack of ownership of the land.
154. To address such risks, the project includes the following mitigation actions:
- (i) promoting alternative activities for women-led households (such as seed nurseries) and establish a mechanism for participatory monitoring, evaluation and delivery of agricultural inputs with broad participation of women's organizations;
 - (ii) preparing and disseminating culturally tailored materials, capacity building and technical assistance in local languages;
 - (iii) introducing alternative strategies for income generation will compensate for the initial decrease in production and in medium term, the impact will be reversed as new plantations begin to produce and obtain higher yields; and
 - (iv) establishing a working group to work on tenure solutions, this will include assess the type of land ownership of beneficiaries and identify the tenure situation to provide adequate technical assistance to farmers with focus on addressing barriers for women.
155. Environmental and Social Management Plans will be developed as necessary and mitigation actions will be monitored throughout the life of the project. A project level grievance mechanism will be established to ensure all stakeholders the possibility to file grievances if needed.

156. All stakeholders of the project were identified and engaged with, from national to local authorities, community level associations, academia, farmers, etc. The process was organized in 4 stages and resulted in proactive involvement in the initial phase and validation of the proposal (See Annex 7).
157. FAO consulted with the indigenous communities in the project area to ensure that the GCF supports concrete actions for the indigenous peoples in a way that protects their rights and respects their social and cultural identity, including customs, traditions and institutions. A process to obtain Free, Prior and Informed Consent was carried out in January 2019 by FAO in collaboration with MAGA. The process engaged with indigenous populations within the jurisdiction of the 29 municipalities that comprise the project area, including Maya Q'eqchi, Maya Poqomchi, Maya Achi, and Maya Ch'orti. The consultation process was implemented through eight sessions where the project was presented, and views were discussed. In total, 184 people (of which 57% women) participated. Consent was given for the implementation of the project and active engagement with indigenous communities is foreseen for the successful achievement of objectives.
158. A detailed Environmental and Social Risk Assessment together with the Free, Prior and Informed Consent are provided in Annex 6.

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

159. FAO undertook a gender assessment based on consultations and statistical analysis to identify principal gender gaps. The report "Gender evaluation and action plan: Ensuring the resilience of smallholder farmers to climate change in the Mayan landscapes of Petén and Verapaz and the Dry Corridor of Guatemala" was finalized in January 2019. The study concluded that in the country, and especially in the project areas, women are particularly vulnerable given the identified gender gaps, such as lack of access to education and limited political participation. A considerable number of women only speak their local language and are illiterate in Spanish, which is a barrier in their attempts to access technical and financial assistance. Women have less access than men to productive resources such as land, credit, housing, and basic services. Such gender inequalities affect the adaptive capacity of women and lead to their high vulnerability to climate change impacts. In the rural context of Guatemala, women are responsible for the household and family care, food production and the supply of drinking water. In the project areas, this context is exacerbated by the increasing trend of migration of men who seek employment in other regions or abroad, leaving the women with more responsibilities and in charge of family and farms. The projected climate impacts in the Departments of Verapaz, Petén, Zacapa and Chiquimula will put food security and water availability at risk, which will particularly affect women.
160. The design of the project integrates gender sensitive planning and implementation, particularly for women farmers and women-headed households. Within the project design and implementation, the interventions will provide gender responsive and transformative results. As women are key players in the agricultural sector and therefore, in food security, livelihoods and water management, this project seeks to address the identified gender gaps. Mechanisms to ensure women's participation have been developed in different components and indicators. Around 30% of the households in the project areas are female-headed. At least 10,000 women in the project areas will benefit from alternative income opportunities and the implementation of climate resilient agriculture technologies and market linkages. About 10,000 women will benefit from empowerment, skills development and technical assistance. Selection criteria will assign a weight to women's participation in access to technical assistance, their level of participation in local organized structures, land ownership and access to incentives.
161. The project will promote gender equality by giving rural women access to and control of the productive resources needed for agricultural development. Specific outcomes under the first and second components include increased opportunities for women to strengthen food security and to generate additional income through diversified activities. The project will promote tailored trainings, which address the specific needs of women (especially indigenous women) and enable them to be risk informed and adopt resilient agricultural practices to secure food even in drought periods. In particular, the project will address specific limitations that women encounter in earning income and accessing to financial incentives. The proposed diversified activities particularly focus on opportunities

for women such as managing seed nurseries and adopting agroforestry systems through forest incentives under the PINPEP program.

162. The project was designed in consultation with women's organizations and CBOs in the field and through a structured consultation. In addition, project actions will be developed in alignment to the National Policy for the Promotion and Integral Development of Guatemalan Women - Equity Opportunities Plan 2008 – 2023, and the Gender Environment Policy, the Institutional Strategy on Gender Equity with Ethnic and Cultural considerations, adopted by INAB. A detailed Gender Assessment and Gender Action Plan is provided in Annex 8.

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

163. Financial control and procurement processes will be implemented as per FAO rules and regulations, which were certified as acceptable to the GCF in the FAO accreditation process. FAO has an Administrative Manual organized across various Chapters covering Finance, Human Resources, Travel and Procurement. The FAO Intranet provides access to this Manual and to other procedures, information and guidance via the "FAO Handbook".

164. FAO has deployed an Oracle based ERP system the Global Resources Management System" (GRMS) to its world-wide offices, which provides all FAO employees, in all locations globally, with travel, human resource, procurement and finance functionalities. Using GRMS improves the flow of financial information, supports financial monitoring and reporting, increases transparency and visibility, and strengthens internal control. FAO maintains a chart of accounts which is used by the whole organization and that allows for a separation of income and expenditure by donor and project and support and provides a standardized coding structure that enables data to be recorded, classified and summarized to facilitate internal management and external reporting requirements.

165. Procurement and Letters of Agreement Services are managed under CSAP which provides policy and operational support to ensure the Organization procures goods, works and services based on "Best Value for Money" principles as embodied in the Manual Section 502 and for Letters of Agreement under Manual Section 507.

166. As mentioned in Section C.4. FAO as the Accredited Entity of the GCF will have overall responsibility for quality assurance and oversight of co-executing entities. In addition to this, FAO will be responsible for the financial execution of GCF funds according to FAO rules and regulations mainly contained and detailed in the FAO Handbook (including those referred to financial monitoring, audit and procurement).

167. During implementation, FAO will provide oversight and quality assurance in accordance with its policies and procedures. This may include monitoring missions, spot checks and participation at TSC meetings. The project will be subject to FAO's audit regime of FAO, including the external audit and internal audit functions.

168. FAO Guatemala's Country Representative or FAOR is responsible for financial monitoring and is supported by a management team comprised of a Program Assistant, Management Assistant, and a Strategic Operations Officer. Such team will interact and support the work of the PMU.

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.

G. 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 template provided)
 - Environmental and Social Impact Assessment (ESIA) or
 - Environmental and Social Management Plan (ESMP) or
 - Environmental and Social Management System (ESMS)
 - Others (Environmental and Social Management Framework –ES)
- 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 plans **(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 The Roles of Municipalities and Community-Based Organizations in Ensuring the Sustainability of Project Actions
- Annex 23 FP_Temporary annex on co-financing
- Annex 24 Carbon balance

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

No-objection letter issued by the national designated authority(ies) or focal point(s)



**MINISTERIO DE AMBIENTE Y RECURSOS NATURALES
GUATEMALA, C.A.**

*Vice Ministro
de Recursos Naturales
y Cambio Climático*

**Guatemala, 03 de abril 2020
Oficio No. VRNyCC-165-2020/FACB-skg**

**Mr. Yannick Glemarec
Executive Director
Green Climate Fund ("GCF")**

Re: Funding proposal for the GCF by FAO regarding Project RELIVE- REsilient LIVELihoods of vulnerable smallholder farmers in the Mayan landscapes and the Dry Corridor of Guatemala -.

Dear Sir, Glemarec

We refer to the project RELIVE- REsilient LIVELihoods of vulnerable smallholder farmers in the Mayan landscapes and the Dry Corridor of Guatemala – as included in the funding proposal submitted by FAO to us on May 29th, 2019.

The undersigned is the duly authorized representative of the Ministry of Environment and Natual Resources, The National Designated Authority of Guatemala.

Pursuant to GCF decision B.08/10, the content of which we acknowledge to have reviewed, we hereby communicate our no-objection to the project as included in the funding proposal.

By communicating our no-objection, it is implied that:

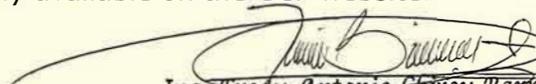
- a. The government of Guatemala has no-objection to the project as included in the funding proposal;
- b. The project as included in the funding proposal is in conformity with Guatemala´s national priorities, strategies and plans;
- c. In accordance with the GCF's environmental and social safeguards, the project as included in the funding proposal is in conformity with relevant national laws and regulations.

We also confirm that our national process for ascertaining no-objection to the project as included in the funding proposal has been duly followed.

We also confirm that our no-objection applies to all projects or activities to be implemented within the scope of the programme.

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

Kind regards


Ing. Jredy Antonio Chiroz Barrera
*Viceministro de Recursos Naturales
y Cambio Climático*
Ministerio de Ambiente y Recursos Naturales



7 Avenida 03-67 zona 13, Ciudad de Guatemala

PBX: 2423-0500

<http://www.marn.gov.gt>

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

Basic project or programme information	
Project or programme title	RELIVE – Resilient LIVELihoods of vulnerable smallholder farmers in the Mayan landscapes and the Dry Corridor of Guatemala
Existence of subproject(s) to be identified after GCF Board approval	No
Sector (public or private)	Public
Accredited entity	Food and Agriculture Organization of the United Nations (FAO)
Environmental and social safeguards (ESS) category	Category B
Location – specific location(s) of project or target country or location(s) of programme	Guatemala
Environmental and Social Impact Assessment (ESIA) (if applicable)	
Date of disclosure on accredited entity's website	Friday, May 15, 2020/ Monday, May 18, 2020
Language(s) of disclosure	English and Spanish
Explanation on language	Spanish is the official language of Guatemala and the language understandable to affected peoples/stakeholders.
Link to disclosure	English: http://www.fao.org/3/ca9109en/ca9109en.pdf Spanish: http://www.fao.org/3/ca9109es/ca9109es.pdf
Other link(s)	FAO disclosure portal: http://www.fao.org/environmental-social-standards/disclosure-portal/en/ Ministry of Environment and Natural Resources (MARN) website: http://marn.gob.gt/paginas/Proyecto_RELIVE
Remarks	An ESIA consistent with the requirements for a category B project is contained in the Environmental and Social Management Framework (ESMF).
Environmental and Social Management Plan (ESMP) (if applicable)	
Date of disclosure on accredited entity's website	Friday, May 15, 2020/ Monday, May 18, 2020
Language(s) of disclosure	English and Spanish
Explanation on language	Spanish is the official language of Guatemala and the language understandable to affected peoples/stakeholders.
Link to disclosure	English: http://www.fao.org/3/ca9109en/ca9109en.pdf Spanish: http://www.fao.org/3/ca9109es/ca9109es.pdf

Other link(s)	FAO disclosure portal: http://www.fao.org/environmental-social-standards/disclosure-portal/en/
	MARN website: http://marn.gob.gt/paginas/Proyecto_RELIVE
Remarks	An ESMP consistent with the requirements for a category B project is contained in the ESMF (Appendix 1).
Environmental and Social Management (ESMS) (if applicable)	
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
Any other relevant ESS reports, e.g. Resettlement Action Plan (RAP), Resettlement Policy Framework (RPF), Indigenous Peoples Plan (IPP), IPP Framework (if applicable)	
Description of report/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
Disclosure in locations convenient to affected peoples (stakeholders)	
Date	Monday, May 18, 2020
Place	FAO Representative Office in Guatemala: 7a Avenida 12-90, Zona 13 Interior Ministerio de Agricultura, Ganadería y Alimentación (MAGA) Edificio FAO Ciudad de Guatemala CP:01013 Guatemala Please see link for additional details: http://www.fao.org/guatemala/fao-en-guatemala/es/
Date of Board meeting in which the FP is intended to be considered	
Date of accredited entity's Board meeting	Monday, June 22, 2020
Date of GCF's Board meeting	Tuesday, June 23, 2020

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

Secretariat's assessment of FP145

Proposal name:	RELIVE – RESilient LIVELihoods of vulnerable smallholder farmers in the Mayan landscapes and the Dry Corridor of Guatemala
Accredited entity:	Food and Agriculture Organization of the United Nations (FAO)
Country:	Guatemala
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
Appropriate targeting to the most vulnerable smallholder farmers and indigenous groups based on climate change impacts, food insecurity and poverty	Need to ensure complementarity and coherence with the other GCF approved project (FP087 IUCN Guatemala), and the forthcoming Dry Corridor funding proposal with the Central American Bank for Economic Integration
Adequate adaptation packages for small-scale farmers and crops with an emphasis on a gender-sensitive approach	Need to explore ways to increase the number of indirect beneficiaries through the scaling up and replication mechanisms
Adoption of agro-biodiversity and creation of favorable microclimate in agricultural landscapes	

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. Guatemala is one of the most vulnerable countries to the impacts of climate change in Latin America. The country has been experiencing an annual average temperature increase of 0.6 °C and a 2.5 per cent increase in the number of hot days per decade since 1960. The average annual precipitation at the national level has increased by 52 millimetres since 1981, although the number of consecutive dry days has also increased. In the past 20 years, the occurrence and intensity of extreme weather events have increased, notably droughts and floods, leading to significant economic losses in the country.

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 the Mayan landscapes and

Dry Corridor of Guatemala. The project will be implemented for seven years, with a requested GCF grant of USD 29.8 million and co-financing from the Korea International Cooperation Agency (KOICA) of USD 7 million, Ministry of Agriculture, Livestock and Food of Guatemala (MAGA) of USD 5.7 million and the National Forest Institute (INAB) of USD 24.1 million.

5. The project will directly benefit 116,353 people in 29 municipalities and 14 micro-basins through the introduction of drought-resilient crop production systems, accessing national forest incentives, increased water security through local water collection and irrigation, and strengthened capacity at local and institutional levels through farmer field schools (FFS) and climate information. An additional 583,146 people across the 29 municipalities will be indirectly benefited through enhanced climate information and climate-resilient agricultural advisories and institutional capacity development.

6. The project is structured into three components:

- (a) Implementing climate-resilient agricultural practices and enhancing farmers' livelihoods;
- (b) Supporting efficient water management for agriculture to reduce the impact of increased water scarcity; and
- (c) Improved enabling conditions for climate-resilient livelihoods.

2.2 Component-by-component analysis

Component 1: Implementing climate-resilient agricultural practices and enhancing farmers' livelihoods (total cost: USD 25.5 million; GCF cost: USD 14.1 million, or 55 per cent)

7. Output 1.1 will install 13 hydro-meteorological monitoring equipment for droughts to inform climate-resilient agricultural management strategies, and disseminate the climate information to farmers through local delivery mechanisms. Overall, this component will generate localized, accurate and tailored climate information and promote equitable access to the information for smallholder farmers.

8. The feasibility study highlights the current gaps in the number of weather and hydrological stations and their limitations in providing real-time reporting. The current meteorological and hydrological stations do not meet the standards and criteria of the World Meteorological Organization (WMO), and there are uncoordinated systems generating climate information with duplication of effort by multiple institutions. The key to success of this component is therefore to improve the quality of data, so that it meets the WMO standards, and to improve coordination among different agencies working on climate information. The project will address these two issues. It is positively assessed that the hydro-meteorological monitoring equipment will be integrated into the centrally coordinated Seismology, Volcanology, Meteorology and Hydrology Institute (INSIVUMEH), the national institution in Guatemala.

9. Output 1.2 will fund the implementation of gender-sensitive agricultural adaptation packages for staple crops (maize and beans) and cash crops (cocoa and coffee) that are tolerant to droughts and heatwaves. The methods proposed through the packages – improved drought-resistant seed varieties and creating microclimates by establishing fruit, timber and service trees – are new to smallholder farmers and should be accompanied by sufficient skills development and capacity-building. The adaptation packages are assessed to be adequate and suitable for the local context.

10. The adaptation packages are expected to incentivize local farmers to adopt drought-resilient agriculture. In terms of beneficiaries, the packages will directly benefit 6,600 family farms, who represent a small proportion of the total direct beneficiaries of this project. As the packages cannot be extended to the entire direct beneficiaries, the proponent should develop a

concrete replication and scaling up strategy to reach more beneficiaries in order to transform the agricultural system.

11. Lastly, output 3 will promote alternative strategies for productive diversification, including installation of 370 greenhouses micro-tunnel facilities for vegetables and poultry, and training 3,300 farmers in methods for developing climate-resilient coffee and cocoa value chains. This output aims to establish a safety net to avoid food insecurity in droughts and heatwaves. The output can be an opportunity to work with the private sector involved in the value chains, to empower poor and vulnerable smallholder farmers. The training to be conducted should therefore involve the private sector to identify viable and sustainable investment opportunities with the smallholder farmers.

Component 2: Supporting efficient water management for agriculture to reduce the impact of increased water scarcity (total cost: USD 38.0 million; GCF cost: USD 14.1 million, or 37 per cent)

12. Component 2 focuses on increasing water security for agriculture, with three outputs: (1) developing community-led water management plans and strengthening local water committees; (2) watershed restoration of 13,000 hectares and improving the hydrological cycle; and (3) installing rooftop rainwater harvesting systems and farm-level drip irrigation systems on 250 hectares of farmland.

13. The first output will establish 14 local water committees and a corresponding 14 climate risk-informed water management plans at the micro-basin level. Although it is necessary to have planning instruments and local governance structures for water resource management, it is also important that such instruments and governance structures are coordinated and continue after the project, through integration into the Ministry of Environment and Natural Resources and INAB. Budgetary resources should be allocated to ensure that the management plans developed are implemented after project completion.

14. Restoration of watersheds is a proven ecosystem-based adaptation method and an effective way of improving hydrological cycles around the basins. This proposed output will be implemented in collaboration with the Government's national forestry incentive schemes (PINPEP and PROBOSQUE), and is expected to incentivize local communities to participate in forest restoration. GCF funding is expected to widen the coverage of beneficiaries and increase the impacts by equipping the poorest farmers to meet the technical specifications and prerequisites to access the incentives. The technical prerequisites are assessed to be in line with GCF objectives and will contribute to both adaptation and mitigation to climate change.

15. The proposed irrigation schemes will be supplied by water from rainwater harvesting systems. Historical observations show a net increase of average annual precipitation by 18 per cent in May and October, and water is expected to be harvested in these periods. However, given that the number of consecutive dry days is increasing, and that the future projections show an overall decrease of rainfall in the future, there should be alternative ways to collect and manage water other than reliance on rainwater harvesting systems.

Component 3: Improved enabling conditions for climate-resilient livelihoods (total cost: USD 0.5 million; GCF cost: USD 0.5 million, or 100 per cent)

16. Component 3 will strengthen the institutional capacity for different governmental and local staff to carry out the project activities, which include managing water resources and landscapes, and handling climate information and resilient agriculture as adaptation strategies.

17. The need for the first two proposed outputs is acknowledged, and it is positively assessed that adequate capacity-building and institutional strengthening are followed by hard measures, given that most of the proposed adaptation activities are new to the beneficiaries. 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.

Project management (total cost: USD 1.7 million; GCF cost: USD 0.8 million, or 47 per cent)

18. The last component is the project management cost for the implementation of the project. The GCF portion of the project management cost is around 3 per cent of the total requested GCF funding, and is compliant with the GCF policy on fees.

III. Assessment of performance against investment criteria

3.1 Impact potential

Scale: Medium

19. The proposal aims to reach 0.7 per cent of the total national population and 20 per cent of the population in target municipalities. The project's direct beneficiaries of 116,353 people will benefit from the drought-resilient crop production systems, accessing national forest incentives, increased water security through local water collection and irrigation, and strengthened capacity at the local and institutional levels through FFS and climate information. Some 583,146 people across the 19 municipalities will be indirect beneficiaries through enhanced climate information and climate-resilient agricultural advisory bodies and institutional capacity development.

20. Targeting of the project areas was done in a rigorous manner, using the composite risk index informed by the methodology suggested in the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (2013). The variables used are climate hazard (change in aridity), exposure (percentage of the municipal territory used for annual agriculture and/or coffee) and vulnerability (percentage of the municipal territory suitable for forest restoration). Based on this general mapping exercise, secondary site selection was conducted using defined selection criteria including the water balance, deforestation rate, land uses for agriculture and others. The criteria used are in line with the GCF objectives and are deemed to be appropriate.

21. Climatic evidence and justification are provided in an adequate manner in the proposal. Guatemala has been experiencing an annual average temperature increase of 0.6°C and a 2.5 per cent increase in the number of hot days per decade since 1960. The average annual precipitation at national level has increased by 52 mm since 1981, although the number of consecutive dry days has increased. Increasing temperatures and dry days are expected to increase soil aridity, resulting in the intensification of droughts and floods. Together, these impacts will decrease water availability for both crops and livestock, and will also affect the quantity and quality of agricultural production in the country.

22. The project has substantial mitigation potential through the planned restoration of 13,000 hectares of lands through reforestation and agroforestry. The carbon sequestration resulting from these actions should be properly monitored, verified and reported, and should be included in the country's national greenhouse gas accounting system.

3.2 Paradigm shift potential

Scale: Med/High

23. The project is expected to transform the agroecological landscape and production system in Guatemala's Dry Corridor by shifting smallholder 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 one that is more drought tolerant and with a reliable supply of water is acknowledged

as positive. The project will also benefit from the co-financing by government departments, which will be used to incentivize farmers to restore and sustainably manage the degraded lands. Sustainability and scaling up of this shift will depend on further investment after project completion.

24. The project also has good potential for scaling up and replication within the target areas and in other regions of the country. The accredited entity (AE) provided detailed information on pathways for strategic replication and scaling up, including through extension services by MAGA, FFS and a range of incentives for farmers to access improved seeds and to encourage wider adoption of the adaptation practices. Scaling up and replication are also expected to be achieved through mainstreaming of adaptation measures into national institutions and in climate change policies. With appropriate capacity-building, institutional strengthening and knowledge-sharing, the project will create a positive enabling environment for national and local stakeholders to replicate and scale up agricultural adaptation. It is also important to fully 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.

25. The proposal provides good potential for knowledge-sharing and learning through the implementation of the agroecological centres and various capacity-building activities through FFS. Output 1.3 is expected to contribute to the creation of an enabling environment for access to market through training events and diversification of agricultural production, but the scope and extent of the actual market stimulation depends on the participation of the private sector in agricultural value chains.

26. The proposal provides a solid post-project operation and maintenance plan with an estimated budget. A significant part of the cost is expected to be covered by the small farmers' associations, but such a commitment has not yet materialized. The AE should ensure that the established infrastructure and assets are properly operated and maintained after project completion by enabling full government and community ownership of the assets.

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 adaptation and technology packages include generally proven practices that have positive environmental impacts, such as creating positive microclimates and improving soil conditions. No harmful environmental impacts are foreseen to be associated with the selected seeds in the packages, although the processing of the resulting commodities should be carefully monitored to avoid negative environmental externalities.

28. The proposed water supply and agricultural adaptation packages will enhance food security and generate an increase in farmers' incomes, and the economic co-benefits are assessed as substantial, particularly from the production of cash crops (coffee and cocoa). The potential for social benefits is also assessed as high: diversified agricultural production with climate information and better water management will directly benefit society in the long term, in that it will be better prepared and equipped for current and future climate change impacts.

29. Gender considerations have been included in the project design with an emphasis on gender-sensitive agricultural adaptation packages. The proposal highlights that the project will promote women-led seed banks and facilitate women-owned farms to access the forest incentives. A detailed gender assessment and action plan has been developed and was submitted as an annex.

3.4 Needs of the recipient

Scale: High

30. The vulnerability of the country and the target beneficiaries and their adaptation needs are generally explained throughout the proposal, but without detailed descriptions of the scale and intensity of the country's exposure to climate risks. The impacts of climate change, particularly incidents resulting from droughts and heatwaves, 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.

31. Although Guatemala is an emerging medium-income country, the proposal justifies the full grants request by highlighting the level of poverty of the project beneficiaries. The proposal also notes the high rate of inequality and the need for public investment for addressing the impacts of climate change.

32. The proposal explains the needs of the recipient based on the degree of poverty and vulnerability of smallholder and indigenous farmers. Although such justification is acknowledged, the justification could have been strengthened by providing a wider investment strategy, including a financial estimation of the cost of implementing climate change adaptation measures in agriculture at the national level, and the associated shortfalls in the national budget. 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 from GCF.

3.5 Country ownership

Scale: High

33. The proposal demonstrates that the project contributes to the country's nationally determined contribution and its various national development and climate change strategies. It may have been more compelling if the proposal had delineated in a more concise manner how and to what extent the project will contribute to Guatemala's resilience building in the agriculture sector in the nationally determined contribution.

34. As the executing entity (EE), FAO Guatemala has demonstrated its track record of supporting the Government of Guatemala since 1964 in projects ranging from agriculture, food and nutritional security, to climate change and sustainable development. The country office has implemented many projects in the country in these areas. MAGA and INAB will be the co-EEs for the execution of the project but without channelling GCF proceeds. GIZ will also be the co-EE for their respective co-financed activities.

35. 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

36. The proposed structure is assessed to be adequate and reasonable, considering the level of poverty of the target beneficiaries who are identified as the poorest smallholder farmers and indigenous groups of farmers.

37. The proposal demonstrates the economic viability of the project, with a positive net present value (NPV) and economic internal rate of return from the economic model for all the crops except for coffee with a 12 per cent discount rate. The highest NPV is expected from the operational centre to add value to cocoa, amounting to USD 153,473. The analysis shows that all adaptation packages and operational centres will be economically viable in a 20-year time-horizon.

38. The proposal also demonstrates cost-effectiveness using a well-established financial modelling methodology. The project is expected to generate positive financial net present value for most of the crops, with operational centres for coffee (USD 183,585) and cocoa (USD 23,471) generating the highest value and financial internal rate of return (20.4 and 12.6 per cent, respectively). Adaptation packages for coffee, cocoa and family gardens will generate incremental negative cash flows for the first 4 years, but are expected to turn into positive after this period. The results of the financial model show the marginal financial profits for the adaptation packages, and therefore request for grants is deemed to be appropriate.

IV. Assessment of consistency with GCF safeguards and policies

4.1 Environmental and social safeguards

39. The AE has classified the project as moderate (category B) based on the environmental and social screening checklist of the AE, and consideration of other environmental and sociocultural factors related to the project. The Secretariat confirms the category B classification given that the activities are expected to have potential limited adverse environmental and/or social risks and impacts that individually or cumulatively, are few, generally site-specific, largely reversible, and readily addressed through mitigation measures. An environmental and social management framework (ESMF) was developed as a guidance document for use when assessing potential risks and impacts of the project and to provide direction when incorporating measures that may be needed to avoid, minimize, mitigate and compensate for any adverse impact that the project may have on people and the environment.

40. Since project activities will be located principally within indigenous territories, and indigenous peoples are key beneficiaries of the project, a free, prior and informed consent process was designed and carried out by the AE and partnering government entities. The ESMF summarizes the key recommendations and inputs of indigenous peoples during the process that have been incorporated into project design. The ESMF also provides a rating system to evaluate the scale or degree of negative impacts generated by project activities, with each identified impact evaluated in terms of level of severity. The AE determined that, on the basis of this evaluation, the environmental and social benefits of the project outweigh its likely negative impacts. Among the most significant social impacts noted are the likelihood of indigenous peoples being excluded from the project because of their lack of title to land, and associated risks related to unequal treatment of indigenous peoples and women. Regarding risks to indigenous peoples' communities, an initial guidance document for developing an indigenous peoples plan is provided, and the ESMF includes a commitment to developing a full indigenous peoples plan upon project approval should there be indigenous peoples living in the project area where activities will take place. Other impacts include potential economic impacts caused by reduced crop yields or fluctuations in produce prices, and negative environmental impacts due to use of agrochemicals and generation of wastes. The ESMF describes how the identified risks and impacts will be prevented, controlled or mitigated through the development of mitigation measures and approaches to enhance positive impacts, including providing budget for implementing such measures. The ESMF discusses the conditions under which environmental and social management plans will be required, and also provides guidance on the general elements of an environmental and social management plan.

41. The AE is recommended to refer to GCF standards, including the Indigenous Peoples Policy, noting also that in cases where there is a gap between International Finance Corporation's Performance Standards 7 (IFC PS7) and the GCF Indigenous Peoples Policy, the Indigenous Peoples Policy will be upheld. Safeguard 9.2 provides that an indigenous peoples plan is only necessary in certain circumstances, namely: "In cases where the project is for both, indigenous and non-indigenous peoples, an Indigenous Peoples' Plan will be required only if a

substantial number of beneficiaries are Indigenous Peoples.” Paragraph 38 of the GCF Indigenous Peoples Policy requires only the presence of indigenous peoples for an indigenous peoples plan to be necessary; it does not state that they need to be the substantial number of the beneficiaries. Where indigenous people are a minority it might be more appropriate to develop a community development plan.

42. The “Summary of Stakeholder Consultations and Participation Plan” (annex 7 to the funding proposal) details the overall consultations, the methodology for obtaining free, prior and informed consent and the processes undertaken in preparation for the proposed project, and includes details of those who participated and their recommendations for moving forward. It also summarizes consultations and training workshops that were held with government stakeholders and other interested participants in the project. The document further describes the plan for stakeholder engagement, including presenting the governing stakeholder engagement in Guatemala, the importance of multi-stakeholder engagement, a description of the AE’s recommended practices for participatory engagement, and information on what constitutes effective stakeholder engagement. While the AE commits to following good practice on implementing stakeholder engagement, a more detailed stakeholder engagement plan that is specific to the proposed project and diverse stakeholders and considers the risks that were identified in screening activities may need to be further developed during project implementation.

43. The ESMF indicates that a project steering committee as well as a technical committee project management unit (PMU) will be responsible for the general coordination of project activities. The territorial operating units will be responsible for implementing the interventions, as well as for ensuring compliance with the ESMF and related safeguard documents. The ESMF includes a description of how grievances will be managed at the entity level based on the AE’s guidelines. At the project level, it describes a six-step approach to project-level grievance handling, including lines of responsibility, information disclosure, and elevation of complex or unresolved cases. It should be noted that the GCF Indigenous Peoples Policy also states that 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.

4.2 Gender policy

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

45. The AE, through the gender assessment, affirms the country’s commitment to gender equality and women’s empowerment by providing information about the existing enabling environment. Under Guatemala’s constitution women and men are equal in terms of opportunities and responsibilities. The National Council for Urban and Rural Development is expected to “promote policies [...] that encourage the active and effective participation of women in decision-making, at the national, regional, departmental, municipal and community levels, as well as to promote community awareness of gender equity [...].” In addition, the National Food and Nutrition Security Policy and the Law on the National Food and Nutrition Security System (point 9.3) provide for the promotion of women’s participation, and points 9.4 and 10.5.5 of the law provide for prioritizing groups including those experiencing high food vulnerability, such as pregnant women.

46. The assessment, which was prepared on the basis of secondary sources and consultations, presents findings which indicate that, despite the existence of favourable policies and commitments, women in Guatemala remain highly vulnerable. This is particularly true for rural and indigenous women, who more often live in poverty or extreme poverty. Women face systemic discrimination in education (and there is evidence that some are illiterate and/or monolingual), employment and earnings, and participation in decision-making at various levels.

They are not represented well in the various community councils and when they are present in such councils their role tends to be reserved in expressing their views. Further, women spend most of their time (a significant amount of time) working and are engaged in unpaid activities as they engage in reproductive and community-wide activities in addition to some productive activities. Women in Guatemala have less access to land and natural resources, preventing them from accessing credit from financial institutions. Although land might bear the names of both the husband and wife, control of the land still defaults mostly to the men, because they are considered as heads of household. Existing stereotypes expect women to remain engaged in reproductive works while men are expected to work outside the home and bring in an income. Women may make decisions on the activities that are their responsibility, but women generally do not have a say on how earned income is spent or invested. One of the reproductive roles that is time-consuming and a barrier to women to fully engage in various activities is childcare. As a result, women may not be able to engage in training and capacity-building activities in various value chain development activities.

47. Although women may be disadvantaged in many regards, women do contribute significantly to the food and nutrition security of their households. They engage in various backyard activities such as growing green vegetables, raising birds and pigs, and sometimes even medicinal plants. These do not generate income or, in the cases where they do, they are very scarce and generally are significantly lower than the income that men generate. Women are responsible for fetching water to fulfil household water consumption needs, personal use and for tending to their backyard gardens, while men's use of water is mostly for productive activities. They play the major role in water collection, transportation, management and use for their households.

48. The fact that there are differentiated needs and uses for water presents differentiated impacts as climate change occurs. Women faced with water scarcity will have to walk longer distances and spend more time collecting water, thereby being exposed to greater physical hazards and more time spent on collecting water. The current water sharing arrangements in place are not tailored to the needs of women and indigenous peoples. Participation of women in the water-sharing arrangements is very low and even non-existent in some areas. Similar to the lack of decision-making on income generation, women also lack equal access to decision-making platforms on the distribution and use of water.

49. The AE has, as per the requirements of the Gender Policy of the GCF, submitted a gender action plan which includes activities that will respond to the challenges faced by women. The activities are supplemented with targets, indicators and required budget to implement the action plan. The implementation timeline of the gender action plan indicates that all the activities will be completed by the end of the project, which are included in the overall implementation timetable. The AE designated a gender expert based in Guatemala to support the implementation of the gender action plan. The AE will also be working with institutions which have gender policies and institutional strategies for gender equity and cultural relevance. The activities included in the gender action plan are aimed at ensuring that women receive climate-adapted information, are trained on agricultural adaptation measures, constitute a portion of seed banks to be established, engage in income-diversification strategies, receive technical support to access forest incentives, and –particularly female headed households – are trained on efficient water use and management practices, and access to rainwater collection systems in their homes. Cost-effective mobile-based childcare will be used to encourage women to enable themselves to participate in various activities of the project. Furthermore, there are some technical training activities aimed at institutions, ensuring that they are able to target women as participants for various interventions. There are specific training activities to implement the findings and recommendations in the gender assessment for women, mixed groups and men. These training events will enhance women's empowerment and address gender inequality.

4.3 Risks

4.3.1. Overall programme assessment (medium risk)

50. The project aims at building the resilience of Guatemala's most vulnerable farmers and their livelihoods against the impacts of climate change. The total project cost is USD 66.7 million, of which USD 29.8 million is GCF financed and USD 36.84 million is co-financed by MAGA, INAB and KOICA.

51. The AE, the Food and Agriculture Organization of the United Nations (FAO), will act as the EE for all the activities under the project and will be responsible for the GCF proceeds and for the overall quality assurance and oversight of the project. MAGA and INAB will be responsible for managing their co-financed funds but will not execute any GCF proceeds.

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

52. FAO is the AE and the EE for channelling GCF proceeds. FAO has a track record in implementing agricultural and climate resilience projects in the country. It also has a local presence via the FAO-Guatemala country office, as well as via the sub-regional Office for Mesoamerica. FAO has executed 14 projects with the partners in this project, of which the first project was started in 1977.

53. MAGA and INAB will not execute any GCF proceeds and will execute their co-financed funds (the in-kind contribution from MAGA and the PINPEP/PROBOSQUE incentives from INAB). INAB and MAGA have experience of working with FAO: since 1977, they have been partners in implementing 14 and 4 projects respectively with FAO.

4.3.3. Programme-specific execution risks (medium risk)

54. **Participation:** Low participation of local actors (e.g. as result of cultural barriers) would reduce the impact of the programme as well as the ability to catalyse INAB co-financing. The risk has been reduced as a result of the consultation process and because capacity-building sessions, training and communication materials and technical assistance will be provided in local languages to ensure the engagement of indigenous families and that they benefit equally from the project and support its activities. The training processes will consider topics discussing the importance of the participation of all family members and ethnic groups in decision-making processes.

55. **Operating environment:** Security challenges could hinder the ability of the project team agents to work with farmers. Changes of central and local government leadership and in overarching policy priorities can lead to a lack of support for project activities. Security risks are partially mitigated by hiring local staff and engaging local leaders for support. Under Component 3, the project will help to strengthen implementation and institutional arrangements that mitigate this risk and increase the likelihood that project activities in the territories will continue uninterrupted.

56. **Co-financing risk:** INAB has committed at least USD 24.1 million in the form of financial incentives under the PINPEP forest incentive programme to be invested in the project area during the life of the project, providing local producers can qualify. If the local producers fail to meet the qualifying criteria, co-financing will be reduced as will the expected impacts to be achieved. Additionally, INAB states that the financing of the incentives is subject to the allocation that the Ministry of Finance makes available under the Organic Law of the Budget of the Republic of Guatemala, which is approved annually by the Congress. INAB financial

incentives can also be applied outside of the project territories or be applied to producers that qualify without support of the project.

57. **Operational risk:** Improper management of the storage supply systems would reduce the impact of the proposal. Sustainability of operation and maintenance of acquired equipment will be guaranteed in the budgets of the beneficiary institutions. Maintenance of village irrigation systems will be supported by farmers' contributions, which are improved through project interventions on alternative income generation activities. The local water committees will be responsible for overseeing this infrastructure after project completion. Training programmes will be developed for farmers and municipal representatives in water supply system construction, operation and maintenance.

4.3.4. Project viability and concessionality

58. The economic internal rate of return of the project is high, at 33.9 per cent over a period of 20 years. It should be noted that the coffee and cocoa modules of the project are profitable 3 to 4 years post investment for beneficiaries but are grant funded. The AE notes that the GCF grant financing for coffee and cocoa modules is justified by the needs of the recipient, which includes some of the poorest farming communities in an already poor country, and by the lack of viable alternative financial instruments for building climate resilience. The country has not previously designed financial mechanisms to serve smallholder farmers in poverty conditions.

4.3.5. GCF portfolio concentration risk (low risk)

59. In case of approval, the impact of this proposal on the GCF portfolio concentration in terms of result area and single proposal is not material.

4.3.6. Compliance (medium risk)

60. A review of the proposed activities under the funding proposal does not indicate any unusually high inherent risk for money laundering, financing of terrorism or prohibited practices. Nevertheless, the capacity of implementers may vary in terms of integrity controls. The AE has indicated that it has policies and procedures in place that will monitor and mitigate any risks effectively. Based on the information provided, the compliance risk is assessed as medium, subject to change if circumstances warrant otherwise.

4.3.7. Recommendations

61. It is recommended that the Board consider the above factors in its decision.

Summary risk assessment		Rationale
Overall programme	Medium	Security challenges could hinder the ability of the project team / agents to work with farmers. Low participation of local actors (e.g. as result of cultural barriers) would reduce the impact of the programme as well as ability to catalyze INAB co-financing. Comfort is derived from local experience of FAO with the other MAGA and INAB.
Accredited entity/executing entity capability	Medium	
Project-specific execution	Medium	
GCF portfolio concentration	Low	
Compliance	Medium	

4.4 Fiduciary

62. The AE for the project, FAO, will perform the dual role of EE for all the activities under the project and will be responsible for the GCF proceeds and for the overall quality assurance and oversight of the project. As an AE, FAO shall sign a project agreement with SEGLEPLAN representing the Government of Guatemala, and the Ministry of Environment and Natural Resources representing the GCF national designated authority. The project agreement will be also co-signed by the governmental co-financiers and co-executing entities (MAGA and INAB) and will reflect the governance arrangements, govern the implementation of the project, be legally binding, detail the roles and responsibilities of FAO, MAGA and INAB, contain the relevant provisions for FAO's compliance with the requirements from the accreditation master agreement (AMA) and funded activity agreement (FAA), including the applicability of the Convention on the Privileges and Immunities of the Specialized Agencies to FAO project.

63. As an EE, FAO will manage the GCF funds, manage financial expenditures against budgets, execute payments, and provide technical and secretariat assistance to the project steering committee and technical committee. The GCF and FAO will enter into a FAA, under which FAO shall administer the relevant GCF proceeds to be used for the financing of the project, in accordance with the FAA and AMA. Accountability on the use of financial resources will be facilitated through the review of annual and bi-annual project reports, as well as through audit and monitoring reports.

64. The project will be governed by a project steering committee which will guide the overall project implementation and ensure inter-institutional coordination. It will also have a technical committee that will be responsible for the overall project coordination and for ensuring its strategic approach, coordination among the partners and consistency of the outputs with the strategic framework. For the execution and implementation of the project, a PMU will be established in Guatemala City in the office of the FAO, and this unit will coordinate and support project implementation and day-to-day activities during the project lifecycle, in close consultation with the governing structures of the project.

65. FAO will contract the PMU in accordance with its policies and procedures. The day-to-day project monitoring and implementation responsibility rests on a nationally recruited coordinator who will lead the PMU. The coordinator will be supported by a technical officer, a financial officer, thematic advisers, a monitoring and evaluation specialist and administration and operational staff. At the local level, territorial operating units will be established to serve as the key channel of communication between the PMU and local stakeholders and to assist with the implementation of the stakeholder participation and engagement plan. The PMU will prepare the annual report for each year of implementation and FAO will provide inputs to the annual reports. The annual reports will be shared with the technical committee and other stakeholders. The annual performance reports will be due to GCF 60 days after the end of the calendar year. The final project annual report and the terminal evaluation report will serve as the final project report package.

66. The financial management and procurement function under this project will be guided by relevant FAO rules and regulations, as well as relevant provisions in the AMA signed by FAO and the GCF. In the project execution, GCF resources will be managed directly by FAO in accordance with its rules, regulations, policies and procedures.

67. The project will be subject to the audit regime of FAO, including the external audit and internal audit functions. During implementation, FAO will provide oversight and quality assurance in accordance with its policies and procedures, which may include monitoring missions and spot checks. FAO has deployed an Oracle-based enterprise resource planning system called the Global Resources Management System, which will improve the flow of financial information, support financial monitoring and reporting, increase transparency and visibility, and strengthen internal control. FAO maintains a chart of accounts that allows for the

separation of income and expenditure by donor and by project, to facilitate internal management and external reporting requirements.

4.5 Results monitoring and reporting

68. Overall, the funding proposal and logical framework adequately apply the results management framework and performance measurement framework indicators. The GCF Office of Portfolio Management engaged very closely with the proponent to ensure that the monitoring and accountability requirements are included in the funding proposal. After several iterations, the revised logical framework meets the GCF requirements on monitoring and reporting the anticipated results of the intervention. The project-level results have now been aligned with the fund-level impact and outcomes. That is expected to provide sufficient basis for measuring delivery of results.

69. **Implementation timetable:** The implementation timetable has been provided in a format that would enable progress assessment during the implementation period. It shows the activities and key milestones and deliverables appropriately. The timetable contains information on reporting schedule including the submission of annual performance reports, as well as interim and final evaluations and completion reports. However, there have been some changes in the activities which warrant adjustments in the milestones and delivery timelines.

4.6 Legal assessment

70. The AMA was signed with the AE on 8 June 2018, and it became effective on 4 October 2018.

71. The AE has provided a certificate confirming that it has obtained all internal approvals and it has the capacity and authority to implement the project.

72. The proposed project will be implemented in Guatemala, 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 submitted the first draft of the privileges and immunities agreement to the Government of the Republic of Guatemala on 30 September 2015. The draft agreement is currently under negotiation. The latest communication in that regard was sent by the Government of the Republic of Guatemala to the Secretariat on 23 November 2017.

73. 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 the GCF is not provided with relevant privileges and immunities. Therefore, it is recommended that disbursements by the 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.

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

- (a) Signature of the FAA in a form and substance satisfactory to the Secretariat within 180 days from the date of Board approval; and
- (b) Completion of legal due diligence to the satisfaction of the Secretariat.

Independent Technical Advisory Panel's assessment of FP145

Proposal name:	RELIVE – RESilient LIVELihoods of vulnerable smallholder farmers in the Mayan landscapes and the Dry Corridor of Guatemala
Accredited entity:	Food and Agricultural Organization of the United Nations (FAO)
Country/(ies):	Guatemala
Project/programme size:	Medium

I. Assessment of the independent Technical Advisory Panel

1.1 Impact potential

Scale: Medium

1. Guatemala is a Latin American country with high vulnerability to climate change. About 51 per cent of its 15.6 million population lives in rural areas, whereas 41 per cent of the rural population belongs to indigenous groups. The country experiences a high incidence of poverty. Currently, 61 per cent of the population has been suffering from poverty, while 25 per cent experiences extreme poverty. In rural areas poverty may be attributed to the high degree of dependence on agriculture, which relies predominantly on a rainfed production system involving staples such as beans and maize. The farmers also grow cocoa and coffee. Because of overdependence on a rainfed production system and rainfall variability at both temporal and spatial scales, farmers occasionally suffer from low productivity of major crops. This translates into occasional food insecurity and high incidence of poverty.

2. The funding proposal and its associated documents, including the feasibility study report, indicate low density of meteorological observation data across the country, especially in the target regions (i.e. the dry corridor and the Mayan low lands) of Guatemala. The country exhibits diverse topography ranging from central highlands and mountains (average annual temperature being 20 °C and 15 °C, respectively), tropical semi-arid savannah, tropical jungle in the northern lowlands, and humid coastal areas (average annual temperature being 25 °C to 30 °C). The country also has variable rainfall distribution in both spatial and temporal dimensions. For example, the coastal zone generally receives the most rainfall amounts in an average year, while most of the country receives on average 1,000 to 1,200 mm rainfall. The inland areas exhibit a shorter rainy period spanning from May to October. The coastal areas, however, exhibit an extended rainy period starting in May but ending in December.

3. Based on available meteorological data, the trend of average annual rainfall over Guatemala suggests that it can generally be regarded as a country with low water stress. The climate-related information for a fairly long period of observation is presented for two cluster regions representing the two target regions. The analysis indicates that: (a) the average annual temperature has been increasing steadily, with significant inter-annual variability; and (b) the average annual (total) rainfall exhibits either only slight to moderate increase or maintains a steady state over a lengthy observation period. Since 1960, the net change in average temperature over the country as a whole is 0.6 °C, and the increment in average temperature is found across seasons with a slight inter-seasonal variation. An inter-seasonal variability in total rainfall is also observed, however the nominal increment in annual rainfall is primarily observed predominantly in the wet season and the drier months are found to be increasingly

dry. For example, the total monthly rainfall in the months denoting the beginning and end of the rainy season are found to be 68 mm and 60 mm higher than the usual amounts, respectively. This indicates wetter onset as well as wetter ending (i.e. departure) of the rainy season across the country. However, in contrast, the drier months are found to be increasingly dry over the same observation period.

4. The dry corridor is identified as such on the basis of acute inter-seasonal distribution of available rainfall. The long-term data and subsequent trend analysis indicates that a combination of increasing surface temperature across seasons and simultaneous decrease and/or stagnant total dry season rainfall has given rise to gradually increasing trends of drought over the entire landscape in the target regions. The Thornthwaite equation has been applied to long-term datasets and the results for 3-month, 6-month and 12-month analyses of Standardized Precipitation Evapo-transpiration Indices (SPEI) values bear evidence that drought has been occurring in the target regions in Guatemala.

5. The funding proposal claimed that the target dry corridor has been experiencing medium to high susceptibility of drought. Without presenting any threshold for “hot days”, it is claimed that the number of hot days has been increasing by 2.5 per cent per decade. It is also claimed that consecutive dry days have increased over the observation period. Since the wet season has become wetter, one may infer that the increase in consecutive dry days has occurred in the dry season. The relevant analysis, however, has not ventured into seasonal analysis to provide greater understanding on that matter.

6. The funding proposal has also presented projection-based modelling outputs and subsequent analyses. As expected for any General Circulation Model (GCM), the future projection under Representative Concentration Pathway 4.5 (RCP 4.5) for the country reveals a rise in average temperature, and also exhibits a continued rising trend with higher levels of forcing and over time. Unlike the steady increase in average annual rainfall, as demonstrated by long-term data for the two meteorological stations, the projection starts with a decline in rainfall, especially after 2030. The analyses clearly demonstrate that the total average rainfall in both June and July will be much higher than usual, while the decline in rainfall will tend to begin in the month of August. The projection also indicates that the October rainfall will be significantly lower than usual during the 2030s. The rise in surface temperature with a simultaneous increase in moisture deficit generally indicates a change in evapo-transpiration (ET₀), that would affect standing crops such as beans and maize.

7. The ensemble analysis of 36 GCMs is indicated in the funding proposal, which is set to derive future projection climatologies for the 2030s and 2070s using both RCP 4.5 and RCP 8.5 scenarios. The SPEI trend analyses clearly indicate gradual changes in SPEI values, providing insights into gradual build up of moderate drought during the 2030s. A crop calendar analysis indicates that both the field crops (i.e. maize and bean, both being essential parts of staple diet for the Guatemalan population) are susceptible to drought and their reproductive and maturity stages overlap with periods when rainfall deficits will start in August. Therefore, one may infer that, even during the 2030s, the staple field crops in the two target regions will be adversely affected by droughts.

8. For the estimation of extent of dryness, outputs of another GCM are used for the estimation of ET₀ by using the Thornthwaite equation. As anticipated, with projected decline in available rainfall the ET₀ values are found to be increasing along with increasing surface temperature. The analysis is then extended to estimate crop yields in each of the target departments for major field crops such as bean and maize, and cash crops such as cocoa and coffee. For both RCP 2.6 and RCP4.5 scenarios, the yields of these crops are found to be generally lower than expected.

9. Since the major climate change-related issue is agricultural drought, one expects to plan for responses which would address drought impacts. Indeed the project has considered

addressing drought primarily by providing support to enhance the adaptive capacities of farmers in the target areas. The project is expected to generate three outcomes: “(1) critical production systems are climate resilient and farmers have enhanced, food-secured and adapted livelihoods; (2) water resources at micro-basin level are sustainably managed and landscapes are restored to ensure stable supply of water for farming amidst CC-induced drought conditions; and (3) local and national institutions adopt governance mechanisms and have strong capacities to implement climate change adaptation measures.” The project’s core entry point is increased rainfall deficits in the future, leading to projected increased ETO losses.

10. The targeting of the area is biased to poverty-related indicators. It is however claimed that the high poverty indices are due to overdependence on rainfed agriculture and occasional failure of staple crops due to invigorated droughts. The preferential choice of the dry corridor as one of the two target regions partly justifies the targeting of location. A much better targeting of stakeholders is accomplished when project beneficiaries in the target areas are identified. However, as the delineation of areas is weak, the overall targeting efficiency is also weak.

11. According to the funding proposal, the project will be implemented over seven years at a total cost of USD 66.7 million, of which USD 29.8 million is requested to GCF as grants. There is a considerable amount of co-financing (USD36.84 million). The project is expected to benefit 116,353 people directly representing 29 municipalities and 14 micro-basins of Guatemala, particularly in the departments of Alta and Baja Verapaz, Peten, Zacapa and Chiquimula in the central dry lands. Out of the 116,353 beneficiaries, an estimated 46,541 will be women (40 per cent). The total direct beneficiaries constitute only 0.7 per cent of national population. The indirect beneficiary base is bigger, estimated at 583,146, of which 300,320 are women. Therefore, the proportion of indirect beneficiaries with respect to national population is 3.9 per cent only.

12. It must also be highlighted that an ongoing GCF funded project (i.e. FP087), which is implemented by the International Union of Conservation of Nature (IUCN) in Guatemala, has been credited to upscale regional and national efforts for climate data generation. The results of such efforts are yet to be seen. The current project is requesting additional grants to cover the cost of establishing additional meteorological data logging equipment, and must therefore be carefully coordinated with the above-mentioned GCF funded project in order to avoid duplication of efforts in the name of drought monitoring.

13. There are weaknesses in the targeting process, which is biased towards poverty-stricken areas. There is also a scope for potential duplication of efforts using GCF finances from more than one project, which needs to be avoided to optimize GCF value for money. In view of the above analysis, the independent Technical Advisory Panel (TAP) is of the opinion that the impact potential is medium.

1.2 Paradigm shift potential

Scale: Medium

14. According to the funding proposal, an effort has been made to identify key barriers that are detrimental towards intensifying livelihood challenges of drought-affected poor farming communities in the intervention areas. The project is designed to address the following barriers:

- (a) Information barriers – (i) insufficient accuracy and lack of downscaled climate information for agriculture, and (ii) lack of tailored climate information and inequitable access to information;
- (b) Technical barriers – (i) limited knowledge and capacity of farmers regarding water resources management and climate resilient agricultural (CRA) practices, (ii) limited capacity of extension services, and (iii) inadequate water and land-use planning;

- (c) Financial barriers – (i) relatively high cost of upfront investment, and (ii) refusal of commercial banks to lend for CRA activities;
- (d) Social barriers – (i) women are disadvantaged regarding access to resources (i.e., smaller credit lines, higher interest rates than those for males) and information, and (ii) language barrier; and
- (e) Institutional barriers – (i) weak local/national governance of water resources management and climate change, and (ii) limited capacity for knowledge management and sharing on climate change to inform policymaking.

15. In a bid to address the above-mentioned barriers, the project is designed to deliver the following three components: (a) implementing CRA practices and enhancing farmers' livelihoods; (b) supporting efficient water management for agriculture to reduce the impact of increased water scarcity; and (c) improving enabling conditions for climate resilient livelihoods. The adaptive responses to the barriers identified above are clustered around the three components.

16. The solutions proposed to address the above-mentioned barriers are not innovative. The core of the project deals with water management so that climate-induced drought may be ameliorated by the application of irrigation. For poor rural farmers, affordability of irrigation equipment is an issue and is compounded by limited access to credit support and high interest rates. Social barriers make it harder for women farmers to access resources to address drought. Moreover, despite having drought-tolerant crop varieties and seeds, due to poor extension services, farmers have limited choices to combat drought. Therefore, an overwhelming amount of effort and associated budget (about 84.7 per cent of the total) is dedicated to addressing the two broad aspects of the project, namely water management and finance for equipment. This leaves little room for innovation. However, considering a large proportion of the farmers represent indigenous communities, a holistic package already offers a viable mechanism to withstand increasing and more intense droughts under climate change. The prospect appears interesting, if not innovative as such.

17. The approach is to channel the above-mentioned efforts through public expenditure and to involve public institutions. There is therefore very little involvement of the private sector. The project will assist farmers to have greater access to markets for their produce (sub-component 1.3), enabling them to interact with the private sector operators and to optimize their relative gains from agricultural production and marketing.

18. Since this project is designed for the dry corridor, it may be assumed that the impact of drought on staple crops and the two cash crops is particularly high in this region. Sector-wide replication potential (i.e. scalability) in the near future in other areas appears medium, despite the arrangements indicated in the theory of change. This is partly because drought intensity elsewhere in the country is not expected to be higher than that of the dry corridor, and by the 2030s the projected increase in drought intensity is only moderate compared to the baseline. In general, in addition to the issues regarding climate-induced drought in the dry corridor, many of the barriers hold true for rural farming communities throughout the country. Therefore, sector-wide replication of efforts will be possible, especially if availability of information, support for accessing credits at nominal interest rates, and institutional governance are established adequately.

19. The project has sub-components for knowledge generation and learning. Significant progress will be made through the implementation of component 3 of the project where technicians and local government actors will be provided with technically oriented training to establish good governance. Component 3.2 will be dedicated to knowledge transfer (i.e. training of staff members, experts and community promoters). For the agricultural producers, there will be 10 different types of trainings to build capacity on climate-risk informed planning and implementation of agricultural adaptation measures at farm level. However, the latter training

will target only about 6,195 farming households. Since efforts will be made to build capacities and to train extension officials, there is considerable potential for them to interact with farming communities beyond the duration of the project.

20. Creation of an enabling environment is likely to be achieved through activities under sub-component 1.1 (establishment of meteorological data loggers) and the entire component 3 (knowledge generation and learning). Although meteorological data acquisition in Guatemala is already funded by GCF through the implementation of FP087, additional data logging arrangements will feed into the national meteorological database for long-term use (provided the relevant national organization performs well). The capacity-building efforts designed under component 3 of the project will certainly enhance the institutional capacities of relevant institutions. If the Government of Guatemala can arrange finance, good replication potential exists beyond this project through knowledge management and training at farmers' level involving the agricultural extension services. However, the project does not contribute to market development as such. It only promises to link farmers with markets thus offering them greater commercial access.

21. The project does not intend to change incentives for market participants by reducing costs and risks for the deployment of climate resilient solutions. There is no visible effort to create incentives for women farmers to access credit at lower interest rates, although such an issue is critical for their successful integration into CRA. The project provides technical support to 19,239 smallholder farmers (women in particular) to access "forest incentives", although the Government of Guatemala already provides this facility for poor smallholder farmers. It is not understood why the smallholder farmers could not have access to such Government incentives and why an external project is needed to push this national agenda. The relevant activity under sub-component 2.2.1 appears superficial for accessing a national incentive on forest restoration.

22. There is no activity to strengthen regulatory frameworks and policies to drive investments towards improving climate-responsive planning. However, an activity (sub-component 2.1) is dedicated to developing community-led water management plans and this is likely to contribute to creating micro-scale regimes to sustainably manage water resources and address drought.

23. The potential for expanding the project's impact without equally increasing its cost base is low. In fact, a good number of projects are being financed for improving farm productivity and reducing poverty amongst smallholder farmers, including women and indigenous groups, both in the target dry corridor and elsewhere in Guatemala. Considering that such efforts in the recent past should have contributed to reducing poverty of rural smallholder producers, the actual progress has been painfully slow.¹ In addition to climate change-induced drought, there must be other dominant factors that contribute to the vicious cycle of low-productivity, low-output, low-income involving poor producers. The theory of change addresses only a few issues and appears inadequate to challenge the core of the problem, involving sustainable agricultural development and including forest restoration at landscape level.

24. In view of the above discussions, the independent TAP finds the paradigm shift potential to be medium.

1.3 Sustainable development potential

Scale: Medium to High

25. The project will directly contribute to the following Sustainable Development Goals (SDGs):

¹ It is reflected in the currently high incidence of poverty in rural areas, particularly involving crop farmers and indigenous groups. Data is provided in the Feasibility Study report (for reference, Table 1 and also under sub-section B.1.3 of Annex 2).

- (a) SDG 2 (Zero hunger) – by reducing the adverse effects of climate change-induced droughts, thereby preventing crop loss and augmenting productivity in the longer run, especially for rural smallholder producers including women;
- (b) SDG 5 (Gender equity) – by helping smallholder farmers including women farmers with drought-tolerant seeds, establishing drought-tolerant nurseries involving women and by providing training and climate information to take necessary steps towards reducing impacts of drought;
- (c) SDG 6 (Sustainable management of water) – by engaging relevant stakeholders towards formulating area-wide sustainable water management plans, judicious allocation and subsequent utilization of water to address droughts; and
- (d) SDG 13 (Enhanced climate action) – by addressing climate change-induced drought management and also by helping poor smallholders to have greater access to the Government’s forest incentives for forest conservation.

26. In addition to the above-mentioned direct contributions, the project will indirectly contribute to SDG 1 (no poverty), by engaging with poor smallholders including women to practice CRA techniques, so that in the longer run they can overcome poverty. An indirect contribution is also expected through SDG 15 (use of terrestrial ecosystems, manage forests and combat desertification), where rangeland afforestation and agroforestry will be incentivised by involving poor communities. However, all these contributions to SDGs are limited to only a few thousand poor smallholders and women in the target region.

1.3.1. Economic co-benefits

27. The project will enable some 6,195 smallholder farmers including women farmers to gain from avoided crop losses due to drought management measures. In the longer run, they will also benefit from higher productivity due to the application of CRA. A limited number of women will gain from the establishment of 28 women-led, farm-level seed nurseries. Efforts towards diversification of productive units in home gardens involving 2,500 farm families will enable the recipients to gain financially. Moreover, about 19,239 smallholder (mostly women) farmers will receive support to access forest incentives, which will help the restoration of 13,000 hectares of reforestation and agroforestry. The proceeds from these activities will help recipients to accrue financial benefits.

1.3.2. Social co-benefits

28. A significant proportion of the rural poor smallholders belongs to indigenous groups. Although there is no specific activity involving indigenous groups, their participation within the beneficiary groups in the Mayan landscape will enhance social inclusion, which will lead to social harmony.

1.3.3. Gender equality

29. The project focuses on greater access to water services and greater participation of women to access drought-tolerant seeds and CRA. The project promises to engage women in project planning and decision making from the beginning. Women are likely to benefit from training and awareness raising activities in relation to climate change, CRA, sustainable water management at the farm level, leadership and entrepreneurship and decision-making at both farm and community level. Although the ambition in terms of reaching adequate numbers of women-led farms and women farmers is relatively low, it will still have a significant contribution to achieving gender equality.

1.3.4. Environmental co-benefits

30. By virtue of climate change adaptation projects considered earlier and the technology packages available through national agricultural extension services, proven CRA techniques will be promoted in harmony with the local agroecosystem. Moreover, forest conservation practices at the landscape level involving about 13,000 hectares of forest lands will have potential to sequester carbon. The funding proposal estimates a sequestration potential² of about 0.99 million tons of CO₂ equivalent over the lifetime of the project. A secondary environmental benefit will be accrued by establishing habitat connectivity and through the creation of forest buffer zones, which are critically important tools for the regeneration and restoration of forest ecosystems. This in turn will help forest biodiversity to prosper in and around the regenerated forest. It is claimed that, no environmentally damaging technology and/or technique will be employed to achieve the objective of the project.

31. As indicated in the feasibility study and in the funding proposal, new seed varieties will be introduced (i.e. resilient/drought-tolerant seeds). As per the environmental and social management framework (annex 6 of funding proposal sub section 3.3), the project will not use genetically modified organisms. FAO does not foresee a request to use biotechnological products in any country for the reason that they normally are not a limiting factor for vulnerable communities of small farmers. FAO promotes the increase in productivity in a sustainable way that includes an increase in resilience.

32. In view of the analysis regarding the contribution of the project to sustainable development, the independent TAP is of the opinion that the contribution is medium to high.

1.4 Needs of the recipient

Scale: Medium to High

33. According to internationally reputed assessments on climate change risks by countries, Guatemala possesses considerable high risk in global ranking (currently, 11th overall). This considerable level of risk is due to the exposure to climate change of rain-fed agriculture that is operated by poor smallholders with limited capacities. This is further compounded by the failure of national agencies to provide technologies and advisories where there is need and the failure to create access to soft credit support for poor and marginal producer groups. An overwhelming proportion of the rural population consists of indigenous groups, including of the Mayan civilization, who are engaged in staple cropping (i.e. maize and beans) and cash crop plantations (i.e. cocoa and coffee). As these groups are unable to invest in technologies to address the issues of drought and water management on their own, they remain perpetually vulnerable. The need for Guatemala to access international funds to develop its agriculture is well understood. However, there are government institutions including extension services that are intended to boost agricultural production through the adoption of advanced technologies as well as “forestry incentives” to prevent deforestation and incentivise forest conservation involving poor communities (PINPEP³ and PROBOSQUE⁴). There is also significant international support in development projects⁵ in relation to climate change adaptation, CRA and sustainable forest conservation and management. Despite the assistance available, the majority of the rural farming population remains in poverty and although the per capita income of Guatemala is significantly higher than that of a typical least developed country (LDC), the Government is

² Considering five components: (a) sequestration from basic grains; (b) from agroforestry and forest incentives; (c) conservation of forests; (d) coffee as an annual crop; and (e) cacao as an annual crop. The ExAct analytical platform is used for the analysis that indicates an annual sequestration potential of 49,413 tons of CO₂ equivalent.

³ In Spanish: Programa de Incentivos Forestales para Poseedores de Extensiones de Tierra de Vocación Forestal o Agroforestal PINPEP is the law on forest incentives for holders of small areas of land suitable for forestry or agroforestry in Guatemala (Decree 51-2010).

⁴ In Spanish: Ley De Formento al Establecimiento, Recuperacion, Restauracion, Manejo, Produccion y Proteccion de Bosque en Guatemala, PROBOSQUE, is an incentive programme for the establishment, recovery, management, production and protection of forests in Guatemala.

⁵ The Feasibility Study report (Annex 2) lists some of these and summarizes their objectives and deliverables.

unable to provide critically needed public finance to assist vulnerable smallholder farmers in rural areas,⁶ leading to continual inequity.

34. Although the impact potential is rated medium and the number of recipient households is small (indicating low coverage), the gender-sensitivity and inclusion of indigenous groups indicate that the needs of the recipient groups are high.

35. The proposal clearly explains why poor farmers are unable to address many of the pending issues. The need for institutional strengthening and capacity-building is also understood. The Government of Guatemala does invest in the creation of incentives such as forest incentives for the community-level forest conservation groups. However, accessing the incentives has remained an issue for the poor producers and forest conservation groups and apparently there is a dearth of finance on the part of the Government of Guatemala. Despite the availability of finance for grassroots institutions to support livelihoods and agricultural and meteorological services, and a plethora of externally supported projects (development and climate change adaptation), these efforts have been unable to overcome many of the known and long-term barriers. A thorough review could have been carried out to determine what is required to transform the sectors of predominantly crop agriculture and forestry over such vast landscapes. Even with the existing support of GCF through FP087 and the apparent success of the PROBOSQUE model, it has not been possible to reduce the needs, or improve the production, of smallholders living in the dry corridor or elsewhere in Guatemala.

36. The funding proposal aims to strengthen water-related governance through a planned approach, strengthen institutional capacity to deliver CRA and provide a knowledge management sub-component. All these features will help energize the relevant public institutions deployed in the target region to deliver adaptation with a sequestration co-benefit. Apart from the risk of duplication of efforts in meteorological data acquisition and processing, the data logging equipment will certainly increase the coverage of the network of weather stations thus contributing to understand the climatology of various regions of the country in the long run.

37. From the above analyses, the independent TAP assesses the overall needs of the recipient as medium to high.

1.5 Country ownership

Scale: High

38. The project is found to be in alignment with Guatemala's legal, policy and strategic positions on climate change-related issues. The Climate Change Framework Law provides the legal framework for climate change-related actions in Guatemala and the National Climate Change Action Plan regulates implementation of the law. The proposed project is in alignment with the action plan. Three major climate change-related documents, namely the nationally determined contribution, the nationally appropriate mitigation actions, and the national adaptation plan (NAP) have provided the right impetus and directions to develop the project. Guatemala has developed its agriculture-specific NAP (i.e. NAP-Agriculture), which allows the integration of agriculture within the adaptation framework. The project reflects the essence of NAP-Agriculture and is also aligned with the forest policy, including in the proposal to facilitate access to incentives for forest conservation. The project exhibits its firm commitment to implement the national forest policy by means of forest recovery, restoration, management, production and protection as foreseen under Decree 02, 2015 (i.e. PROBOSQUE). Overall, the project has strong synergy with national legal and policy instruments in relation to climate change.

⁶ Paragraph 110 of the funding proposal.

39. The project is also a part of the Country Programming Framework for 2017–2021 shared with GCF. In this respect, the project has a strong policy coherence with GCF programming.

40. The FAO country office in Guatemala has been in operation for over five decades, assisting the Government on issues such as agricultural development, food and nutrition security, sustainable natural resources management and climate change. FAO has been active in building institutional and human resources capacity on those issues and has provided assistance to the Government of Guatemala on a number of projects in the past. For the current project, FAO will be supported by two national institutions as executing entities: (a) Ministry of Agriculture, Livestock and Food (MAGA); and (b) National Forest Institute (INAB). Both of these organizations have a mandate to coordinate and oversee implementation of a project such as this. These institutions have vast experience in executing externally funded projects and maintain a healthy portfolio of projects currently under implementation.

41. The Ministry of Environment and Natural Resources is the national designated authority (NDA) for Guatemala. The NDA has been involved throughout the project design, including being represented in the project validation workshops. The NDA is proposed to be the Chair of the Project Steering Committee, thereby exerting its influence in bringing in political support for smooth implementation of the project. As indicated in the funding proposal, there have been a number of project validation workshops. It has been stated that a rigorous process of consultation has contributed to development of the project and that all major stakeholder groups have been invited and participated in this process. The focus on women may be one of the outcomes of stakeholder consultations in the design of the project.

42. The independent TAP is of the opinion that strong country ownership is embedded in the design of the project. Country ownership is rated as high.

1.6 Efficiency and effectiveness

Scale: Medium

43. The total project cost is USD 66.7 million, of which USD 36.8 million is co-financing (USD 24.1 million in the form of financial incentives under the PINPEP and PROBOSQUE programmes implemented by INAB; USD 5.7 million in kind contribution from MAGA; and USD 7.0 million in the form of grants from Korean International Cooperation Agency, KOICA). GCF is requested to provide USD 29.8 million as grant. The co-financing is considerable, having a co-financing ratio of 1:1.23 (with respect to every GCF unit).

44. The financial spread against specific components and sub-components indicates that the allocation has not followed the objectives of the project as indicated in the results areas. For example, the results area on ecosystem and ecosystem services is supposed to deliver 49 per cent of the adaptation of the project, as indicated in section A4 of the funding proposal. In reality, nearly 85 per cent of resource allocation in the budget spread is intended for adaptation through drought-tolerant agriculture (sub-component 1.2) and the entire component 2 on sustainable management of water resources at micro-basin level. The foreseen restoration of landscapes will ensure stable supply of water for farming amidst climate change induced drought conditions. An in-depth examination of budget heads reveals that a significant proportion of the budget is actually earmarked for consultancy as well as contractual services. The general approach to the project delivery involves national public funded institutions and yet there is greater reliance on consultancy and contractual services. Such mismatches and biased allocation of project resources generally indicate inefficient allocation of financial resources.

45. Guatemala is a vulnerable country, however the country does not fall into any of the three categories of LDCs, the African Countries and the small island developing states. Yet full concessionality (i.e. grant) is requested. The budget analysis presented above and the request

for grant support does not seem fully justified. Not does it seem justified to allocate grant support from GCF to access financial incentives already provided by the country party as co-financing, without fully analyzing the prevailing governance structure and bottlenecks in delivering the forest incentive. Moreover, indirect adaptation benefits⁷ for managing drought from predominantly a sequestration action through forestry and agroforestry should also be considered.

46. The funding proposal claims that economic analysis is performed considering only three sub-components (for Output 1.2, Output 1.3 and Output 2.2) due to the inability of quantifying benefits from other Outputs. Such selection of benefit streams leaves room for biased analysis, in favour of non-marketable benefits from forest conservation activities. Even if the tentative approach to economic analysis is accepted, it estimates a net benefit of USD 28.2 million and an Internal rate of return (IRR) of 50.0 per cent considering the project lifetime of 20 years and a discount rate of 12 per cent. The co-benefits accrued from forest ecosystem services in terms of erosion control, water provisioning and carbon sequestration actually represent 58 per cent of the total economic benefits. Since the core of the climate change discourse is drought management, the same project without the forest restoration and related incentives would not perhaps present impressive net present value and IRR, having other considerations constant in the economic analysis.

47. The current project does not present any potential to catalyze private sector investment in drought management in agricultural production involving smallholders. Irrigation support and the promotion of drought-tolerant seeds are key for enhancing the adaptive capacity of poor farmers. For a 250-hectare agricultural area, drip irrigation with considerable high costs and a technically challenging technique is proposed, which may not be the best irrigation solution for the target population.

48. The greenhouse gas emissions from the operation of irrigators has not been estimated as potential leakage emissions throughout the lifespan of the project. In absence of this potential leakage emissions, a total of 0.99 million tons of CO₂ equivalent is estimated as the sequestration potential from afforestation and agroforestry activities in about 13,000-hectare land.

49. Based on the above analysis, the independent TAP is of the opinion that the effectiveness and efficiency of the project is medium.

II. Overall remarks from the independent Technical Advisory Panel

50. The independent TAP recommends the Board to approve the medium sized project with the following condition:

- (a) Prior to the second disbursement in respect to the proposed project, the AE shall develop and submit to the Fund, in form and substance satisfactory to the GCF Secretariat, a meteorological data logger installation plan in consultation with the Seismology, Volcanology, Meteorology and Hydrology Institute, the ultimate recipient of the meteorological data collection equipment under Activity 1.1.2, in coordination with the AE under the GCF FP#087, to ensure optimal deployment of meteorological equipment and that there is no overlap or duplication in the areas or meteorological data collection activities covered by the Funding Proposal and those under GCF Funding Proposal 087.

⁷ The sub-section A.4 of the funding proposal clearly states that the project only serves GCF result areas under adaptation and NOT for mitigation through forestry and land use.

Response from the accredited entity to the independent Technical Advisory Panel's assessment (FP 145)

Proposal name:	RELIVE – RESilient LIVELihoods of vulnerable smallholder farmers in the Mayan landscapes and the Dry Corridor of Guatemala
Accredited entity:	Food and Agricultural Organization of the United Nations (FAO)
Country/(ies):	Guatemala
Project/programme size:	Medium

Impact potential

FAO takes note of the assessment.

FAO would like to highlight that climate vulnerability is a function of both expected climate impacts and adaptive capacity. In the Dry Corridor, but not only, there is a direct correlation between poverty and adaptive capacity. Therefore poverty indices serve as an effective tool that has helped enhance targeting efficiency.

With reference to the GCF FP #087 project, it is to be noted that UNDP and FAO led projects will be implemented in different geographical regions reducing the chances of overlapping and duplication. In any case, the continued and strong coordination between the two AEs and the relevant Government agencies will ensure complementarity. The climate data generation activities described in FP087 and the meteorological data activities in the proposed RELIVE project will be coordinated through the [INSIVUMEH¹](#) to maximize complementarity and coherence.

Paradigm shift potential

FAO takes note of the assessment.

FAO would like to emphasize the importance of the proposed solutions to the barriers described in the FP in the local context with indigenous communities who otherwise would not be able to access such a holistic package of resilience measures. The proposed solutions are based on proven approaches that FAO has applied successfully in other contexts with similar characteristics and which have fostered a clear path towards sustainability, changes and scale.

The key activity to strengthen policy/regulatory frameworks to drive investments is focused on making the forest incentive program more accessible to vulnerable small farmers and increasing its focus on climate resilience measures.

¹ INSIVUMEH: National Institute of Seismology, Volcanology, Meteorology and Hydrology

Sustainable development potential
FAO takes note of the assessment.
Needs of the recipient
FAO takes note of the assessment.
Country ownership
FAO takes note of the assessment.
Efficiency and effectiveness
<p>FAO takes note of the assessment.</p> <p>While the ultimate project beneficiaries are vulnerable farmers, the project will engage private sector value chains to support delivery of resilience measures like climate resilient crop varieties and agricultural inputs. By overcoming the climate finance barriers for farmers, the project will strengthen markets for private sector value chain actors and promote greater engagement with farmers</p> <p>The use of ecosystem services for adaptation is a key pillar in the new promoted technological packages of project. In order to make such paradigm shift effective and sustainable for MAGA extension services, the project envisages a learning by doing for the technicians (through TA) to strengthen their skills and knowledge while ensuring project sustainability.</p> <p>The small drip irrigation systems proposed for small agriculture gardens to strengthen food security, have been promoted by FAO in the past and are adapted to the project conditions. Those small investments have a low cost, are easy to be transferred to the small farmers in the region and have a large impact. The greenhouse gas emissions of each 1000 m² systems, was not calculated due the low GHG impact expected.</p>
Overall remarks from the independent Technical Advisory Panel:
FAO thanks the independent Technical Advisory Panel for its review of the proposal and its recommendation to be approved by the Board. In addition, FAO acknowledges and agrees with the condition put forward prior to the second disbursement.



**Food and Agriculture Organization
of the United Nations**

**RESILIENT LIVELIHOODS OF VULNERABLE
SMALLHOLDER FARMERS IN THE MAYAN LANDSCAPES
AND THE DRY CORRIDOR OF GUATEMALA
–RELIVE-GUATEMALA–**

GENDER ANALYSIS AND EVALUATION AND ACTION PLAN

(Annex 8)

May 22, 2020

Food and Agriculture Organization of the United Nations.

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1. Acronyms

COCODE	Community Development Council
COMUDE	Municipal Development Council
DEMI	Indigenous Women Ombudsman
DMMS	Municipal Directorates for Women
ELCSA	Latin American and Caribbean Food Security Scale
ENCOVI	National Household Livelihoods Survey
INE	National Statistics Institute
MAGA	Ministry of Agriculture, Livestock and Food
MARN	Ministry of Environment and Natural Resources
MP	Ministry of Public Defense (Ministry of Defense/Attorney General's Office)
MSPAS	Ministry of Public Health and Social Assistance
DDP	Departmental Development Plan
EAP	Economically Active Population
RECMURIC	Central American Network of Indigenous, Rural and Agrarian Women
SEGEPLAN	Planning and Programming Secretariat of the Presidency
SEPREM	Presidential Secretariat for Women

Part I: Gender Analysis and Evaluation

2. Introduction

1. The present document contains the gender analysis for the project entitled “RELIVE – RESilient LIVELihoods of vulnerable smallholder farmers in the Mayan landscapes and the Dry Corridor of Guatemala,” which will be presented by FAO before the Green Climate Fund for its approval.
2. This gender analysis was carried out in order to comply with the Green Climate Fund’s Gender Equality Policy, which dictates that special attention shall be given to vulnerable populations and marginalized groups and individuals, as well as to local communities and indigenous peoples that are, or may be potentially, affected by the activities to be financed by the GCF (Córdova, 2018). The Green Climate Fund likewise states that for all preparatory actions, equal opportunities to participate in consultations shall be offered to men and women regarding the expectation of the project, allowing them to provide proposals on the best way to implement the project’s activities. Among the main demands made by the concerned populations in the areas where development interventions shall be carried out are: 1) the need to have first-hand information on the main project objectives, 2) the need to know the ways in which the concerned communities shall be benefited, and 3) the need to have citizenship engagement throughout all stages of the project¹.
3. In Guatemala, and in particular in the proposed areas of intervention of the project, women have been consistently categorized as groups of vulnerable populations as due to the systemic discrimination they face, such as a lack of access to education, decent and remunerated work and income, and participation in decision-making platforms. Moreover, various studies conclude that women face longer working days, including upwards of 8 hours of non-remunerated reproductive and household rearing work per day. In addition, in this context women have less access to land and natural resources (which in turn has prevented them in many cases to qualify for access to credit from financial institutions that tend to ask for land and capital ownership as collateral). Because of the all of the above, it proves essential to carry out a nuanced analysis on the gender-specific division of tasks before giving start to an initiative that seeks to tackle to impacts of climate change in rural areas. This is key in order to establish gender roles and to identify the needs specific to men and women in their tasks around different productive livelihoods.
4. The present document was prepared with information gathered from secondary sources, including different national household surveys, statistical data compilations and territorial development plans. All of this information served to further gather and analyze data and statistics that allowed for the development of gender equality indicators, with the aim of giving more visibility and importance to the local circumstances that women face in the project’s proposed intervention areas. From these indicators it is possible to understand the gender gaps between men and women, which in turn will allow for the measurement of existing gender inequalities, especially those relevant to women, who are consistently the ones suffering the

¹ These demands were mentioned by the participants of the prior, free and informed consent workshops carried out in November 2018.

most from these disparities. Likewise, this work allow the proposal of strategic actions that can tackle each of these gender inequalities.

3. General information at country level

3.1 The state of affairs of rural women in Guatemala

5. The role of women in rural development contributes to the economy and represents a high percentage of the rural manual labor involved. However, inequalities between men and women regarding the access to productive resources continue to exist.
6. Rural women produce the vast majority of food, but they are the ones consuming the least amount of portions of what they themselves have produced. Rural women in Guatemala face a large inequality in relation to men regarding the access, use and control of resources, such as family income, means of production (land, equipment, tools, technical assistance, and credit options) and mechanisms to strengthen their capacity to become leaders and organized agents of development (FAO and EU FIRST, 2017).

3.2 Demographic data

7. According to estimations for Guatemala (INE, 2019), in 2015 Guatemala had a total population of 16.18 million². The percentage of the population living in rural areas for that period was 50% while 53.7% of the total population was living in poverty and 13.3% of the total was living in extreme poverty (Boa, Loboguerrero, Martínez Barón, & Rojas, 2014). In 2015, moreover, women accounted for 8,272,469 of the total population while men accounted for 7,903, 664 (Guatemala, INE, 2016).

3.3 Rurality and rural women

8. According to the ENCOVI, 50% of Guatemala's total population is rural. When analyzing these data for the proposed intervention areas of the project, this percentage of rurality increases significantly, with 76.4% of rurality among the population in Alta Verapaz, 66.8% in Baja Verapaz, 68.3% in Petén, 56% in Zacapa and 73.1% in Chiquimula (INE, 2014) (see Figure 1).
9. The same survey shows that rural women account for 51.5% of the total rural population of Guatemala. However, the last Agricultural and Livestock Census mentioned that only 5% of the lands used or viable to be used for agriculture were owned by women (INE, 2003). Rural women carry out activities related to agricultural production, however, they do not tend to receive monetary remuneration for this work. This is due, in the majority of situations, to the fact that these tasks continue to fall under the historically and societally-entrenched category of reproductive work, that is, work that is innately expected from a women solely because of her biological identity (FAO, 2015).
10. Water use in rural area is as well an important element where women have a relevant role, however, current water sharing arrangements in place are not sensitive enough to the needs of women and indigenous people, despite their key and major role in water collection,

² Even though a new National Population and Living Conditions Census was carried out in 2018, this updated information was not yet officially available at the time of writing the present document, hence why the document mentions population estimations by the National Statistics Institute (INE) that were in turn based on the last National Census from 2002, which constitutes the latest officially available data.

transport, management and use (cooking, cleaning, and drinking) in their households (i.e in the project implementation area). Women also lack of equal access to decision-making platforms on the distribution and use of water. Participation of women in the water sharing arrangements is very low, and in some areas, close to nil³.

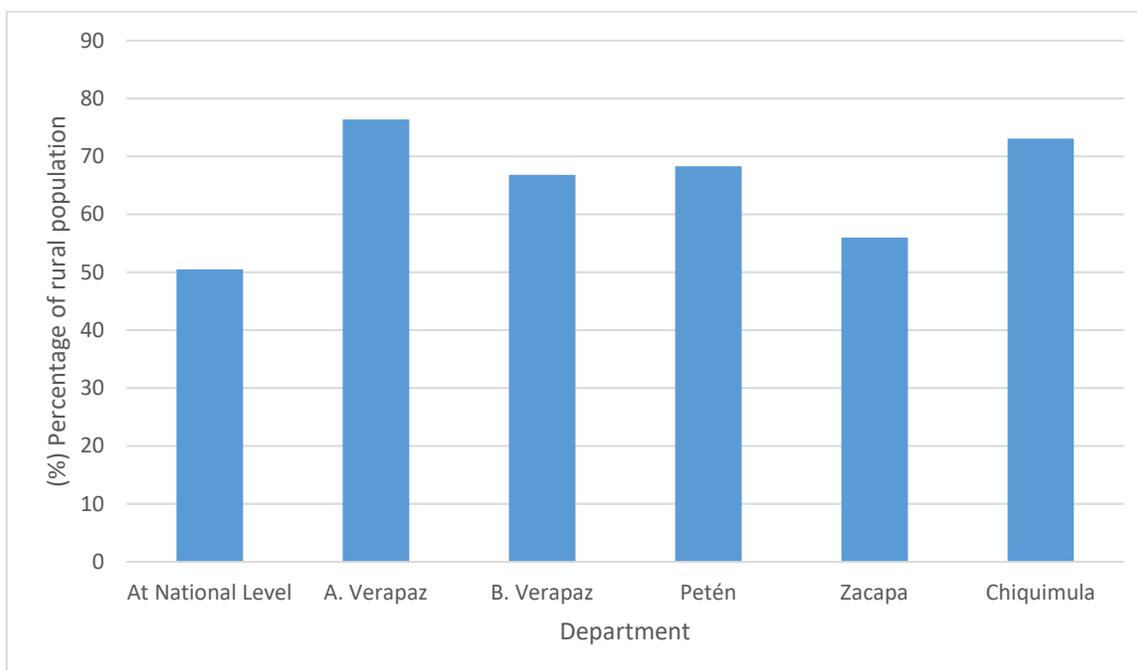


Figure 1: Percentage of rural population by department in the implementation area of the Relive project

3.4 The context of the project’s intervention areas

3.4.1 Alta Verapaz Department

11. The Department of Alta Verapaz is located in northern Guatemala, adjacent to the Department of Baja Verapaz. These two constitute the National Northern II Region. More specifically, Alta Verapaz is located 220 kilometers from the capital city, and it is characterized by its coffee, cardamom, basic staple crop and livestock production. Coffee and cardamom, which account for two of the most important production sectors in the region, continue to be predominantly led by men. In many cases, moreover, the revenues from the sale of these two products represents the major (or even the only) source of income with which households survive. As such, the fall in international prices for both crops has provoked a critical decrease in the incomes of these families. This in turn has decreased the quantity and diversity of food items that local households can afford to consume.

12. The most pressing adversities that women from Alta Verapaz face are the constant violations of their rights. More specifically, these women tend to have their rights to life, healthcare, food, education, dignified livelihoods and land violated (Instituto de Derechos Humanos, Universidad

³ FAO reports that in some areas close to the project implementation area, the participation was of 34% in Chiquimula and only 13.3% in Ixil area.

San Carlos, 2006). Women tend to be assaulted while walking in the street, as well as in their own homes, workplace (if they have one) and institutions (Instituto de Derechos Humanos, Universidad San Carlos, 2006). Their access to work is even more limited than in other parts of the country, and they oftentimes face discrimination and/or are victims of humiliating treatment of all types by other people in their workplace environment (Instituto de Derechos Humanos, Universidad San Carlos, 2006). Moreover, they barely even take part in social or political platforms (not even at the community level) (Instituto de Derechos Humanos, Universidad San Carlos, 2006) (see Table 1).

3.4.2 Baja Verapaz Department

13. The Baja Verapaz Department is located in central Guatemala, a region characterized by its production of green vegetables and basic staple grains. The main threats that the Department face are droughts, which impact food production and household incomes.
14. The most pressing problems that women face in Baja Verapaz are the lack of access to judicial mechanisms and to health services (Instituto de Derechos Humanos, Universidad San Carlos, 2006). Moreover, women tend to lack knowledge of their own rights at all levels. It is because of this, on the one hand, that domestic abuse (which is very present and accentuated in the region, especially among elderly women) is not often reported and, on the other hand, that women are not aware that they are able to decide to space out their pregnancies over time or to decide to not get pregnant at all (Instituto de Derechos Humanos, Universidad San Carlos, 2006) (see **Error! Reference source not found.**)

Table 1: General information about the Alta Verapaz Department

I. GENERAL INFORMATION ABOUT THE ALTA VERAPAZ DEPARTMENT	
Department	Alta Verapaz
Territorial extension	8,686 km ²
Location	To the north, it is adjacent to the Department of Petén and to Mexico, to the South it is adjacent to the Department of Zacapa and Baja Verapaz, to the East it is adjacent to the Department of Izabal and to the West it is adjacent to the Department of Quiché. It is divided into 16 municipalities (Cobán, Cahabón, Chahal, Chisec, Fray Bartolomé de la Casas, Lanquín, Panzós, San Cristóbal Verapaz, San Juan Chamelco, San Pedro Carchá, Santa Catalina La Tinta, Santa Cruz Verapaz, Senahú, Tactic, Tamahú and San Miguel Tucurú).
Ethnic and sociocultural groups	In the Department of Alta Verapaz one finds the Q'eqchi' and Poqomchi' linguistic communities.
Sacred locations	There have been 89 sacred locations identified in the Department.
Dietary culture	Turkey stew, beverages such as cacao and Boj. The Poqomchi' community cooks the Sack Ik and cacao beverage.
Demography	<ul style="list-style-type: none"> • Total population: 1,183,241 with an increasing tendency of 3.11% between 2012 and 2013, which is higher than the national mean rate of 2.32%. • Male population: 49.8% • Female population: 50.2% • Rural population: 77% • Urban population: 23% • Percentage of population self-identified as Indigenous: 89.7% • Percentage of population self-identified as non-indigenous: 10.3%
Illiteracy rates	In 2013, illiteracy rates rose to 28.4%. As such, 45.3% of women and 27% of men are illiterate.
School dropout rates among primary school children	INE reported that for 2013, 2.8% of primary-level schoolchildren abandoned school. Moreover, the average number of schooling years for those 15 years or older was only of 4.6 among men and 3.5 among women.
Food and nutrition security	The ENCOVI 2011 reported that 17.5% of households face severe food insecurity.
Maternal mortality	In 2013, there were 44 maternal deaths per 100,000 births.
Infant mortality	Between 2005 and 2015, child mortality was 23% and infant mortality was 29%.
Violence against women	The MP received 751 reports of sexual violence in 2018.
II. ECONOMIC DIMENSION OF THE ALTA VERAPAZ DEPARTMENT	
Poverty rate	In 2011, the poverty rate rose to 78.2% (very much above the national average of 53.7%), and the extreme poverty rate rose to 37.7%.
Economically active population (EAP)	The EAP for 2010 was 37.2% (30.09% male and 7.23% female).
Migratory flows	There are out-migration flows as well as in-migration flows as a result of the seasonal demand for manual labor required during the coffee and sugarcane harvests. Even though there are some industries in the department, these do not account for more than 5% of all employees in the department. The service sector does not account for more than 10% of all employees, and 13.5% of the Department's population works on a variety of other activities. There is little organized production and few cooperatives, and there was only one entity identified that support production among women.
Economic activities	Of those working in agriculture, 92.92% are men and only 7.08% are women. In commerce, 40.76% are men and 59.24%. In industrial activities, 69.91% are men and 30.09% are women. In the service sector, 39.79% are women.
% of agricultural lands owned by women	According to the Agricultural and Livestock Census of 2003, there were 88,243 agricultural and livestock enterprises, of which 84,518 were owned by men and only 3,725 were owned by women.

Elaborated with data from (INE , 2002) (INE, 2011) (INE, 2014) (SEGEPLAN , 2011) (INE, 2003) (PNUD, 2019) (MSPAS, INE, SEGEPLAN, 2017)

Table 2: General information about the Baja Verapaz Department

I. GENERAL INFORMATION ABOUT THE BAJA VERAPAZ DEPARTMENT	
Department	Baja Verapaz
Territorial extension	3,124 kilometers squared
Location	To the North, it is adjacent to the Department of Alta Verapaz. To the South, it is adjacent to the Departments of Guatemala and Chimaltenango. To the East, it is adjacent to the Department of El Progreso. To the West it is adjacent to the Department of Quiché. It has a territorial extension of 3,124 Km ² and it is comprised by eight municipalities (Salamá, Cubulco, Santa Cruz El Chol, Granados, Purulhá, Rabinal, San Jerónimo and San Miguel Chicaj) comprise it.
Ethnic and sociocultural groups	The population of the Department of Baja Verapaz is predominantly indigenous. The dominant linguistic group is Achi', which accounts for 41.52% of all linguistics groups in the Department, following by Q'eqchi, which accounts for 8.49% of the departmental total.
Dietary culture	The "boshboles" (corn-based wraps covered in squash leaves; the chilate (corn-based drink seasoned with peppers), and the atol shuco and pinol.
Demography	<ul style="list-style-type: none"> • Total population: 284,530, with an increasing population rate trend (2.58% between 2012 and 2013), which is slightly above the national average of 2.32%. • Male population: 47.9% • Female population: 52.1% • Rural population: 68.1% • Urban population: 31.9% • Percentage of population self-identified as indigenous: 55.8% • Percentage of population self-identified as non-indigenous: 44.2%
Illiteracy	24.2% of the total departmental population is illiterate. Disaggregated by gender, 33% of women are illiterate while only 20% of men are illiterate.
School dropout rates among primary school children	INE reports a dropout rate of primary-level schoolchildren of 2.5% in 2013. Moreover, the average number of completed years of schooling for those over 15 years of age was 5.44 for men and 4.63 for women.
Food and nutrition security	Food and nutrition insecurity is mainly linked to a lack of access to food. Data from ENCOVI 2011 show that for Baja Verapaz, 20.9% of households were facing a severe level of food insecurity.
Maternal mortality	For 2013, there were 8 maternal deaths per 100,000 live births.
Infant mortality	Between 2005 and 2015, the neonatal mortality rate was 13%, while the infant mortality rate was 22%.
Sexual violence against women	During 2017 there were 181 reports of crimes involving sexual violence against women.
II. ECONOMIC DIMENSION OF THE DEPARTMENT OF BAJA VERAPAZ	
Poverty rate	Ein 2011, the departmental poverty rate was 64%, which was above the national average of 53.7%. For the same period, extreme poverty reached 23.6%.
Economically active population (EAP)	The EAP for 2002 was of 78.86% made up by men and 21.14% made up by women.
Migratory flows	*
Economic activities	The main activity is centered around corn production, with 69.49% of the EAP dedicated to agricultural activities.
Percentage of agricultural lands owned by women	According to the Agricultural and Livestock Census from 2003, there were 25,331 agricultural enterprises in Alta Verapaz, of which only 1,901 were owned by women while 23,430 were owned by men.

*No information was obtained. Elaborated with data from (INE , 2002) (INE, 2011) (INE, 2014) (SEGEPLAN , 2011) (INE, 2003) (PNUD, 2019) (MSPAS, INE, SEGEPLAN, 2017)

3.4.3 Petén Department

15. Petén is one of the most geographically extensive departments of the country. It is divided administratively into 13 municipalities, and it is known for its warm temperatures. In this department their main livelihood is the cultivation of basic grains (corn and beans), in addition to pepper crops, tomato, pepitoria and melon. A large part of the male population sells their unskilled labor force for agricultural activities (agricultural day laborer). On the other hand, few women are engaged in this type of activity (day laborers), since it is more common to take care of household chores, in addition to caring for children and the elderly from their extended families. Moreover, women to stay at home more often because of the trend of male migration (at least during a few months per year as part of their seasonal work). This forces women to become de-facto heads of households, which in turn forces them to adopt all chores and duties associated with taking care of the household and its occupants.

Table 3:: General information about the Petén Department

I. GENERAL INFORMATION ABOUT THE PETÉN DEPARTMENT	
Department	Petén
Territorial extension	35,854 km ² , making it the largest department in Guatemala.
Location and political boundaries	To the North and West, it is adjacent to Mexico. To the East, it is adjacent to Belize. To the South, it is adjacent to the Departments of Izabal and Alta Verapaz. Petén is divided into 14 municipalities: San Andrés, San Benito, Las Cruces, La Libertad, Flores, San José, Melchor de Mencos, Dolores, Poptún, San Luis, Santa Ana, Sayaché, El Chal y San Francisco.
Ethnic and sociocultural groups	Petén's population is 32% indigenous and 68% non-indigenous. There are various linguistic communities in the department, including the Itza', Mopan, Kaqchikel and Q'eqchi', the latter being the most prevalent.
Demography	<ul style="list-style-type: none"> Total population: 687,192, with an increasing population growth rate at 3.68% between 2012 and 2013, which is above the national average of 2.32%. Male population: 51.6% Female population: 48.4% Rural population: 68.7% Urban population: 31.3% Population self-identified as indigenous: 32.4% Population self-identified as non-indigenous: 67.6%
Illiteracy	10.7% of the population is illiterate, of which 20% are women and 17 percent are men.
School dropout rates among primary school children	INE report for 2013 a school dropout rate of primary schoolchildren of 7.2%. Moreover, the average number of years of schooling among those 15 years or older was of 5.32 years for men and 5.27 years for women.
Food and nutrition security	11.2% of households faced severe food and nutrition insecurity.
Maternal mortality	In 2013, 24 maternal deaths were reported per 100,000 live births.
Infant mortality	Between 2005 and 2015, the neonatal mortality rate was 11%, and the infant mortality rate was 19%.
Violence against women	The MP received 447 reports of sexual violence against women in 2018.
II. ECONOMIC DIMENSIONS OF THE PETÉN DEPARTMENT	
Poverty rate	In 2011, the departmental poverty rate was 65.7%, which was above the national average of 53.7%. Moreover, the extreme poverty rate was 16.3%.
Economically active population (EAP)	The EAP for 2002 was 122,187, which accounted for 19.61 of the departmental EAP.
Migratory flows	During the 1970s, Petén received a significant number of migrants, who mainly arrived in search of land.
Economic activities	Petén has significant land extensions for agricultural production purposes, and its main crops are corn and beans, in addition to other types of agriculture, livestock rearing and exploitation of the forestry economy.
Percentage of agricultural lands owned by women	In 2003 there were 33,178 agricultural enterprises, of which 32,477 were owned by men and only 701 by women.

Elaborated with data from (INE , 2002) (INE, 2011) (INE, 2014) (SEGEPLAN , 2011) (INE, 2003) (PNUD, 2019) (MSPAS, INE, SEGEPLAN, 2017)

3.4.4 Zacapa Department

16. The Department of Zacapa is located in eastern Guatemala, some 147 kilometers from the capital city. This region is characterized by large land extensions dedicated to the production of

melon, watermelon, lemon and coffee. There are also other areas dedicated to mining and to the elaboration of wood-based products (see **Error! Reference source not found.**).

Table 4: General Information about the Zacapa Department

I. GENERAL INFORMATION ABOUT THE ZACAPA DEPARTMENT	
Department	Zacapa
Territorial extension	2,690 km ²
Location and political boundaries	To the North, it is adjacent to Alta Verapaz and Izabal. To the South, it is adjacent to Chiquimula and Jalapa. To the East it is adjacent to Honduras, and to the West it is adjacent to El Progreso.
Ethnic and sociocultural groups	The majority of the population is non-indigenous. In the Municipality of Union, only 0.5% of the population belong to the Ch'orti' ethnicity.
Demography	<ul style="list-style-type: none"> Total population: 228,810, with a growing population rate of 1.64% between 2012 and 2013, which is below the national average of 2.32% Male population: 47.8% Female population: 52.2% Rural population: 56.9% Urban population: 43.1% Percentage of population self-identified as indigenous: 0.9% Percentage of population self-identified as non-indigenous: 99.1%
Illiteracy	3.7% of the population is illiterate and 21.45% of women and 18.72% of men are illiterate.
School dropout rates among primary schoolchildren	INE reports for 2013 a dropout rate of 6%. Moreover, the average number of schooling years completed for those over 15 years of age was 5.34 for men and 5.59 for women (one of the few cases where women fare slightly better than men).
Food and nutrition security	The strongest threats are droughts, floods, and landslides resulting from hurricanes and tropical storms. This mainly affects the basic staple grain crops, which in turn affects the food and nutrition security of the population, especially of those living in extreme poverty already. In 2011, there were 20.4% of households facing severe food and nutrition security.
Sacred locations	The prehispanic location of La Vega del Cobán in Teculután
Chronic malnutrition	50.6% for children under 5 years
Maternal mortality	In 2013, there were 2 maternal deaths for every 100,00 live births.
Infant mortality	Between 2005 and 2015, the neonatal mortality rate was 5% and the infant mortality rate was 20%.
Sexual violence against women	The MP received 120 reports of sexual violence against women during 2018.
II. ECONOMIC DIMENSION OF THE DEPARTMENT OF ZACAPA	
Poverty rate	In 2011, the poverty rate was 55%, which was slightly above the national average at the time of 53.7%. Moreover, the extreme poverty rate was 25%.
Economically active population (EAP)	The EAP consists of 177,348 people, and women account for 22.1% of that and men represent 77.9%. The low participation rate of women is evident.
Migratory flows	*
Economic activities	Agriculture: women represented 7.08% and men 92.92% Industry: women represented 69.91% and men 30.09% Commerce: women represented 59.24% and men 40.76% Services: women represented 39.79% and men 60.21%
Percentage of agricultural lands owned by women	In the 2003 Agricultural and Livestock Census, there were 11,563 agricultural enterprises identified, of which only 566 were owned by women and 10,997 were owned by men.

*No information was obtained.

Elaborated with data from (INE , 2002) (INE, 2011) (INE, 2014) (SEGEPLAN , 2011) (INE, 2003) (PNUD, 2019) (MSPAS, INE, SEGEPLAN, 2017)

3.4.5 Chiquimula Department

17. The Department of Chiquimula is located in the northeastern region Guatemala. The population is mainly dedicated to the production of basic grains for self-consumption. One of the main threats it has is the growing irregularities of rainfall (see Table 5).

18. Some of the most serious problems that women in Chiquimula face are the high rates of gender violence, sexual harassment (in the street and at work), and in some cases, even forced prostitution (Instituto de Derechos Humanos, Universidad San Carlos, 2006). Women who do manage to enter the labor market tend to perform jobs that have been historically and traditionally always been carried out by women (such as household chores and care of children and the elderly). Moreover, the majority of women who do work can only access jobs that are not formally recognized as gainful employment, or that are poorly remunerated and/or part of the informal economy (Instituto de Derechos Humanos, Universidad San Carlos, 2006), such as housekeeping or caretaker tasks. Furthermore, many women migrate to the United States to work and, in other cases, the men in their families migrate before they do, therefore leaving them more exposed to all kinds of external threats and gender-based violence and discrimination (Instituto de Derechos Humanos, Universidad San Carlos, 2006).
19. Most likely as a consequence of the aforementioned difficulties, there also are high rates of femicide, sexual aggression and female suicide in the department of Chiquimula (Instituto de Derechos Humanos, Universidad San Carlos, 2006).

3.5 Analysis of indicators in the project's intervention area

3.5.1 Beneficiary population of the project

20. In the project's intervention area, the activities slated to take place shall have an indirect impact on people who do not fall into the specific areas of the project's activities. This will especially be the case if local radio and communication advocacy campaigns are carried out, as well as meetings with groups of women who live in other municipalities who may benefit from obtaining a replication of the information shared with women in the project's intervention areas. With this vision in mind, the project aims to impact directly and influence indirectly at least 2 million people altogether (see Table 6).

Table 5: General information about Chiquimula Department

I. GENERAL INFORMATION ABOUT CHIQUIMULA DEPARTMENT	
Department	Chiquimula
Territorial extension	2,376 km ²
Location and division of political boundaries	To the North, it is adjacent to Zacapa. To the South, it is adjacent to Jutiapa and El Salvador. To the East, is adjacent to Honduras, and to the West it is adjacent to Jalapa and Zacapa. It is divided into 11 municipalities: Chiquimula, Camotán, Concepción las Minas, Esquipulas, Ipala, Jocotán, Olopa, Quezaltepeque, San Jacinto, San José la Arada and San Juan Ermita.
Ethnic and sociocultural groups	The population is 16.67% indigenous, which mainly situate themselves in the municipalities of Jocotán, Camotán, San Juan Ermita and Olopa.
Demography	<ul style="list-style-type: none"> • Total population: 388,155, with an increasing population growth rate of 2.32% between 2012 and 2013, which is equivalent to the national average. • Male population: 47.8% • Female population: 52.2% • Rural population: 73.4% • Urban population: 26.6% • Percentage of population self-identified as indigenous: 7.1% • Percentage of population self-identified as non-indigenous: 92.9%
Illiteracy	25.5% of the total population is illiterate, of which 31.16% are men and 33.32% are women. The municipalities showcasing the highest rates of illiteracy are those located in the Ch'orti region: Jocotán, Camotán, San Juan Ermita and Olopa.
School dropout rates among primary school children	INE reports that in 2014 the dropout rate was 2.9%. Moreover, the average number of schooling years obtained by men was 3.89 and 4.28 by women (another one of the few cases where women had, on average, more years of schooling than men).
Food and nutrition security	Food and nutrition security has been widespread due to droughts, which have affected the production of corn and beans. The municipalities that continue reporting the highest levels of food and nutrition insecurity are those making up the Ch'orti region. In 2011, 19.3% of households faced severe food and nutrition insecurity.
Maternal mortality	In 2013, there were 15 maternal deaths per 100,00 live births.
Infant mortality	Between 2005 and 2015, the neonatal mortality rate was 28% and the infant mortality rate was 51%.
Sexual violence against women	The MP reported 182 cases of sexual violence against women in 2018.
ECONOMIC DIMENSION OF THE CHIQUIMULA DEPARTMENT	
Poverty rate	In 2011, the poverty rate was 62.7%, which was almost 10 percentage points above the national average of 53.7%. Moreover, the extreme poverty rate was 28.3%.
Economically active population (EAP)	The EAP is 33.38% overall, with women only accounting for 32.39% of it and men accounting for 67.61% of it.
Migratory flow	Temporary migration rates are of 2.91%, which represent those people who migrate seasonally to the Department of Zacapa to work in the melon and banana plantations. However, 9.56% of the population has migrated permanently to the United States.
Economic activities	The main economic activity is agriculture, mainly on the production of corn and beans, as well as bananas, peaches, mangos, oranges, plums, and nuts.
Percentage of agricultural lands owned by women	There were 28,768 agricultural enterprises in 2003, of which 26,702 were owned by men and only 2,066 by women.

Elaborated with data from (INE, 2002) (INE, 2011) (INE, 2014) (SEGEPLAN, 2011) (INE, 2003) (PNUD, 2019) (MSPAS, INE, SEGEPLAN, 2017)

Table 6: Territorial extension and population to benefit from the project's activities.

No.	Department	Municipalities	Territorial extension Km ²	Population
	Project area	29	17,470.82	1,206,009
1	Alta Verapaz	17	10,636.67	814,300
2	Baja Verapaz	3	1,155.46	80,207
3	El Petén	3	5,467.69	101,558
4	Zacapa	1	211	25,464
5	Chiquimula	5	1,29.02	184,480

3.5.2 Cultural and linguistic context

21. The municipalities where the proposed project aims to carry out its interventions have a total population that self-identifies as indigenous of 761,591, which represents 34% of the total population of the departments where the project aims to focus on. Moreover, among this population, five indigenous languages are spoken of which four are of Mayan origin (see Table 7). Unfortunately, there are neither disaggregated data by gender nor by indigenous origin, in addition to data disaggregated by gender in relation to each of the five languages spoken.
22. This is an important factor to consider given that at the time of implementation, the linguistic and cultural aspects of these regions must be taken into account, such as ensuring to carry out the respective activities in the local language while ensuring the respect for the Mayan cosmovision, among other key considerations.
- 23.

Table 7: Languages spoken in the municipalities selected for the project implementation

Department	Municipalities	Language
Alta Verapaz	Cobán, Fray Bartolomé de las Casas, Lanquín, Panzós, Chamelco, Carchá, Cahabón, Senahú, y Tucurú	Q'eqchi'
	San Cristóbal Verapaz, Santa Cruz Verapaz, Tactic, Tamahú y Tactic	Poqomchi'
Baja Verapaz	Purulhá, Rabinal, San Miguel Chicaj,	Achí, Poqomchi'
Zacapa	La Unión	Español, Ch'orti'
Chiquimula	Jocotán, Camotán, Olopa , San Juan Ermita y Chiquimula	Ch'orti'
El Petén	Dolores, San Luis, Poptún	Q'eqchi

3.5.3 Economically active population (EAP)

24. Women represent more than half of the population that will be benefited from the project's activities. However, only 13.13% is made up of women, in contrast to the percentage occupied by men, which is 44.90%. The gender gap between men and women in terms of access to paid employment is represented in these data. In addition, these data can also represent the fact that women tend to dedicate upwards of 10 hours per day on household-related tasks, which are not officially considered as gainful employment and thus prevents them from formally taking part in the remunerated labor market.

4. Gender gap analysis

4.1 Basic questions to contextualize the gender gaps in the present study

What is the legal status of women?

25. Even though after the Peace Accords signed in 1996 several mechanisms were created for the defense of women in general (Secretaría Presidencial de la Mujer –SEPREM) and indigenous women in particular (Defensoría de la Mujer Indígena -DEMI-), different laws were enacted for their protection and development (i.e. comprehensive development of women and the prevention of intra-family violence, sexual violence, and trafficking and exploitation, femicide and other forms of violence). In addition, a series of policies were designed with the main purposes of attending to the specific needs of women (Política Nacional para la Promoción y Desarrollo Integral de las mujeres –PNPDIM) (ONU Mujeres, n. d.), and specific research bodies were created for gender violence issues (ONU Mujeres, n. d.). However, women continue to be discriminated against in many ways. For example, according to figures from UN Women, "only 2% of mayoral offices are headed by women" (ONU Mujeres, n. d.), and women in general are underrepresented in all political spectra (Instituto de Derechos Humanos, Universidad San Carlos, 2006).
26. Moreover, the use of birth control medication is not yet far-reaching (ONU Mujeres, n. d.) in these communities, despite the fact that the reproductive years of youths are starting at an early stage (Instituto de Derechos Humanos, Universidad San Carlos, 2006). The lack of information regarding sex education and reproductive health translate into the fact that "more than 4,000 girls between 10 and 14 years of age give birth every year" (ONU Mujeres, n. d.), which in turn exposes them to a higher likelihood of being exposed to sexually transmitted diseases. In the broader Guatemalan context, "the liberty [for Guatemalan women] to exercise and enjoy their sexual and reproductive rights [...] is still very limited" (Instituto de Derechos Humanos, Universidad San Carlos, 2006), and the information and protections afforded by the State to young women in this matter is also limited to their roles as mothers (Instituto de Derechos Humanos, Universidad San Carlos, 2006). As for women who belong to the LGBTQI+ community are, for the aforementioned reasons, in an especially precarious situation (Instituto de Derechos Humanos, Universidad San Carlos, 2006). It is equally alarming that the possibility of rural women to be able to make decisions over their own body is "almost non-existent" (Instituto de Derechos Humanos, Universidad San Carlos, 2006).
27. The access of girls and women to education is much lower than that of men, and their employment and employment rates are much lower as well, especially as women tend to work much more in the informal labor market than men do (Instituto de Derechos Humanos, Universidad San Carlos, 2006). Moreover, although Guatemalan law recognizes the right to co-ownership of land for women, this has not translated into real access to land or other resources to work it on it (Instituto de Derechos Humanos, Universidad San Carlos, 2006). As a result, banks and credit institutions deny access to women in rural areas, which in turn prevents them further from accessing land (Instituto de Derechos Humanos, Universidad San Carlos, 2006).
28. According to data presented by UN Women, violence against women, which is strongly rooted in Guatemala, has not disappeared in recent years, which has Guatemala ranking among the

countries with the highest prevalence of gender-based violence in the world (ONU Mujeres, n. d.). Indeed, according to a study on women's rights in Guatemala in 2006, the aforementioned measures have been ineffective and women continue to suffer on a daily basis from the constant violence against them (Instituto de Derechos Humanos, Universidad San Carlos, 2006), and women who suffer violent deaths every year in Guatemala are amounting to the hundreds (ONU Mujeres, n. d.). On the other hand, women are often also victims of other types of physical violence, such as obstetric violence (ONU Mujeres, n. d.).

29. Some added difficulties faced by women in rural areas are the tight control that the men exercise over women and their families (especially those male heads of families, such as husbands, fathers or siblings). These controls deprive women of their freedom and autonomy to leave the house, to study or work, and to use contraceptive methods or denounce gender violence that may occur in their homes (ONU Mujeres, n. d.).
30. The study about women rights in Guatemala from the Institute of Human Rights of the Universidad San Carlos emphasizes the lack of statistics in many areas pertinent to the current state of gender and women affairs in general. As such, it calls for the disaggregation of more information by gender (Instituto de Derechos Humanos, Universidad San Carlos, 2006), since this is an essential measure to better understand the situations facing women and to be able to better put a halt to the gender inequality gaps.

What are the gender-based common beliefs, perceptions and stereotypes?

31. Women – in particular rural women – face a multiple stereotypes in parallel.
32. One of the main stereotypes present is that which expects women to remain in the house while the man must exclusively work outside the household. This means that women have to do all household-related chores, which can amount between 14 and 16 hours per day. This work is not remunerated, whereas the man is able to have a paid job (which constitutes an average of 10 daily working hours). The difference between having and not having a salary implies that women have less decision-making power in terms of decisions that affect their own family and household; likewise, they have less or no say as to how the household income is spent or invested. Moreover, the fact that women tend to have fewer hours of free time to themselves, coupled with the fact that it is seen as dishonorable for them to leave the house for purposes beyond obtaining food or household items for cleaning or to care for family members, means that they cannot attend community meetings, which in turn prevents them from participating in community decision-making bodies.
33. Furthermore, since it is assumed that women are not agricultural producers and that they do not work the land, they are excluded in most cases from access to land through inheritance. Due to both the nature of their unpaid work, and to the fact that they also suffer from inequality in access to education, it is difficult for them to find a qualified job, which allows them to be subject to credit to access land through other means, such as purchasing. This translates into women only owning 5% of all land.
34. Yet another stereotype is that women must always become mothers at all costs. As can be seen in the data to prepare the present document, women tend to have large numbers of children, usually from an early age and all throughout the rest of their reproductive lives. This causes

women's health to suffer and deteriorate more quickly than if they had fewer children. In addition, the more children they have, the higher the probability of losing some of them to infant mortality at birth or during his or her early years, given the poor socioeconomic conditions in which these families live. In turn, the amount of work in at the household level piles up unfairly on the woman, as she is expected to continue being a mother and housewife in parallel.

What is the distribution of work between men and women?

35. The division of gender roles in the project's area of intervention can be established in relation to the percentage that women occupy in the EAP, as well as how many women are in charge of agricultural holdings and the level of access to education they have. Although women represent approximately 50% of the population that will be assisted in the framework of the project's interventions, they still only control less than 5% of agricultural enterprises.
36. It is important to note that women carry out productive, reproductive and community-wide activities. However, they do not dedicate the same number of hours to each type of work. The division of gender roles when it comes to labor in rural Guatemala indicates that household chores (such as cleaning, food processing, carrying water, community activities and some school activities such as the preparation of school menus) fall almost in their entirety on women, while only a small extent of these tasks are borne by men. Reproductive activities (the care of children and elderly and/or the sick) tend to exclusively fall as part of responsibilities of women.
37. Although women in these communities also tend to work on numerous backyard activities directly related to agricultural production and food and nutrition security (such as growing and producing green vegetables, raising birds and pigs, and sometimes even medicinal plants), these do not generate income, or in the cases where they do, they are very scarce and anyhow are significantly lower than the income that men generate in their work. Thus, there is, on the one hand, a significant gender equality gap in relation to the distribution of domestic tasks between women and men, and on the other hand, there is another gender equality gap in relation to the amount of income generated by women in their own right in relation to men.

How does the participation of women and men in the formal and/or informal economy look like?

38. Many more women than men do not attend school, and women in general end up dropping out of school before men do. This is because most families consider that girls must help with housework from a very early age, while the burden of domestic chores is lower (or non-existent) in the case of their male siblings.
39. As such, reproductive work, which is considered an extension of women's biological identity, entails a long list of household and caregiving tasks that limit their time to seek and maintain a decent and remunerative job. This is reflected in the percentage of men who work outside the home for a salary, which is much higher than that of women.
40. This condition makes women – and rural and indigenous women in particular – a markedly vulnerable group that tends to live more often in poverty or extreme poverty.

41. In order to achieve the economic empowerment of women, initiatives such as promoting the access to productive inputs and markets and marketing products, increasing and diversifying production, facilitating vocational training and the acquiring of new skills, and ensuring eased access to specialized technical assistance are all essential. If women manage to generate income in their own right, they will increase their decision-making capacity (within the household and at the community level) and, in turn, they will also augment their control over family income and how it can be fairly spent among its female and male members alike.

What is the current state of affairs of women and men?

42. In most cases, there is a greater number of illiterate women than men. In addition, fewer women access basic education services and, many of those who do, drop out at an earlier age than men do. The linguistic groups with which the project will work are, besides Spanish, the Q'eqchi 'and the Poqomchi' groups. It must be taken into account that even though most men speak Spanish, they prefer to hold meetings and other activities in their native language. Moreover, a significant number of them do not speak Spanish, which is mainly the case among elderly women.)
43. The birth rate shows an upward trend in all departments, hence it can be inferred that women are indeed having a high number of children whose care, consequently, falls almost entirely on these women as well.
44. The distribution of paid work between men and women is very unequal, with the percentage of men that receive a salary for their work being much greater in relation to women with remunerated work. In addition, as already indicated, only 5% of women in the areas in which the project will work are landowners. While men work an average of 10 hours as day laborers in farms near the community and/or in their own plots, the burden of domestic work falls much more on women, and the care work is almost exclusively feminine because these are socially and historically understood to be gender-specific roles, which in this case are innate to the biological identity of women. All in all, women perform between 14 and 16 hours of daily work with days that start at four in the morning, in addition to including some physically demanding activities such as going to collect water or carry out sowing activities in their backyard.
45. The profile of the project's beneficiary women is one of rurality and, in the majority of the targeted departments of intervention, indigenous as well.
46. It is for this series of reasons that programs and projects must consider strategies to reduce the time that women dedicate to household chores and promote, therefore, the equitable distribution of domestic tasks and family care, while also taking into account the cultural relevance of each group of people.

In terms of the project's/program's budget, are there anticipated differences on the vulnerabilities and capacities to adapt to climate change between men and women? If so, what are they?

47. Both men and women are vulnerable to the effects of climate change, which are felt in Guatemala in the form of prolonged droughts, severe tropical storms, forest fires that affect the loss of crops.

48. Although the lower availability of food directly impacts the food security of all family members, it can harm women more who, despite producing food themselves, traditionally receive (in some communities) lower amounts or eat what boys do not want or what children leave at the table.
49. On the other hand, men and women make a different use of all natural resources, and especially water, since men use it almost exclusively for consumption, personal use and for irrigation. Conversely, women use it not only for personal hygiene as well as, but also for their backyard plantations and many domestic chores (cleaning clothes, kitchen utensils, and floors and to prepare food).
50. Because water is essential for unpaid work within households, it is the women themselves who traditionally carry water from the sources of origin to their homes. In addition, many times the personal grooming of the female population takes place in the water source itself, thereby making them more vulnerable to violent and/or sexual attacks as they are exposed to those passing by. When water is scarce, women are obliged to walk longer distances to reach the source, once again exposing them to greater risks on the road and at the water source, as they are farther away from their homes. Without water, however, their traditional housework becomes even more challenging to carry out.
51. It is due to this series of events that women have to be taken into account when proposing new ways to use and distribute water.
52. The processes that have to do with resilience to climate change have to have women in the center, since they have a high potential to adapt to climate change, since they are aware of the effects it has for them and their families. Hence, they will be receptive to implement good practices of adaptation measures. In addition, women become multipliers of information to their children and the rest of the family, so the investment in them translates into scaling up the positive effects of these processes.

Are there gender inequalities that can become exacerbated by the impacts of climate change?

53. They do exist due to the impacts of climate change on the food production, making household food insecurity levels likely to worsen. This means that a large majority of men migrate to seek employment as farm labor on farms, or in the capital city as security guards. Women are left in charge of the family and the family farm, increasing their responsibilities and being more exposed to dangers of all kinds.
54. Climate change also affects and degrades the upper and middle parts of the basins, which directly affect water births and streams, both of which are places where women directly obtain water for household consumption. Therefore, climate change can incur a disproportionate effect on women as they face water scarcity and must cope to obtain it by walking longer distances or straining themselves to stock up on more water at any one points in time.
55. The effects of water scarcity and subsequent effects has contributed to the increase of gender gaps and gender inequalities in general. This is due to the discrimination that women (and to a greater extent rural and indigenous women) suffer in all parts of their daily lives, thereby making them more vulnerable to external risks. In addition, higher temperatures can put water availability, food production and food security for the whole family at risk, which would result

in an increase in workloads within the home (i.e. once again augmenting the burden faced by women). Beyond the decreased or lack of access to land, water, productive inputs, women also face a decreased access to education and participation in decision-making platforms.

What are some types of inequalities that exist between the different social groups? How do these affect the capacities of people to adapt to climate change?

56. The inequalities that people in the area of the project's intervention suffer are plural in nature. Women are the most vulnerable group due to their decreased levels of and access to training, as well as their due to their scarce access to land and other resources and their inferior integration into the formal labor market. Girls are even more vulnerable for reasons of access to health and from helplessness in the face of violence, while older women can also be considered at risk of social exclusion in some cases, since they are not subject to receiving as much information and/or training campaigns as the younger age groups. Among these risks is the high percentage of that population that lives in poverty or even in extreme poverty, coupled with the fact that a significant number of them have not had a formal education. In addition, there is little State investment in the area and some families have used chemicals that have degraded their soils.
57. In order for families to be able to adapt to climate change, they must first off be conscious of their own activities that bear harmful impacts to the environment. After this environmental conscientiousness, a capacity development initiative must be carried out in order to inform families about the adaptation and mitigation measures that the project will be implementing.

What roles does the project expect women and men to play in the context of its interventions? What would these roles imply in terms of time commitments and mobility needs?

58. From its baseline, the project should establish that activities to mitigate and adapt to climate change do not represent more workload for women. Many times the projects reduce the working hours of the men because they are given technical assistance to improve and increase their production and they are provided with technologies and technical assistance and this means that they can reduce their work by one or two hours. However, women continue to work an average of 12 hours. The project will take into account the need for co-responsibility of the care of the domestic unit through reflection processes on the importance of sharing care activities among all family members.
59. That is why the training processes and monthly meetings take place in community places, so that women do not have to spend much time to get there. Likewise, it will be noted for meetings to not last beyond noon, as women may have to return home to attend to their children after school and prepare their lunch. As such, the implementation of "Mobile Childcare", a strategy encouraging women to take their children to training sessions and take turns in taking care of them so that the rest can pay full attention will be promoted.
60. With the Mobile Childcare, Kids are not distressed, because their mothers are close to them, and at the same time, women can participate in the training without being constantly interrupted. FAO has established on the basis other successful projects the Childcare as a good practice to be promoted in the region.



Figure 2: Mobile Childcare implementation during a training session in a FAO Project. Part of the toys, materials, implements can be seen.



Figure 3: One of the training participants is taking care of the kids, during the training session. Later on, other woman will take her place.

61. On the other hand, it is important that gender training be done (explained more in depth in subsequent points of this document) so that the burden of domestic and care work is distributed more equitably and this allows for women to participate in meetings, training and paid work.
62. Women will work in family gardens, being previously trained to get the most out of their small plots. However, although women can trade small surpluses (for example, herbs such as

coriander), this does not allow them to emancipate themselves, and that is why they will be encouraged to participate in training for wider production and to work family lands in equal conditions and with equal resources as men. Other project activities to which they will be introduced will be the post-harvest activities and, specifically, the storage of bean and corn. In order to economically empower them, they would be included in the coffee and cocoa production chain (specifically in the harvest), as well as in the related value-added processes.

What resources (financial, physical, natural or other assets) do women and men have? Who administers or controls the access to these resources?

63. The decisions regarding what is to be grown on the family farm is made by men. In some cases these decisions are consulted with the wife and children because they are all part of the agrarian economy. Women are responsible for the backyard activities, the production of vegetables and medicinal plants, and the raising of birds and pigs. The land may bear the names of both the husband and wife, however the control of the land per se still falls mostly on the men, as they are understood to be the heads of family or heads of household. Women are responsible for the household economy, and men assign a certain amount per day, week or month to these tasks. When there is an emergency, an illnesses of a child, the need to purchase supplies, or the need to accompany extracurricular activities, women take advantage of the resources they produce in their backyard activities in order to sell them and obtain cash to cover any one of these emergencies or additional expenses.

Do women and men in the vulnerable communities have equal access to the necessary information and opportunities in order to fully participate in and benefit from the anticipated results of the project/programme?

64. The project's objectives must be actively disseminated so that the beneficiaries know the nature of the program, its objectives and the results that are to be achieved. As part of this process it must be taken into account that a large proportion of women are illiterate and/or monolingual with a Mayan language as their mother tongue (this is mostly in the Q'eqchi 'and Poqomchi' groups). Therefore, a strategy should be developed to this end to facilitate the dissemination of information. That is why one of the best means of disseminating the program's goals would be via radio spots in the predominantly used local languages. Another useful method to spread key message would be the placement of posters with photographs and basic information in public places such as health centers, municipality offices, offices of secretariats for women, and schools. It is important that at least one person working in each of these places knows the content of the program, the activities that will be carried out and the specific objectives and requirements to participate in it. Although women may not frequent the municipality as much as men, as work related to the home care falls almost exclusively on them, they usually do go to schools more than men do, just as they tend to attend medical centers more than men (for example when they are pregnant, breastfeeding, sick or accompanying their own sick family members or their husbands' family). Hence these centers are useful to disseminate the relevant information seeking to engage more women in the project's activities.
65. A commitment must be made both with the women who participate in the trainings, and with the families that benefit from them. The project must ensure that women who start training go to all meetings and workshops. In those cases in which families or single men are participating,

the importance on obtaining the best results and actively integrating women into these tasks must also be communicated, in order to convey the message that women have a key role to play in contributing to the community. This will promote active women participation, as part of the understanding that the best possible results can only be obtained if women actively and inclusive take part in them as well.

66. One can set a minimum percentage of realistic participation of 35% of women and 65% of men, but this percentage should not be communicated to the beneficiaries because if that minimum is reached, some women who were thinking of joining the project may believe that they are no longer necessary. On the other hand, the project personnel should be focused on exceeding that minimum at all times, and not cease to influence the importance of women participation in the project as it progresses.
67. Social communication campaigns will use an inclusive and non-sexist language in order to ensure that no gender stereotypes are replicated. Moreover, the necessary graphic information (such as illustrations or photographs) shall contain images of both men and women working the land.
68. The information strategy will inform and disseminate that this is a program/project that promotes equality between women and men, and will make known the strategies that will be used to address gender issues and document the commitments to reduce the gaps. As such, this strategy should be carried out to the furthest extent possible, involving internal project personnel and external stakeholders alike.
69. Once the project is launched, monthly meetings and supervisions of the progress of the project should be held, and it is important that women also attend in order to guarantee that they are also working on their specific interests and expectations.

Do women have equal access to education, technical knowhow and /or ways to improve their skills?

70. Girls and boys in Guatemalan rural families contribute to the family's economy through support in productive activities and in household tasks. A lot of this depends on the level of poverty that the family lives in, as many children may not be able to continue with their studies. Girls are oftentimes given the demanding responsibility of caring for their younger siblings, helping with the preparation of food, carrying water, and washing clothes, among other tasks.
71. There may also be the idea that women do not need education since they are destined to marry, reproduce and perform household activities. This is reflected in the fact that in Guatemala the percentage of married or united women between 15 and 19 years old is much higher than the group of men with the same age range. Although the gap between the number of married and unmarried women between 20 and 24 years old and the number of married and unmarried men in the same age range is not as high, the absolute number of married women is still greater. It is also important to note that most mothers have their children between 15 and 19 years of age, followed by those having children between the ages of 20 and 24.

72. The project can well positioned to support the generation of information that allows school dropout rates to be disaggregated by gender, taking into account that another factor that influences this trend is the parents' decision to migrate to the United States with their children, in the hopes of having a better probability of entering the country if traveling with minors.

To what degree do women and men in the vulnerable communities take part in decision-making? What types of decisions to women make? What are the limitations (social, cultural, economic, and political) that restrict their active participation in decision-making processes at the family and community levels?

73. In Guatemala's rural communities, when there are meetings with mixed groups, it is the men who ask and take the floor. Women expect men to make their proposals and should some kind of empowerment or leadership opportunity be available after, only then would women come into the picture.
74. Women have a low participation rate in the Community Development Councils (COCODEs) and the Municipal Development Councils (COMUDEs) for many reasons, including the fact that they feel ashamed to speak in public, are monolingual, or their contributions are sometimes minimized in value by the attendees.
75. The development of women capacities will be promoted through training so that they can increase their power of decision and leadership. The life and trajectory of some women who participate in the project will be followed up on, which will make it possible to evaluate and assess whether there have been changes in daily life – and decreases in gender discrimination in turn - when project activities are implemented.
76. Training on gender issues for mixed groups (men and women), for women alone (empowerment), and men alone (new masculinities) will be promoted. These trainings will be not included as a separate training and will be integrated as cross-cutting issues during the different training sessions. It is planned that during the training sessions the groups can be divided and focus for a part of the training on those specific topics.
77. Male-relevant training on gender issues (the so-called "new masculinities") is strongly encouraged to be discussed along with female-relevant sessions (to address empowerment, female rights, etc.). If men do not take part in process having to do with gender issues, females cannot reach full empowerment
- 78.



Figure 4: Participants of a mixed training session on community mapping activities in Guatemala



Figure 5: Participants of a women empowerment workshop in Guatemala drawing the body of a woman.

Are there any opportunities to promote the leadership of women in terms of governance and local policy, as well as in formal and informal platforms and institutions? If not, what are some of the limitations that prevent women from pursuing these roles of leadership?

79. If the opportunity exists, the program should develop strategic alliances with institutions that ensure the rights of women, such as the municipal offices for women, the Ombudsman for Indigenous Women and the Presidential Secretariat for Women. As far as possible, it shall map actors and identify local associations – both those that are led by women and those led by both men and women – that can provide an added sustainability to the practices that will be developed within the framework of the project.

What are the gender-specific needs and priorities of men and women in the context of the project's/program's activities? Could the project tackle their respective needs and priorities? If so, how does it plan to do so?

80. Women and men suffer climate change differently. On the one hand, their needs regarding water have different approaches. Women give water uses that have more to do with household tasks and care and men use it for productive purposes for the most part.
81. On the other hand, while men can move more freely, women in rural areas have a more limited freedom of movement and, if water is scarce in their area, all their work at home (cleaning, food preparation) is affected. Also, if a woman does not have access to water in her area, she cannot use it for her own consumption or her hygiene. On the other hand, women also need water for their backyard crops, which are often the main source of food for the whole family.
82. Although women can sometimes move to get water from more distant sources when it is scarce in their area, having to travel greater distances means that they spend more time in the same tasks and are also exposed to greater physical hazards due to having to walk more time (accidents and assaults) as well as exposing themselves to unfamiliar environments (for example, they may suffer sexual violence if they expose themselves to showering in rivers or lakes outside their community). Women use water for the development of family gardens, which are key for their food and nutrition security, so climate variations are set to affect the development of this subsistence activity. On the one hand, this can cause a reduction in crop yields, and on the other, it can force women to find water from a source that is farther away.
83. With regards to men, climate change may cause them to lose their crops (which would be their source of income, and usually the main source of the whole family), or they may not have jobs because local employers have lost the harvest or they have had a small harvest and do not need their services. This affects women directly as well, as the income generated by men is almost always the only source of income for the entire household. Moreover, if men are forced to migrate to find work, women will be left alone with added responsibility as a head of household,

while also becoming more exposed to gender-based violence in the absence of a male figure in the home.

84. If both women and men are able to cope with climate change in their areas of origin through the achievement and development of resilient livelihoods, neither men nor women will be forced to migrate in search of new job opportunities. By the same token, if men are not forced to migrate, then women will not have to assume added household burdens in the absence of their spouse. Likewise, women will then be able to empower themselves economically when participating in tasks from which they can obtain an economic benefit that allows them to have a certain degree of economic autonomy. It is important that both men and women have access to crops that are not affected by climate change and that women are integrated into productive work by giving them access to both land and training in order for them to learn how to produce food by putting the right tools and knowhow into practice. Furthermore, men must collaborate with household chores so that women can have time and freedom to work outside the house and participate in community-level decisions. Finally, both men and women must learn about implementing post-harvest practices and grain conservation, as well as harvesting rainwater for consumption and production.

Has the project/program identified opportunities to challenge the present gender stereotypes and promote positive gender relations by way of equitable actions? If so, what are these opportunities and actions?

85. It is essential that the personnel participating in this project receive specific gender training and be prepared to carry out the activities and face possible problems and setbacks regarding perceived and tangible inequalities.
86. Among the project's trainings for beneficiaries will be workshops on gender roles and work traditionally assigned to each gender. Among the tools to use is "the 24-hour clock", which will not only serve to promote dialogue and understanding between men and women regarding the work of the home and paid work, but it will also prove useful at a later analysis of results both of the participants and of the project staff.
87. In addition, in order to help reduce gender gaps in access to land, work, natural resources, and income, the project should promote the participation of women in all possible activities, with special emphasis on facilitating for them to take part in those that have to do with production (so as to promote their economic empowerment).
88. In order for women, their opinions, specific needs and experiences to be taken into account before making decisions, women and men should be asked about them separately. In addition, once the project is launched, women should participate in an exchange of experiences exercise. This will also help make it easier to train other women in turn.

4.2 Use of time and non-remunerated work

89. A large part of the population is illiterate (and women are disproportionately represented among the illiterate population. This has a direct impact on the possibility of generating income because the jobs people perform are unskilled jobs and inherently poorly paid.

90. As it was possible to establish with the data obtained, women work mainly on backyard plantation, food preparation, water collection and transport, and washing of kitchen utensils, clothes and floors), in addition to their reproductive roles (care of children and elderly and/or the ill), none of which are which are remunerated.
91. The percentage of women who have paid work and/or who work outside their own homes is significantly lower than that of men, and this trend stands across all of Guatemala's departments.

4.3 Heads of households

92. Within the project area of intervention, 14% of households have a single-parent female head; that is, there is no spouse. The department with the most female-headed households is Zacapa, with 23.8% of households led by a woman, followed by Chiquimula with 18% and Alta Verapaz with 9.3%.

4.4 Access to basic services

4.4.1 Education

93. Ensuring access to education continues to be a pending imperative to be tackled as it is a problem for a large proportion of the Guatemalan population. In accessing education, there are gender inequalities in relation to men and women completing or not their primary education. The female dropout rates limit the likelihood that women can improve their living conditions and behaviors that may even save their lives. For instance, it is important to highlight that 78% of women who died during childbirth in 2014 did not have any educational level or only had completed some grades of primary school (MSPAS, 2018). That being said, the high illiteracy rates in the project's areas of intervention may suggest that the population does not have access to qualified and well-remunerated employment, and this is a grievance disproportionately affecting women.

4.4.2 Food and nutrition security and health

94. In the departments of the proposed intervention areas of the project, there was an average of 20% of households facing severe food insecurity in 2014. The department with the highest index of households that face severe food insecurity is Baja Verapaz with 20.90% of households affected, followed by Zacapa with 20.40%. (INE, 2011). The department with the lowest index is Petén with 11.20%.

4.4.3 Access to land

95. The Agricultural and Livestock Census established that in the area of the project's intervention, the relationship that women have with farms is very limited, since only 4.79% identified themselves as producers of these farms. In said census, backyard activities, which are activities exclusively developed by women, were not subject to registration. As part of the backyard activities, one can include the raising of poultry, care of crops, textile work, raising of pigs and production of medicinal plants. The focus of the project's area is mainly dedicated to agriculture and forestry, and agricultural activities will include the production of corn and beans.

5. Gender equality strategy

96. The project's strategy for gender equality focuses on making the proposed interventions inclusive, sustainable and resilient, while promoting gender equality to provide an efficient and timely response to the problems faced by different population groups against the prevalence and incidence of extreme weather events, such as drought and prolonged heat.
97. This strategy defines the RELIVE framework for action on gender issues, and focuses mainly on supporting the most vulnerable populations to climate change, understood as those groups whose most important livelihood is subsistence agriculture. This activity is characterized by being highly dependent on the weather, mainly rain; In addition, those who practice it are mostly women, young people and indigenous peoples, who have rates of acute poverty and limited access to the main productive resources such as land and inputs for agricultural production, technical assistance and financing.
98. On the other hand, the strategy contributes to reducing social inequalities, including gender inequality, through the empowerment of women, young people and indigenous groups. The strengthening of the producer association processes and the development of new leadership in the communities, contributes to improve governance in the territories. The objective is to create the conditions that allow vulnerable populations to have access to the services and benefits of the project, ensuring their full participation in the processes of improving their technical and associative capacities and their livelihoods, and making a special effort to include women in all phases of the project.
99. The following are the integral strategic actions:
 - a. Hire the project staff following inclusive selection processes, setting a hiring quota of at least 35% women and 25% indigenous. These percentages include the recruitment of young people.
 - b. Reduce the existing gender gaps between men and women by including a minimum 35% participation of women in technical institutional strengthening, capacity building in the territory, promotion of leadership and association processes, and restoration and conservation actions of natural resources, among others, that contribute to the improvement of territorial governance.
 - c. Ensure the incorporation of gender issues and social inclusion in the capacity development processes carried out by some MAGA units that participate in the project, incorporating the gender units of these institutions in support of the awareness and development processes of capabilities.
 - d. Ensure that social control and citizenship engagement processes guarantee the representation of vulnerable groups in decision-making: at least 35% of women, 25% of indigenous people and 10% of young people.
 - e. Establish links between the service for victims of violence against women, Article 4 of the Political Constitution of Guatemala, Article 2 of the Equal Remuneration Convention of 1951, the United Nations Declaration on Indigenous Rights and Article 66 of the Political Constitution of Guatemala, CEDAW (and specifically Article 14, on rural women), the FAO Policy on Indigenous and Tribal Peoples, and Article 151 of the Labor

Code, with project actions in the territories in order to create greater capacities in the municipalities and communities intervened, that can contribute to the reduction of gender inequalities, violence against women and social exclusion.

- f. Monitor compliance with qualitative and quantitative indicators through measurement instruments that allow evaluating gender equity and social inclusion through project actions. These instruments must have information disaggregated by gender, age groups and ethnicities, and may contain other variables depending on the area.
- g. Establish mechanisms to guarantee access, control and equal ownership among men and women, young and indigenous, of tangible goods (inputs, technology) and intangibles (technical assistance, training, participation in decision-making and leadership) provided by the project in order to guarantee the improvement of the livelihoods of the populations in the intervention territories.
- h. Support local governments, as well as municipal offices for women affairs and representatives of SEPREM in the area, in the promotion of gender equality policies as a key action to correct existing inequalities in the territories.
- i. Create inter-institutional synergies with entities that promote the social and economic empowerment of women and other vulnerable groups such as the aforementioned women's municipal offices, but also civic groups that operate in each area.
- j. Ensure the recruitment of women (at a minimum of 35% of the total) and young people so as to involve them in the structure of the coordination and implementation units in the regions.
- k. Document the progress in the activities and results of gender equality and social inclusion in the intervention territories of the project through press, television or local radio, events in the municipality, etc.
- l. 12. Disseminate and communicate on good practices and lessons learned through experience exchanges between beneficiaries (preferably women or, at least, of both genders) using the methodology of direct learning "from farmer to farmer", as well as online resources and other tools.

Part II: Gender equality action plan

Activities	Indicators and objectives	Timeline	Institution in charge
<p>Impact declaration: The objective of RELIVE is to increase the resilience of the most vulnerable smallholder farmers in Guatemala and of their livelihoods to the impact of climate change. The project will focus on the most vulnerable region in Guatemala, in the Departments of Petén, Alta Verapaz, Baja Verapaz, Zacapa and Chiquimula.</p> <p>Declaration of results: RELIVE has a national strategy to promote adaptation to climate change in the long term, in the Mayan landscapes and the Dry Corridor of Guatemala. Through this strategy, the project will benefit 116,353 people who will benefit directly from the project's resilience activities (0.7% of the population and 20% of the population in the target area), and it is expected that 583,146 people will benefit indirectly (3.9% of the population). The project will increase the resilience of 37,170 vulnerable smallholder farmers (6,195 families) in the Dry Corridor of Guatemala against their prolonged exposure to drought. Of this total, approximately 10,200 people are adult women, who tend to be more vulnerable than men, and 17,500 are indigenous. Likewise, RELIVE will contribute to increasing access to safe water supply, will ensure that 19,239 families have safe water in the face of prolonged drought and heat, and will contribute to improving ecosystems and ecosystem services through the promotion of soil and water conservation, agroforestry activities and appropriate watershed management measures. The project will help community members manage ecosystem services at the watershed level as well. As part of the co-financing of the project, the national forestry incentive programs PINPEP/PROBOSQUE will provide funds to work on 13,044 hectares on climate-resistant agroforestry measures.</p>			
<p>Component 1. Implementing climate resilient agricultural practices and enhancing farmers' livelihoods . This component is designed to promote resilience of agricultural producers at farm level. It will improve the capacity of farmers to reduce drought-related production losses by using climate information and adopting climate resilient agricultural practices.</p> <p>"Mobile Childcare". This is a strategy encouraging women to take their children to training sessions and take turns in taking care of them so that the rest can pay full attention. Kids are not distressed, because their mothers are close to them, and at the same time, women can participate in the training without being constantly interrupted.</p> <p>It is a cost-effective practice, which only requires a set of toys, which can be used during the different training sessions in the same area. The modalities of this practice is agreed together with the women. The selection of the venue for the trainings considers the need for a separate area to accommodate the "Mobile Childcare".</p> <p>Training on gender issues should be added as part of the technical subjects: mixed (for men and women), for women alone (empowerment), and men alone (new masculinities). Those topics will be integrated as cross-cutting issues during the different training sessions. It is planned that during the training sessions the groups can be divided and focus for a part of the training on those specific topics.</p>			
<p>Activity 1.1.3 Disseminate climate information and response adaptation measures using locally-relevant delivery mechanisms as virtual platforms, electronic means, telecommunication and visits of the extension workers</p>	<ul style="list-style-type: none"> 19,239 farmers (of whom 7,696 are women) receive climate-adapted information 	<p>7 years</p>	<p>FAO and MAGA</p>

Activities	Indicators and objectives	Timeline	Institution in charge
	<p>Tailor the climate information and translate in local language. The agro-weather advisories will be especially for the production of staple grains (maize and beans) and cash crops (coffee and cocoa). Disseminate the climate information products via appropriate communication channels with consideration of the gender dimension.</p>		
<p>Activity 1.2.1 Fund the implementation of the adaptation practices and gender-sensitive technology packages for staple crops, coffee and cocoa in 6,195 family farms</p>	<ul style="list-style-type: none"> 8 adaptation measures adopted per system (6,195 farming families, of whom at least 40% are farms led by women) <p>Provide technical assistance for the adoption of the integrated packages of agricultural adaptation measures</p>	7 years	FAO and MAGA
<p>Activity 1.2.2 Implement at least 10 trainings to enhance the technical and organizational capacity of 6,195 farmers for climate-risk informed planning and implementation of agricultural adaptation measures at farm level</p>	<ul style="list-style-type: none"> 6,195 farmers (of whom 2,478 are women) are able to implement adaptation measures <p>Support government extension services to develop and promote tailored and tested agriculture adaptation through the Learning Centers for Rural Development (CADERs).</p>	7 years	MAGA and FAO
<p>Activity 1.2.3 Establish 28 women-led, farm-level seed nurseries for resilient crops and community forest nurseries</p>	<ul style="list-style-type: none"> 28 seed banks established and managed by women 	7 years	FAO and MAGA

Activities	Indicators and objectives	Timeline	Institution in charge
	<p>Create community-led seed banks and promote the leadership and entrepreneurial skills of women groups to manage them.</p>		
<p>Activity 1.3.1 Promote diversification of productive units in home gardens for 2,500 farm families and install 370 greenhouses micro-tunnel facilities for vegetables and poultry</p>	<ul style="list-style-type: none"> 370 greenhouses micro-tunnel facilities for vegetables are established in the targeted communities. 2,220 direct beneficiaries (880 women) with 52 households with a single-parent female head .. <hr/> <p>Collaborate with the Government of Guatemala to link its nationally funded school meals program with the farmers and help catalyze the creation of a market for communities and stimulate local production and purchase.</p>	7 years	FAO and MAGA
<p>Activity 1.3.2 Organize training for 2,500 farmers to improve technical skills for enhancing coffee and cocoa value chains and to strengthen organizational capacities of producers' associations to access markets infrastructure</p>	<ul style="list-style-type: none"> 20,136 people (of whom 8,054 are women) benefiting from 3,356 ha of agroforestry and established and other selected alternative activities. <hr/> <p>Improve the value chain of cocoa and cacao via resilient infrastructure for processing to protect from unfavorable weather conditions as prolonged drought and extreme temperatures. The project will encourage the organization of producers in local associations and facilitate the access to the market.</p>	7 years	FAO and MAGA

Activities	Indicators and objectives	Timeline	Institution in charge
<p>Component 2. Supporting efficient water management for agriculture to reduce the impact of increased water scarcity. It is designed to strengthen capacities of local actors to better manage water resources under conditions of projected increase in water scarcity. Community-led planning of water resource management at micro-basin level will secure water availability needed by smallholder farmers to achieve resilience to drought and heatwaves. "Mobile Childcare". will be available during workshops, information sessions, and training sessions for mothers attending with their daughters and sons..⁴</p>			
<p>Activity 2.2.1 Technical support to 19,239 smallholder farmers (women in particular) to access forest incentives</p>	<ul style="list-style-type: none"> 19,239 farmers (of which 7,696 are women) have received technical support to access forest incentives <hr/> <p>Facilitate the access of smallholder farmers to forest incentives from the program PINPEP/INAB. The activity will invest in technical support to facilitate smallholder farmers, especially women, to qualify for forest incentives and promote agroforestry systems</p>	7 years	FAO and INAB
<p>Activity 2.2.2 Training of 90 technicians from extension services, forest regents and INAB.</p>	<ul style="list-style-type: none"> 90 rural extension service and INAB personnel are trained (of whom 32 are women) <hr/> <p>Conduct trainings to extension technicians and INAB staff to better integrate agroforestry systems in their standards and requirements</p>	7 years	FAO, INAB and MAGA

⁴ This practice allows women who attend training to take their children with them. Women who take this option, take turns caring for the children (one woman each session). Kids are not distressed, because their mothers are close to them, and at the same time, women can participate in the training without being constantly interrupted.

The modalities of this practice is agreed together with the women. The selection of the venue for the trainings considers the need for a separate area to accommodate the "Mobile Childcare". It is a cheap practice, which only requires a box with some toys such as puzzles, balls, etc. which can be reused in many sessions.

Activities	Indicators and objectives	Timeline	Institution in charge
	and strengthen the technical capacities and effective support to smallholder farmers.		
Activity 2.3.1 Provide trainings to improve technical capacity of 2,500 local officials and members of community organizations on the implementation and maintenance of micro-basin infrastructure.	<ul style="list-style-type: none"> 12,500 water resource users are trained on efficient water use and management practices (of whom 5,000 are women) <hr/> Strengthen the technical knowledge and skills of local communities and organizations for the installation and maintenance of water collection and irrigation infrastructure. This will ensure the long-term maintenance of the infrastructure through local	7 years	FAO and MAGA
Activity 2.3.2 Install farm-level drip irrigation system for using harvested water on 250 ha of farm land.	<ul style="list-style-type: none"> 2,500 families (at least 1,000 female-headed households) have rainwater collection systems in their homes <hr/> Design and install/upgrade community-based water irrigation systems and roof-top water collection tanks by combining traditional and new technology design elements. This activity will upgrade/Install village irrigation systems and rooftop tanks and improve water access in prolonged drought conditions.	7 years	FAO and MAGA

Component 3. Improved enabling conditions for climate resilient livelihoods. This component will focus on strengthening the institutional capacities at all levels for comprehensive and climate risk-informed governance of water resources at a landscape level, by enabling inter-institutional platforms for coordination and enhancing knowledge management. These enabling factors will ensure the effective implementation of the activities under Components 1 and 2. This component is crucial to achieve replicability and upscaling of resilient agricultural practices at a landscape level and to accomplish the expected paradigm shift.

Activities	Indicators and objectives	Timeline	Institution in charge
<p>Two activities should be added: training on gender issues to civil servants from MAGA, INAB and MARN, and training on gender issues to private sector taking part in the project. In addition, relationship with the private sector, will be strengthened at the level of market strategies to improve the value chain of the different products and activities produced by the project, especially women and indigenous people</p>			
<p>3.2.1 Train and assist 90 staff members from INAB, MAGA and MARN on the management and dissemination of climate information.</p>	<p>90 civil servants from MAGA, INAB and MARN are trained on natural resource governance at the micro-watershed level (of whom 30 are women).</p> <hr/> <p>Raise awareness and strengthen the capacities of national institutions to generate and transfer knowledge regarding climate change adaptation. The activity will invest in Strengthening the National System for Information on Climate Change (SINCC).</p>	<p>7 years</p>	<p>MARN, MAGA, INAB and FAO</p>
<p>3.2.2 Train 100 experts at departmental and municipal level and agricultural extension workers and other staff from SNER on climate risk-informed agricultural adaptation strategies</p>	<p>100 coordinators trained at department level and municipal level and extension technicians trained at municipal level (at least 40 are women)</p> <hr/> <p>Conduct training for extension service agents to provide extension support during the life of the project, the project will invest in the training of in-house SNER technicians in order to develop their capacities to design and promote adaptation strategies beyond the life of the project, thereby contributing to innovation, sustainability and scaling up of impacts</p>	<p>7 years</p>	<p>MAGA, MARN, INAB and FAO</p>

<p>Reporting and monitoring of activities of the three components</p>	<p>All activities are an integral part of the long frame and the M&E plan of the project. For almost all the activities, there is an indicator (sex disaggregated) to be monitored. It is expected that most of the indicators will be monitored at a yearly basis via the Project Progress Reports and at midterm and at the end of the project.</p>	<p>Project process reports= annually</p> <p>Project Monitoring Reports midterm and at the end of the project</p>	<p>FAO</p>
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