



Strengthening Climate Resilience Series

LESSONS ON ENGAGING WITH THE PRIVATE SECTOR TO STRENGTHEN CLIMATE RESILIENCE IN GUATEMALA

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Abstract

Guatemala is among the ten countries in the world most vulnerable to climate change and most exposed to natural hazards in the region. One-third of Guatemalans depends on natural resources for their livelihoods. The natural resource base is already degraded by overexploitation, deforestation, and slash-and-burn agricultural practices, leading to low productivity. Climate change is posing additional challenges to the long-term development of Guatemala. Higher than average temperatures and more variable rainfall are hampering productivity, increasing the risk of food and water insecurity among the most vulnerable (including small businesses and indigenous groups).

Many private sector actors in Guatemala already see the increasing impacts of climate change as a major threat to their businesses. There have been a number of private and public sector initiatives, notably in export-oriented industries, focusing on climate resilience of businesses in the country. Yet, businesses, especially micro, small and medium enterprises (MSMEs), still face significant obstacles to understanding how the impacts of climate change are likely to influence their business profitability and continuity over time, and how they can manage the climate risks they face.

This case study focuses on how the national and local governments of Guatemala, together with development co-operation providers, have been helping private sector actors and other stakeholders face up to the negative impacts of climate change. The study then explores how they can further enhance such engagement by strengthening domestic institutions and public-private sector networks, policy frameworks, climate and weather data and information, and financing mechanisms.

This case study aims to identify good practices and draws lessons from the experience of the governmental entities of Guatemala and development co-operation providers in supporting micro, small and medium enterprises (MSMEs) for climate resilience. The study examines institutional arrangements, policy framework, available information and data, financial mechanisms, and the role of development co-operation providers.

Foreword

This case study is an annex to an OECD Development Co-operation working paper, *Lessons on engaging with the private sector to strengthen climate resilience in Guatemala, the Philippines and Senegal* (Casado-Asensio, Kato and Shin, 2021^[1]). Both papers informed the OECD report, *Strengthening Climate Resilience: Guidance for Governments and Development Co-operation*, developed under the Development Assistance Committee (DAC) and the Environment Policy Committee of the OECD (<https://oe.cd/climate-resilience>). This case study is based on desk research and builds upon the conclusions of a virtual OECD mission to Guatemala, 14 July to 25 August 2020, where OECD officials held 20 virtual meetings with a range of stakeholders, including governmental and non-governmental actors at national and sub-national levels, the private sector, academia, and bilateral and multilateral providers of development co-operation.

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Abbreviations and acronyms

ANACAFÉ	National Coffee Association
CIG	Guatemalan Chamber of Industry
CONADEA	National Council for Agricultural Development
CONAP	National Council of Protected Areas
COLRED	Local Coordinator for Disaster Reduction
COMRED	Municipal Coordinator for Disaster Reduction
CONRED	National Coordinator for Disaster Reduction
CORRED	Regional Coordinator for Disaster Reduction
COVID-19	Coronavirus Disease 2019
FAO	Food and Agriculture Organization
FONACON	National Conservation Fund
FONARED	National Fund for the Reduction of Disasters
FONCC	National Climate Change Fund
FONTIERRAS	National Land Fund
FUNCAGUA	Water Fund
FUNDESA	Foundation for the Development of Guatemala
GCF	Green Climate Fund
GDP	Gross Domestic Product
GERF	Global Ecosystem Resilience Facility
GIZ	Gesellschaft für Internationale Zusammenarbeit GmbH (German Corporation for International Cooperation)
GPEDC	Global Partnership for Effective Development Co-operation
INAB	National Institute of Forests

ICC	Private Institute for Climate Change Research
INDE	Guatemala Energy Institute
INE	National Energy Institute
INSIVUMEH	National Institute of Seismology, Volcanology, Meteorology and Hydrology
IUCN	International Union for the Conservancy of Nature
MAGA	Ministry of Agriculture, Livestock and Food
MARN	Ministry of Environment and Natural Resources
MINECO	Ministry of Economy
MINFIN	Ministry of Public Finance
MSME	Micro, Small and Medium Enterprises
NAP	National Adaptation Plan
NDC	UNFCCC Nationally Determined Contribution
NGO	Non-Governmental Organisation
PANCC	Plan de Acción Nacional de Cambio Climático (National Climate Change Action Plan)
PINFOR	Forest Incentive Programme
PINPEP	Forest Incentive Programme for Owners of Small Tracts of Vocation Land Forestry or Agroforestry
PROBOSQUES	Law to Promote the Establishment, Recovery, Restoration, Management, Production and Forest Protection in Guatemala
REDD+	Reducing Emissions from Deforestation and Forest Degradation
SEGEPLAN	Secretary of Planning and Programming of the Presidency
SGCCC	Guatemala's Climate Change Science System
SNICC	National System of Climate Change Information
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
USD	United States Dollar
WFP	World Food Programme
WWF	World Wildlife Fund

Executive summary

In Guatemala, MSMEs contribute to around 40% of the country's gross domestic product and 85% of employment. Many MSMEs are concentrated in the agricultural sector which has already been suffering substantial economic losses from a changing climate. Addressing climate-related vulnerability of MSMEs and enhancing their resilience is crucial for achieving sustainable development in Guatemala. Studies, however, suggest that the capacity of Guatemalan MSMEs to adapt to climate change and cope with its impacts remains limited. In most cases, MSMEs in Guatemala lack the resources, information and technical solutions needed to understand climate risks and to adapt their businesses to the negative impacts of climate change.

Within the Guatemalan government, several institutions work on policy domains relevant to climate change and disaster risk reduction, notably the Ministry of Environment (MARN) which is responsible for development and implementation of climate policies. Yet, there has been limited co-ordination across government institutions and levels of governance. The government can consider reorganising the environment- and climate-related institutional landscape, by bringing closer together the MARN and other institutions such as the National Council of Protected Areas, the National Institute of Forestry, and the National Coordinator for Disaster Reduction. These could also work more closely with government bodies in charge of MSME development, such as the Ministry of Agriculture and Livestock and the Ministry of Economy.

The government has established the National Climate Change Council, chaired at the highest level by the president of Guatemala. The Council has, however, not met since 2017, and co-ordination on climate-related policies tends to occur only on an ad-hoc basis. The Council has also not been effective in discussing or adopting concrete measures to support the resilience of MSMEs or having climate resilience issues mainstreamed across the work of sectoral ministries. The government could consider reforming the Council to ensure that climate resilience issues are on the agenda, and meetings are held more regularly, including at a working level. The Council meetings should include representatives of the private sector, civil society, academia, indigenous and local communities, especially those in a position to convey the voices of informal MSMEs.

Guatemala has adopted the Climate Framework Law which is implemented through regular National Climate Change Action Plans (PANCC). The PANCC is intended to guide MARN to plan and allocate public funding to climate-related action in the country. The PANCC has been updated in 2016 and 2018 and includes references to climate resilience in a number of sectors, as well as activities for the MSMEs. The PANCC provides a framework for public and private actors to co-operate, which is commendable. Yet, it still lacks sufficient means of implementation. An estimate shows that about 70% of planned climate mitigation and adaptation measures under the PANCC lack public funding, hence will need to be financed by the private sector or providers of development co-operation. Most of this financing gap is found in activities focusing on climate resilience.

Guatemala is developing a National Adaptation Plan (NAP) for priority sectors, such as agriculture, water and sanitation, coastal zone management and forestry. The MARN could ensure that the NAP explicitly address the challenges faced by MSMEs in these sectors. To ensure the implementation of the NAP, by-laws, legal codes and regulatory measures (e.g. the Water Code) would also need to be developed or

enhanced with an explicit focus on climate resilience at the sector level. The government could also monitor progress in the implementation of the PANCC and the NAP, and evaluate their effectiveness. Effective monitoring and evaluation processes would help Guatemalan stakeholders learn from their own experiences and help identify and disseminate good practices in enhancing MSMEs' climate resilience in the country.

Guatemala's national meteorological office, the INSIVUMEH, is in charge of producing and disseminating weather and climate data and information. Yet, the INSIVUMEH faces considerable challenges to securing sufficient human and financial resources. This constraint severely affects INSIVUMEH's ability to collect and compile real-time data, deliver such data and information to the end-users including businesses, and evaluate the relevance of information to the need of users in the public and private sectors. The INSIVUMEH also suffers from frequent leadership changes. Greater investment by the government or its development co-operation partners in the INSIVUMEH could greatly enhance the quality, quantity and accessibility of weather and climate data and information in the country. This would provide public goods that help to enable and foster MSMEs' action on climate resilience.

Certain private-sector actors generate useful data and information for their stakeholders, which fills some of the information gaps left by the INSIVUMEH and other public authorities. For example, the Sugar Industry Association has created the Climate Change Institute which has deployed its own meteorological stations to collect weather and climate data for the sugar value chain, including small farmers. Enhancing further collaboration between the INSIVUMEH and such private-sector initiatives could promote wider and deeper engagement with end-users in the public and private sectors to ensure the relevance of the data and information to the users' decision-making processes.

Some public institutions have developed funding mechanisms to support climate resilience, including the National Climate Change Fund (FONCC) and the National Land Fund (FONTIERRAS). The resources allocated are however relatively small compared to the investment needs under the PANCC, as is the capacity of the funds' staff to implement measures, especially at the regional level. The Ministry of Finance and the MARN have devised the green fiscal policy, which could help raise funds for climate resilience, as it promotes the adoption of technologies that could help the private sector to build resilience.

Some private-sector actors who are particularly exposed to climate-related hazards but have financial capacity are increasingly investing in resilience to climate- and weather-related risks in the country. Guatemalan chambers of commerce, for example, have been engaging in climate resilience measures and supporting MSMEs with information, technology access and capacity building. Export-oriented sectors (e.g. coffee, sugar and cocoa) are also supporting MSMEs within the respective sectors, both downstream and upstream of their supply chain to make them more resilient in the face of climate change. MSMEs that benefit from this support are usually well organised and operating in the formal sector. Persistent challenges impede the informal sector from accessing such support. Commercial banks are also providing loans tailored to climate action (e.g. Agromercantil, Banrural, Banco Industrial), albeit mainly focused on climate change mitigation. Nonetheless, such loan programmes can help raise awareness on climate change issues more broadly. The insurance sector is also gradually expanding Guatemala, notably among farmers.

Greater collaboration among the government, the private sector and development co-operation providers will be the basis for enhancing efforts to strengthen MSMEs' climate resilience in Guatemala. Development co-operation providers could provide technical and financial support to the government in mainstreaming climate resilience considerations into national priorities, and improve co-ordination among the providers. Their financial support for activities highlighted in the PANCC and/or the NAP would also be critical for meeting the objectives of these plans. Development co-operation providers could also promote coherence across their own interventions. Some of the work analysed in this study showed misalignment in the providers' portfolios to climate resilience issues (e.g. promoting crop types that may not be suited to the climatic condition of Guatemala).

1 How to enhance engagement with the private sector to build climate resilience in Guatemala

Guatemala is among the ten countries in the world most vulnerable to climate change and among the most exposed to natural hazards in the region (WFP, 2020^[2]). About one-third of Guatemalans depend on natural resources for their livelihoods, yet the natural resource base is already degraded by overexploitation, deforestation, and slash-and-burn agricultural practices (USAID, 2017^[3]). Climate change is further impacting upon the natural resource base of the country, threatening the long-term development of Guatemala, worsening the condition and livelihoods of the poor and vulnerable, notably indigenous communities.

MSMEs contribute to at least 40% of Guatemala's GDP and 85% of employment (World Bank, 2014^[4]). The majority of MSMEs in the country operate in the informal sector and in labour-intensive sectors, such as agriculture. Although the country has large monocultures and transformation industries (e.g. palm, sugar, coffee), most economic units are small and informal [about 70% according to (MINECO, 2015^[5])]. According to Guatemala's second national communication to the UNFCCC, those small farmers are the most impacted by climate change, losing on average 55% of their production during droughts and floods (MARN, 2016^[6]).

The significant contribution of MSMEs to the Guatemalan economy, their concentration in the agricultural sector, as well as their vulnerability, calls for enhancing their climate resilience if the country is to ensure a sustainable development pathway. Yet, to date, the capacity of Guatemalan MSMEs to adapt to climate change and cope with damages by disasters remains low. Small businesses often perceive climate change issues as a distant, theoretical urban concept, which is difficult to implement in rural areas or at MSME level, even when there is interest or a need to do so. MSMEs also lack the necessary tools, resources, capacity and technology to face climate change and variability, as well as to promote good adaptation practices that favour the adjustment of productive systems. When climate-related action took place, it depended on the political forces in government and mainly focused on climate change mitigation.

This case study examines how the Guatemalan national government and development co-operation providers collaborate with the private sector to strengthen the resilience of MSMEs to manage negative impacts of climate change and variability. This study considers the institutional arrangements, policy frameworks, data and information, as well as financial mechanisms that support MSMEs in the face of short- and long-term climate risks in Guatemala.

Institutional arrangements

The institutional setup to govern climate change adaptation in Guatemala lacks co-ordination across sectors and levels, and does not extend to the institutions working with the private sector. The Ministry of Environment (MARN), responsible for development and implementation of climate policies, lacks the necessary resources and capacity to co-ordinate efforts by other ministries and governmental agencies, to support them or to engage with the private sector, especially MSMEs, in promoting climate resilience. While a number of climate-related institutions exist in Guatemala, these operate autonomously from the MARN.

While a National Climate Change Council exists, chaired at the highest level by the President of the country, the Council has not met since 2017. The Council is heavily dependent on the views of the political party in power and, despite being open to the private sector, has failed to come up with effective measures that could help MSMEs to build their resilience or to have climate resilience issues mainstreamed across the work of major ministries. As a result, and despite having a Council, institutional co-ordination for climate-related policies occurs on an ad-hoc basis, also hampered by Guatemala's rigid bureaucratic arrangements. As in other countries, Guatemala also suffers from high levels of staff turnover at the senior level, thus limiting the continuity of many policies and programmes, and hindering the accumulation of climate-related issues in ministries. Co-ordination, when it exists, is often triggered by donor-funded projects on climate resilience.

Co-ordination across levels of government is also limited, with few ministries having enough capacity at the sub-national level to deliver on climate resilience issues or to support MSMEs' development more generally. Municipalities operate as conveyors of information from the central government, rather than as supporters of MSMEs. The government of Guatemala, with support of providers of development co-operation, could:

- Consider reorganising the environment and climate-related institutional landscape, by bringing closer together the MARN and the institutions working on protected areas (CONAP), on forestry (INAB) and the meteorological agency (INSIVUMEH), as well as the emergency response network (CONRED). Doing so could help the government ensure more coherent and co-ordinated action on climate resilience.
- Reform the Council to ensure that it can meet more regularly, either at a more technical-level or by ensuring that other senior officials than the President, can call a meeting. Council meetings ought to include the private sector, especially the voices of informal MSMEs, and ensure that climate resilience issues are on the agenda.
- Build awareness among politicians and the society at large on the need to protect and insulate climate resilience issues from party politics, to ensure the continuity and, ideally, incremental improvement of action over time.
- While capacity and resources are at a shortage in Guatemala overall, some need to be committed at the sub-national level – the level of government to which MSMEs turn to when they need support and look for solutions.

Policy frameworks

Development of climate policies in Guatemala has historically focused more on mitigation and its policy framework started reflecting climate resilience issues recently. The *Plan Nacional de Desarrollo K'atun: Nuestra Guatemala 2032 y su Política*, defines the policy framework for the country until 2032. The *K'atun* defined the need to pass a climate change law for the country, which took shape with the Climate Framework Law (MARN, 2013^[7]). The Law is implemented through regular National Climate Change

Action Plans (PANCC), which ought to help the MARN plan and orient public investments. The PANCC has been updated in 2016 and 2018 and includes climate resilience in a number of sectors, as well as activities for the MSMEs.

The PANCC aims to connect climate action with other legislative frameworks (e.g. National Strategy for Biological Diversity, the Development Strategy for Low Emissions from Deforestation). Yet, it is difficult to track progress on the coherence across policies due to limited co-ordination mechanisms and financing. The PANCC provides a framework for public and private actors to operate, but provides limited means for implementation (e.g. specific public financial resources and capacity). The PANCC estimates a 71% financing gap for it to be implemented and depends on the resources of the private sector and providers of development co-operation for its success (with most of this gap affecting climate resilience activities).

Guatemala is developing a National Adaptation Plan for identified sectors, and the by-laws and codes that could support the execution of the NAP with policy measures on climate resilience at the sector level are still missing. For example, the country has no Water Code, and needs updates to the codes on infrastructure or land use. Development co-operation providers often spearhead climate resilience to the government as an important policy agenda. Against this background, the government of Guatemala, with support of providers of development co-operation, could:

- Ensure that the capacity and resources devoted to the implementation of existing climate resilience legislation, such as the activities from providers in this area, is beefed up and sustained over time. This would avoid that most action is concentrated at the normative stage (e.g. development of laws and regulations, strategies and plans), with limited implementation or enforcement.
- Ensure that progress in the implementation of climate-related policies under the PANCC can be monitored and then be evaluated, which would help Guatemalan stakeholders learn from its own experiences, help identify and disseminate good practices, and promote a communication plan on what is working well in the country.
- In addition, additional, specific climate resilience regulations are needed to incentivise MSMEs to change their behaviours. Other regulatory frameworks that can support climate resilience, such as the Water Code, also need to be developed, and better connected to ensure synergies and be clear as to what the priorities are, given limited resources and capacities.

Climate and weather data and information

The national meteorological institute, the INSIVUMEH, lacks sufficient capacity and resources to generate and deliver climate and weather data and information to adequately help MSMEs foster their climate resilience (e.g. to compile real-time data, carry out evaluations of use and relevance of data compiled). Housed under the Ministry of Communications, the INSIVUMEH suffers from frequent leadership changes, limited climate expertise, and a restricted mandate, capacity and budgetary shortages. Several interviewees noted that the INSIVUMEH could strengthen the institutional linkages with the MARN, or could potentially be housed under the MARN with a revamped, with a revamped, more ambitious mandate and resources.

Guatemala collects a host of climate-related and socio-economic information, which could help improve the climate resilience of MSMEs, directly and indirectly. While this information is often spread across different authorities, it may not always be comparable and is difficult for users to access. This situation prevents the government, development co-operation providers and the private sector itself from understanding the country's climate vulnerability and exposure, as well as areas where to focus limited resources and capacities. Some stakeholders interviewed noted that the current set up, in fact, creates confusions among the users of public data.

The private sector also generates useful data and information and fills some of the gaps left by the INSIVUMEH and other public authorities. For example, the Sugar Industry Association has created the Climate Change Institute that has its own meteorological stations, gathering climate-relevant data for farmers in this sector. To continue improving climate data and information for the benefit of MSMEs, the government of Guatemala, with support of providers of development co-operation, could:

- Ensure more capacity and resources are dedicated to the INSIVUMEH, both through the regular budget and through collaboration with providers of development co-operation. Greater investment in the INSIVUMEH could not only promote data collection and information generation, but also wider and deeper engagement with the end-users in the public and private sectors to ensure that the data and information to the users' decision-making processes.
- Promote the reform suggested by domestic stakeholders by which the INSIVUMEH is more closely associated to the MARN on climate-related issues. Expanding the mandate of the INSIVUMEH, aligned with the vision of the MARN, could help in this endeavour.
- SEGEPLAN, the country's central co-ordination unit, and the MARN could develop a platform that would host weather and climate information, produced by INSIVUMEH, research institutes, academia and the private sector, and enable the access to such information for policy- and decision-making, including to build the climate resilience of MSMEs.

Finance

The allocation of public funding to institutions and policies that support climate resilience is limited, which is in line with the overall public sector capacity and financial constraints in Guatemala. The country has a small public sector [ranking 112th out of 132 countries; (World Bank, 2020^[8])], as well as low tax and public investment levels. As such, some public institutions have developed programmes and plans to promote climate resilience, for instance the public climate change fund (FONCC) and land fund (FONTIERRAS). The resources allocated are however small, as is the capacity to implement measures, notably at the regional level. Implementing the green fiscal policy devised by the MINFIN and MARN could help raise funds for climate resilience, as it promotes the adoption of technologies that could help with building resilience. Notwithstanding, this context is currently exacerbated by the COVID-19 crisis, which has led to delays in the disbursement of, inter alia, climate-related funds that could help build the resilience of MSMEs.

Guatemala thus mainly relies on development finance and private sector investments to push for MSME climate resilience – which is in line with the expectation from the PANCC (that estimated 71% of the climate change needs in the country needed to come from beyond public resources). The private sector is increasingly building its resilience against climate- and weather- related hazards. Chambers of commerce, for example, have been engaging in climate resilience measures and supporting MSMEs with information, technology access and capacity building, usually those that are well organised and operate in the formal sector. Export-oriented sectors (e.g. coffee, sugar, cocoa) are ensuring that MSMEs, both downstream and upstream of their supply chain, are resilient to climate change induced hazards. Commercial banks are also providing green loans (e.g. Agromercantil, Banrural, Banco Industrial), albeit mainly focused on climate change mitigation– but nonetheless helping raise awareness on climate change issues more broadly. The insurance sector, in turn, is gradually expanding in the country, notably among farmers in sectors that are organised.

Providers of development co-operation have been implementing several projects to strengthen the resilience of MSMEs, notably in vulnerable sectors such as agriculture or fisheries, and in remote areas. However, the support provided by development co-operation has so far tended to focus on the formulation of policies, which is important in itself but remains limited when it comes to actual implementation of the policy measures. To further mobilise finance for the implementation of measures to support the climate resilience of MSMEs, the government of Guatemala, with support from providers of development co-operation, could:

- Ensure appropriate public funds are devoted to climate change issues, notably climate resilience, commensurate with the high levels of vulnerability of the country.
- Implement the existing green fiscal policy (e.g. with green taxes), promoting public-private partnerships, or co-ordinating investments with the private sector and providers of development co-operation, as well as a better appropriation of resources for the FONCC and FONTIERRAS.
- Private sector activities for the supply chain risk management are well-organised, and increasingly so, in export-oriented sectors. These are helping raise awareness on climate risks among MSMEs, e.g. on the need to contract insurance or on methods and solutions to increase competitiveness that invest in risk reduction. Such experiences could be shared across MSMEs in other sectors – e.g. through a dialogue that could also help leverage funding and blend public, private and development resources.

The role of development co-operation providers

Providers of development co-operation have been investing in climate resilience for a long time in Guatemala. Over the period between 2012 and 2018, bilateral and multilateral development co-operation providers committed USD 46.5 million in Official Development Assistance on average per year to climate change adaptation in Guatemala, according to OECD DAC statistics (OECD DAC, 2020^[9]). Development co-operation providers have been driving most action on climate resilience in Guatemala in all areas reviewed in this paper, namely: supporting the development of the institutional setting, policy frameworks, the country's financial system, as well as weather and climate data and information. Notwithstanding this comprehensive support, the stakeholder interviews revealed that a greater collaboration between providers, MSMEs and the government in Guatemala could be achieved. Below shows possible approaches that development co-operation providers could take to further support MSMEs in strengthening their climate resilience:

- Development co-operation providers could promote coherence across their interventions, as some of the work analysed in this paper showed misalignment in provider portfolios with climate resilience issues (e.g. providers promoting agricultural outputs that may not be endemic to Guatemala).
- Development co-operation providers could ensure a greater impact of their interventions, notably by supporting the government with the mainstreaming of climate resilience considerations into the country's national priorities, improved co-ordination among providers, and funding activities beyond technical assistance and capacity building (e.g. for actions that are highlighted in the PANCC or funding concrete activities in the sectors highlighted in the NAP).
- Government actors need to find ways to operate more effectively with the provider community, ensuring that the government commits to implementing actions after projects are finalised, helping build bridges with the local level and with MSMEs, as well as increasing the absorptive capacity of development finance.

2 Climate risks for the private sector in Guatemala

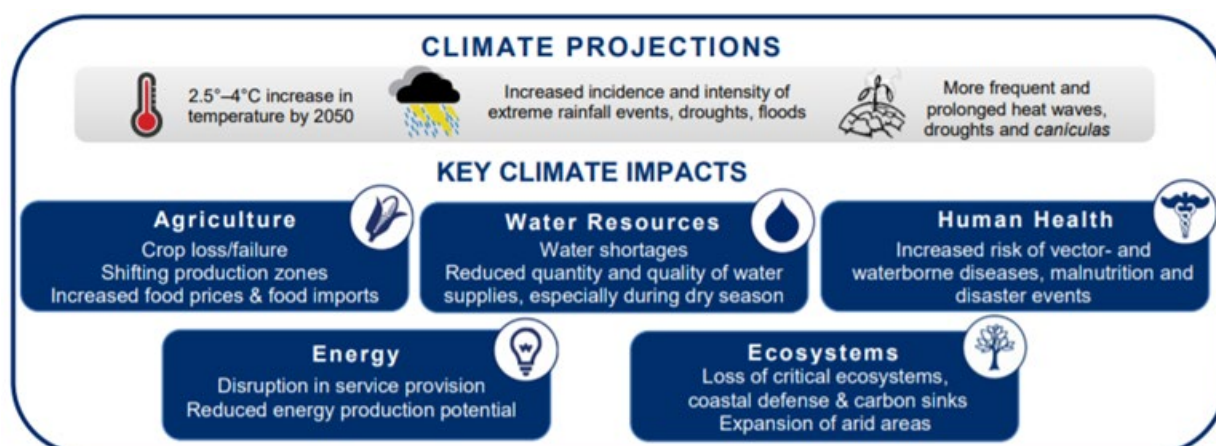
Context and objectives of the study

Guatemala is a lower middle-income country, with some of the most pressing development challenges of Central America. It has one of the largest indigenous populations in the region (over 40%), high rates of poverty (59%, notably among indigenous communities), relatively high rates of child chronic malnutrition (46% which can go as high as 80% in certain municipalities), and alarming rates of insecurity and violence. Public finance management is a major issue in a country with the lowest tax revenue to GDP ratio in Latin America (10.4%). Despite relatively strong economic performance in recent years (USAID, 2017^[3]), the COVID-19 crisis, coupled with two back-to-back hurricanes in 2020, have brought a deep recession to the country (International New York Times, 2020^[10]).

Guatemala is among the ten countries in the world most vulnerable to climate change and most exposed to natural hazards in the region (WFP, 2020^[2]). The nexus between the natural environment and poverty levels is particularly important in the country, as one-third of Guatemalans depend on natural resources for their livelihoods, and as the natural resource base is already degraded by overexploitation, deforestation, and slash-and-burn agricultural practices, leading to low productivity (USAID, 2017^[3]).

Climate change is posing additional challenges to the long-term development of Guatemala. Higher than average temperatures and more variable rainfall are hampering productivity, increasing the risk of food and water insecurity among the most vulnerable, particularly indigenous groups. The projected changes in climate include general temperature increases (between 2.5 and 4 degrees Celsius), decreases in rainfall, the expansion of semi-arid climate regions, further rainfall variability and rising sea levels. For example, in areas higher than 1 800 meters above sea level, a drastic change in ecosystems is expected, with increases in invasive species, and higher frequencies of fires, pests, and diseases – affecting highland communities that depend on farming. Droughts linked to the *El Niño* phenomenon (which already led to one of the worst droughts in 35 years in the country in 2015-16), notably in the southeast region (known as the dry corridor), are likely to be common. Droughts will lead to crop failure and food insecurity, with decreases of up to 66% in bean and 34% in rice production in the eastern dry corridor (FAO, 2020^[11]). Higher temperatures will restrict the area viable for coffee production (a major export), pushing production to higher altitudes, potentially leading to land conflicts, deforestation, erosion and loss of biodiversity. Climate change will also increase disaster risks in rapidly urbanising areas with highly unstable physical infrastructure, e.g. in the highlands (vulnerable to landslides) and Pacific coastal regions (due to flooding and storm surge).

Figure 2.1. Main climate projections and impacts in Guatemala



Source: USAID (2017^[3]), Climate Change Risk Profile: Guatemala, www.climatelinks.org/resources/climate-risk-profile-guatemala.

This case study examines how the government of Guatemala and its development co-operation partners can further engage with the private sector, notably micro, small and medium enterprises (see Box 2.1), in strengthening its climate resilience in the country. In Guatemala, MSMEs' are defined by the, have between 1 and 200 employees (Governmental Agreement 211-2015, (MINECO, 2015^[12])). MSMEs contribute to at least 40% of Guatemala's GDP and 85% of employment (MINECO, 2015^[5]). The majority of MSMEs in the country operate in the informal sector and in labour-intensive sectors, such as agriculture. Despite having large monocultures and transformation industries (e.g. palm, sugar, coffee), most economic units are small and informal, which accounts for about 70% according to the *Sistema Nacional de Información MIPYME de Guatemala* (Guatemala National Information System on MSMEs) (MINECO, 2015^[5]). These businesses are operating out of necessity (e.g. with small farm holders planting corn and beans for subsistence and practicing slash-and-burn agriculture). Despite having limited access to traditional banks, tending to co-operative based micro-finance with high interest rates, the informal sector creates jobs and indirectly contributes to the country's tax revenue, according to a stakeholder interview.

Box 2.1. Key concepts that underpin the study

Climate resilience of MSMEs refers to MSMEs' ability to anticipate, reduce, accommodate, or recover from the effects of a hazardous event or trend caused by climate change in a timely and efficient manner, based on (IPCC, 2014^[13]). The scope of the study also covers options for dealing with residual risks which remain even after efforts for climate change adaptation change are made. Such options to foster climate resilience through managing residual risks include, among others, climate and disaster risk financial instruments and mechanisms as well as social safety net schemes (GIZ, 2017^[14]).

The study uses the term **private sector engagement** to mean activities that involve the active participation of private enterprises for development outcomes. This includes private sector collaboration and partnerships, as well as private sector development activities in partner countries where private enterprises are actively involved beneficiaries. **Private sector collaboration and partnerships** refer to the direct collaboration between governments, development co-operation providers and the private sector to promote the twin goals of achieving a business' given objective while meeting development outcomes. **Private sector development** are the activities carried out by governments and development co-operation providers with the objective of promoting the development of the private sector in developing countries. This includes activities to create an enabling environment for private sector growth, such as promoting a conducive policy environment, addressing market imperfections (e.g. through value chain development) and direct firm-level interventions (e.g. capacity building, access to finance and market) (Chrishna Morgado and Lasfargues, 2017^[15]).

Yet, agricultural MSMEs lack the necessary tools and technology to face climate change and variability, as well as to promote good adaptation practices that increase productivity, including of agricultural systems. Over 1998-2014, accumulated losses and damages due to hurricanes amount to more than USD 3.5 billion mainly in infrastructure, agriculture and health (USAID, 2017^[31]). Between 1998 and 2010, climatic variability caused economic losses of USD 1.85 billion in the agricultural sector. Impacts related to climate variability in Guatemala incur losses of 1.3% to 3.7% in the country's Gross Domestic Product (GDP) and it is estimated that between 40% and 70% of the impact happens in the agricultural sector (MARN, 2016^[6]). According to Guatemala's second communication to the UNFCCC, farmers are the group most impacted by climate change, losing on average 55% of their production during droughts and floods (MARN, 2016^[6]). Small farmers' vulnerability to drier conditions is high (particularly to drought) mainly because they depend on rain-fed agriculture. In fact 71% of Guatemala's agricultural production is rain-fed and takes place on steep mountainous terrains, making it highly vulnerable to drought, excess rainfall and soil erosion (FAO, 2020^[11]). Floods also affect farmers by disrupting communications, market access and value chains, while changes in temperature promote e.g. the spread of bacteria in certain crops (e.g. *la roya* affected 50% of coffee bushes in 2015) and in lakes (e.g. Atitlán Lake in 2009, which led to restrictions for fisherfolk).

Despite the growing impact of climate change, and a general awareness of the increasing impacts of climate change among stakeholders interviewed, building climate resilience is difficult for most actors of the public or private sector. The Guatemalan Second National Communication on Climate Change indicates that small farmers' response capacity is low: only 16% of farmers have taken specific steps to adapt in spite of average losses of 55% of their production of staple crops during drought periods (MARN, 2016^[6]). Studies have also shown that unless farmers adapt their growing practices, agricultural productivity is likely to decrease in most Guatemalan crops, because of exposure to projected climate conditions (FAO, 2020^[11]). In fact, stakeholders interviewed noted that businesses often see climate change issues as a distant, theoretical concept, which is difficult to implement in

rural areas or at MSME level, even when there is interest in doing so. For example, in the Atitlán region, a study in 2019 (AMSCLAE, 2019_[16]) showed that only 11% of MSMEs have environmental certificates (including climate resilience aspects), while 87% would be open to have such certificates – but are unaware or unable to obtain those. This is partly because climate change issues depend on the political party in government, and the planning and implementation of climate-related policies vary along political positions, rather than on scientific evidence, according to stakeholders interviewed. Moreover, when the Guatemalan government promotes climate action, most of this has focused on climate change mitigation, and not so much climate resilience.

The COVID-19 crisis has deeply affected the country: severe lockdowns have also brought the economy to a halt and, like in many other countries, the concept of ‘resilience’ emerged, notably due to the severe value chain disruptions caused by the pandemic. Using these experiences, stakeholders expect that they could now push forward the concept of ‘climate resilience’ as part of the broader notion of resilience. To date, most MSMEs do not seem to have understood these concepts well, which could be enhanced through awareness raising, capacity building and demonstrating innovative solutions and options. Guatemala has now an opportunity to rethink its development model to place resilience at the core of the country’s recovery approaches.

This paper analyses Guatemala’s institutional arrangements, policy framework, information and data, financial mechanisms, and the role of development co-operation providers in fostering climate resilience for MSMEs, notably in the agriculture sector.

3 Institutional arrangements for facilitating private sector engagement in Guatemala

Guatemala's institutions do not adequately consider the climate resilience of MSMEs in their mandates or activities

Generally, stakeholders interviewed agreed that the private sector, civil society and public sector need to better co-ordinate their climate change actions. Many issues have hindered such co-ordination, including Guatemala's small public sector (World Bank, 2020^[8]), with relatively rigid arrangements due to the scope of institutional mandates, and few mechanisms to co-ordinate climate-related issues across the public sector and levels of governance, as well as limited avenues for dialogue with civil society and private sector.

The Ministry of Environment and Natural Resources (MARN) leads on climate change and environmental policies in Guatemala. In principle, all ministries need to work with the MARN on climate-related issues. However, the MARN has a relatively small budget and a growing number of responsibilities (e.g. green growth, climate change, sustainable environmental management). This hampers the MARN's executive capacity and the sustainability of its engagement over time, making it highly dependent on what other ministries implement regarding the impacts of climate change (see immediately below). The MARN has not worked much with MSMEs on climate-related issues, and if so mainly through projects funded by providers of development co-operation (e.g. the Inter-American Development Bank, Green Climate Fund or the German KfW Development Bank had projects to promote MSMEs' cleaner production, energy efficiency, and waste and water management). Besides, it had difficulties to engage with other ministries participating in these projects because, oftentimes, the mandates and functions of other government institutions working on climate or environmental policies are not necessarily aligned with those of the MARN.

On climate change policies, while the MARN leads on this policy domain, it has no human and financial capacity to influence or advise all relevant actors, including those that are thematically related to its mandate, namely:

- National Institute of Seismology, Volcanology, Meteorology and Hydrology of Guatemala (INSIVUMEH), under the Ministry of Communications, Infrastructure and Housing.
- National Council of Protected Areas (CONAP), which is mandated to establish, co-ordinate and manage the Guatemalan System of Protected Areas (SIGAP) and the conservation of the country's biological diversity in 339 protected areas.
- National Institute of Forestry (INAB, under the Ministry of Agriculture).
- National Coordinator for Disaster Reduction (CONRED), which works in risk management and disaster prevention, as well as co-ordinating the disaster response of public and private institutions.

For example, the MARN, the CONAP and the INAB operate in parallel on forestry-related issues – with different understandings of how to categorise fruit-bearing trees in the national incentives system for trees and the types of activities that can be performed in protected areas. The CONAP or MARN do not include fruit-bearing trees in the current incentive system, while the INAB is favourable to the inclusion. In another example of the lack of co-operation between the MARN, the CONAP and the INAB deals with forest planning. The MARN and CONAP are not co-ordinating with the INAB on forest planning issues. As a result, when providers of development co-operation implement forestry-related projects, they end up supporting one of these institutions and may not align with the priorities and vision of the MARN. In light of this, several stakeholders interviewed called for a consolidation of the institutional arrangements in Guatemala, e.g. through a Presidential Decree. Such a consolidation could bring the INSIVUMEH, the INAB, the CONAP and the MARN closer together. Some stakeholders also noted that such a restructuring could also touch upon the CONRED. This could lead to one agency or co-ordination body responsible for developing, implementing and monitoring climate- and environment-related policies, including climate resilience. This restructuring could avoid duplications, improve communication and co-ordination, and could help strengthen the position of the MARN in the government, concentrating and making existing efforts more visible domestically and internationally, as well as making a more effective use of limited resources and capacities in the country.

Beyond the MARN, all other ministries have climate change units, which is a requirement introduced by the country's Climate Change Law (2013). However, the uptake of climate change issues across ministries varies greatly. As in other countries, each ministry decides how to structure internal co-ordination on these issues, which makes the issue of climate change highly dependent on election cycles leading to the rotation of senior- and high-level civil servants in the ministries. Often, planning and sector ministries do not have the right competences or even roadmaps on climate change, hence lacking a vision on how to strengthen the resilience of MSMEs. Stakeholders interviewed agreed that the Planning Ministry (SEGEPLAN) could reinforce its central co-ordination function as the country's overarching national planning authority, ensuring that any domestic activity targeting climate change systematically includes climate change considerations and the MARN. Even though the MARN has the lead on climate change, SEGEPLAN is the institution that operationalises the government's policies – and is better resourced than many ministries, including the MARN. Until 2014, the SEGEPLAN analysed the environmental and risk management in public investments, and since then the Ministry also analyses climate change issues, which was reflected in the 2016 budget. However, SEGEPLAN would need further collaboration with the MARN to ensure climate resilience issues are analysed and mainstreamed across the board, and could build upon its collaboration with academia, which contributes to improving the current data situation for socio-economic-ecologic assessments of climate impacts and conclusions regarding resilience building measures. Moreover, the public sector develops plans (with the help of donor agencies), but struggles to implement them adequately due to lack of resources. An example of how donors can provide support is GIZ's *Adáptate* (literally meaning “Adapt yourself.”) project, which worked closely with the SEGEPLAN to develop the digital tool PLANIMUCC to integrate climate-relevant data into the municipal planning process and as a basis for a parametric climate insurance (further details below).

Among the ministries that need to ensure a close collaboration with the MARN is the Ministry of Agriculture and Livestock (MAGA). The MAGA is better resourced than the MARN and is seen as an ally of the MARN on climate-related issues. Stakeholders noted that both Ministries collaborate and learn from one another. The MAGA co-ordinates a National Council for Agricultural Development (CONADEA), created in 1996, which gathers actors from different agricultural value chains (*agro-cadenas*) to consult, co-ordinate and exchange information on cross-cutting themes that benefits all sectors, such as tax, climate change and water (MAGA, 2020^[17]). Beyond this, the Council suggests initiatives to implement and modernise public agricultural policies and to support food security, encourages and promotes agriculture and rural contexts in Guatemalan economy. The Council started working on climate change in 2010 but does not focus on climate resilience, and instead delegates to the agro-chains the development of tailored strategies, which may focus on climate change, sustainability and the environment, as well as the conduct of environmental

impact assessments. Besides, the MAGA struggles to influence how the value chains are organised, including the spread of innovation, market access, and technologies used. Generally, the MAGA can use the CONADEA to promote the setting of norms, devises tools and instruments (e.g. credit, marketing, research, technical assistance), but these are not always implemented due to limited capacity and resources. Most actions are led by larger private companies that target export crops (e.g. sugar, cocoa, or coffee). Depending on its leadership, finally, the MAGA may be more or less inclined to work with smallholder farmers and MSMEs.

In addition to the MAGA, the Ministry of Economy (MINECO) can also influence how MSMEs build their climate resilience. The MINECO is responsible for supporting MSMEs and entrepreneurs in Guatemala. To do so, MINECO supports the creation of value chains, access to co-operatives, and promotes MSME commercial operations. Moreover, it helps with the access to finance and new markets, as well as strengthening entrepreneurship skills and competitiveness. Through the entrepreneurship network, created with the 2015 National Policy for Entrepreneurship, MINECO gathers actors in the entrepreneurship ecosystem, including development co-operation and attempts to identify gaps. MINECO also supports traditional banks to design and create products suited to MSMEs. Such networks can be important to set momentum for MSMEs to take climate action, as many think that only larger companies can take active climate action, according to stakeholder interviews. MINECO's mandate is broad, yet its resources and capacities are limited. The Ministry only conducts a few activities on climate change through the Guatemalan Centre for Cleaner Production, which is a foundation supported by the Guatemalan private sector, government and providers of development co-operation that works to improve the environmental performance and business competitiveness of formal MSMEs (CGPL, 2020_[18]). For example, it focuses on preventing pollution and increasing resource efficiency but neither the Centre nor MINECO have dedicated activities to foster climate resilience – which ought to become a crosscutting activity of the ministry in 2020. In doing so, the Centre would remain an important mechanism to reach the private sector and offer technical support on resilience.

At the intersection of all these institutions is the FONTIERRAS (National Land Fund), a body mandated to promote rural development through land redistribution, promoting credit for better access to land and sustainable community development. FONTIERRAS works with the INAB on forest conservation and reforestation projects but does not co-ordinate yet with the MAGA, MINECO or MARN to ensure activities build resilience in the groups targeted or to follow upon the newly established co-operatives.

Cross-sector collaboration on climate change issues is still limited

The stakeholders interviewed noted that inter-ministerial relations on climate change are positive and that ministries tend to work well together, especially when funding allows for it (although, as will be seen later, the impact of this co-ordination may not always be high). For example, the MARN defines agro-climatic areas and impacts that the MAGA follows to minimise agricultural impacts. However, institutionalised collaboration on climate change has been difficult to sustain over time. Indeed, a National Climate Change Council exists since 2013 with the Climate Change Law, and includes all ministries, subnational authorities, private sector, civil society and academia. Also, the Council has enabled Guatemalan representatives from the private sector to participate in the Conferences of the Parties to UNFCCC. This has helped the private sector representatives build awareness on climate-related issues. The Council is chaired by the President of the Republic – which has the potential to start a chain of events necessary to effect real change across sectors. Despite these successes and potentials, the Council has not gathered since 2017, as the President is the only one who can call for a meeting. Stakeholders interviewed valued the high visibility and leadership ensured by having the President chair the Council (compared to a minister), but rules could be modified to ensure that other stakeholders can also call for a meeting if they jointly agree to do so.

Under the Council, there are a number of technical sub-committees. These invite the private sector, through the chamber of industries, but the participation of larger companies has been difficult to sustain over time and representatives of MSMEs do not engage. One such committee is Guatemala's Climate Change Science System (SGCCC), which provides technical and scientific advisory to the Council. The SGCCC gathers the country's main universities, the MARN, the INSIVUMEH, and the Private Institute for Climate Change Research (ICC), among other stakeholders (SGCCC, 2020^[19]). The SGCCC has a climate science group (analysing historical climate data and projecting future models), a mitigation sub-group (focused on reduction of emissions) and an adaptation and vulnerability sub-group (addressing adaptation issues in water, terrestrial and coastal ecosystems, food production systems, human settlements and infrastructure, renewable energy and human health) (ICC, 2020^[20]).

Additional inter-ministerial co-ordination groups exist on an ad-hoc basis, notably to implement projects funded by providers of development co-operation. For example, USAID supported the MARN over 2015-18 to establish a co-ordination mechanism to strengthen the Ministry's institutional capacity to plan and promote Guatemala's low greenhouse gas emissions development strategy (MARN, 2015^[21]). The reason behind such ad hoc groups has to do with Guatemala's bureaucracy, which is complex and requires separate memoranda of understanding for any inter-ministerial activity to go ahead. These memoranda require clear definitions of the activities of the civil servants engaged (as the national audit office could fine civil servants working for other ministries). Such rigidity thwarts inter-ministerial collaboration on climate change, including with the private sector, even when this is in the mandate of the institution. As a result, the MARN is not systematically included in climate-related projects.

Notwithstanding, and as alluded earlier, the MARN, MAGA and MINECO collaborate, especially around donor-funded projects (e.g. with KfW on providing loans and insurance to farmers), as well as to develop the country's Nationally Determined Contribution (NDC) or in the National Adaptation Plan process. The MARN, MAGA, INAB and CONAP endorsed the National Forest Landscape Restoration Strategy, Guatemala's primary forest landscape restoration public policy instrument, through an Inter-Institutional Coordination Group, a high-level political body comprising these institutions. The MARN and the Ministry of Finance also collaborated to develop the green fiscal strategy of Guatemala.

The opposite is also true and stakeholders alluded to instances where more collaboration would have been useful. For example, the MARN cannot reach out to MSMEs directly and would need the MAGA and MINECO to do so. Stakeholders noted that the three could develop a national strategy or vision to support MSMEs in building their resilience, which ought to include tools and concrete actions to support MSMEs – an idea that the MARN supports. Stakeholders, moreover, noted that co-ordination across ministries often generates regulations and norms but that do not necessarily lead to changes on the ground, and that are difficult to monitor and/or use as a basis for co-financing. Indeed, co-ordination is not used to attract or leverage funding from development partners or the private sector.

Integration of climate resilience issues across levels of government suffers from a poorly-developed institutional system

Across levels of government, governance arrangements are not conducive to fostering climate resilience either. Municipalities and departments are open to collaborate with the central government, and vice-versa, but this collaboration mainly happens ad hoc. Sub-national authorities could be engaged in national-level activities (e.g. to convey experiences on territorial planning, building licences, etc.) but rarely do so. As a result, sub-national governments function as providers of information, in this case, e.g. on how to manage climate risks rather than providing concrete solutions, tools and funds to local economic units. For example, the Atitlán or Petén regions manage environmental sustainability and soil conservation issues but can do little more than raising awareness on climate resilience.

Ministries are unable to reach the local level appropriately, mainly because the *extensionista* model (i.e. national-level civil servants based in Guatemala's departments and municipalities) never took off and has been weakening over time, and so staff dispatched to the field are insufficient to cover all of the country. For example, the MAGA does not reach all rural areas, has insufficient skills and capacity to perform a growing range of tasks; the MINECO only has one person for the Atitlán region, e.g. and nobody in some departments, thus failing to support MSMEs in these regions. MINECO has a mandate to reach out to the regions to support MSMEs, but is only able to do so through local economy development roundtables and by opening national incubators for entrepreneurs.

Resilience issues could be picked up through the CONRED, which has regional (Regional Coordinator for Disaster Reduction – CORRED), municipal (Municipal Coordinator for Disaster Reduction – COMRED), and local (Local Coordinator for Disaster Reduction – COLRED) structures. Yet, CONRED is seen by interviewees as working well on disaster response issues, but doing less well on building resilience and preparedness, including on climate change. The CONRED, as alluded earlier, could work closely with the MARN and MINECO to foster local economy preservation and risk management after a climate-related disasters, as well as to build preparedness ahead of these. Yet, the CONRED, as other Guatemalan institutions, has few resources and is a small institution, with only one delegate in some departments. As a result, the government is unable to identify or monitor needs for investments in risk reduction across sectors, and lacks capacity to provide a strategic overview of hazard exposure or contingent risks for the regions or across sectors. To address this challenge, the government has drafted a new regulation to strengthen the mandates of CONRED, CORRED, COMRED, and COLRED to document and monitor disaster risk, as well as to promote prevention and mitigation activities.

4 Policy frameworks to enable private sector engagement in building climate resilience

Guatemala's climate framework is well developed but lacks operational clout

Guatemala's national development vision, the *Plan Nacional de Desarrollo K'atun: Nuestra Guatemala 2032 y su Política*, defines the policy framework for the country until 2032. The *K'atun* defined the need to develop a climate change law in Guatemala, which was done in 2010 (MARN, 2013^[7]). The Law (Art. 14) establishes the preparation of methodological guides for risk management, vulnerability reduction and improvement of adaptation capacity, to be developed by the MARN. The Law is implemented through regular National Climate Change Action Plans (PANCC), which ought to help the MARN plan and orient public investments. The PANCC has been updated in 2016 and 2018, and the current Plan notes the expected climate risks, how to prevent and reduce negative climate impacts, and prioritises vulnerable populations and their livelihoods. As such, the Plan includes activities for MSMEs, which are seen as key in the implementation and success, by e.g. reducing vulnerability to climate change in coastal areas of the Caribbean, to develop smart irrigation systems powered with renewable energy, or to use indigenous seeds for degraded soils. Notwithstanding, the PANCC is most developed for climate change mitigation, which is an area that is better developed normatively and that has more connections with MSMEs than climate resilience areas. For example, Guatemala's National Policy for Cleaner Production and projects therein (e.g. from USAID or WWF) promote clean production practices since 2010, with alliances among universities, MSMEs, and Centres of Cleaner Production Practices (MARN, 2010^[22]).

Stakeholders interviewed noted that since its promulgation, no government body has deviated from the *K'atun*, the Law or the Plans, and that all ministries and subnational authorities have aligned with the vision and activities included in these. In fact, the PANCC aims to harmonise climate change and other national initiatives such as the National Strategy for Biological Diversity, the Development Strategy for Low Emissions from Deforestation (*Evitad* - REDD+), the National Policy for Cleaner Production or the National Strategy for Risk Reduction, among others.

Nevertheless, stakeholders also note that few of these activities can be tracked, as co-ordination mechanisms and financing lack. First, the Plan identifies a number of mitigation and adaptation actions (the latter in agriculture, livestock, food security, coastal zones, health, forestry, ecosystems and protected areas, infrastructure and integrated water resource management; (CNCC, 2018^[23])). Yet, these depend on other Ministries to go ahead. Guatemala's Second Communication to the UNFCCC notes that national policies may mention climate change, but only 23% have specific, measurable goals – they mainly provide legal and operating frameworks for different public and private actors to operate (MARN, 2016^[6]). Second, the estimated cost of the PANCC for the period 2018-22 amounts to USD 23 million, with a financial gap of USD 16.5 million, since government and private sector resources can only provide USD 6.5 million (UNDP, 2018^[24]). Adaptation measures require 71% of the total amount and hence will be most affected by the financing shortage. On the positive side, stakeholders noted that the broad participation in the

development of the PANCC, including government, civil society, private sector, academia, indigenous and local communities, bringing different perspectives and synergies to the Plan, adds value for providers of development co-operation to fund it. With World Bank support and the International Union for the Conservancy of Nature (IUCN), Guatemala is working to raise awareness internationally on its domestic situation (World Bank, 2020^[25]).

Guatemala has submitted the PANCC to the UNFCCC, as Guatemala's National Adaptation Plan (NAP). Building on the PANCC, the MARN is now developing specific plans for regions, municipalities and sectors – with support from UNDP and GIZ (UNDP, 2020^[26]). For example, the MARN places the emphasis on developing indicators to track progress in four key sectors (agriculture, water and sanitation, coastal zone management and forestry), even though stakeholders note that progress is only visible on agriculture and it is unclear how the MARN is going to integrate MSMEs in this framework. Detailed sector-level legislation, moreover, is lacking and may hamper progress once the NAP process is finalised. For example, the country has no Water Code and industry and agriculture compete for the resource, which leads to its unsustainable management, with critical resilience consequences for informal MSMEs during droughts, especially in the dry corridor. Different private sector interests and political stalling make it difficult for the Water Code to be developed even if it is in Congress for several years. Other codes that would need updating include those on building infrastructure or land use.

Private sector frameworks are solid but suffer from operational challenges

Several policy frameworks aim at achieving sustainable development by supporting MSMEs, such as the National Policy for the Development of the MSMEs, the National Policy and Law for Entrepreneurship, the National Economic Policy 2016-21, the Competitiveness Policy, and the National Policy for Rural Development, among others. For example, MINECO implements the National Policy for the Development of MSMEs, with a general aim to improve the productivity and competitiveness of this sector in the country, through guidelines, instruments and mechanisms that allow these companies to be able to sell in national and international markets (MINECO, 2015^[5]). Notwithstanding, climate change and resilience, in particular, are rarely mentioned. The National Policy for MSMEs includes a mention of climate change, but no actions are linked to it, while other actions refer to environment-related areas, such as a better management of natural resources, reforestation of certain areas, or the restoration of watersheds – areas that could influence MSMEs' resilience.

One area identified by stakeholders as key to improving MSME resilience overall has to do with supporting their formalisation. Doing so cannot only help MSMEs organise themselves and get their voices heard across different public and private platforms, but also improve access to public support and private services, including finance, as well as contribute to the national tax revenue. Currently MINECO is working with different groups of producers to support the formalisation of MSMEs by creating co-operatives and by promoting MSME participation across value chains, in collaboration with the private sector. However, progress is thwarted by limited capacity and funding in MINECO and examples of public-private collaboration are small in scale, and information is not disseminated domestically. In turn, this prevents good practices, lessons learnt and experiences to be known and shared across MSMEs in Guatemala.

At the regional level, some departments have prepared plans to promote environmentally sound policies among MSMEs, e.g. this is the case of AMSCLAE's Institutional Strategic Plan 2018-22 in the Atitlán region (AMSCLAE, 2019^[16]). The Plan focuses on water and energy, through the promotion of good practices at municipal level, notably of tourism and the services sectors, promoting sustainable agriculture, and reforestation. These areas concern climate resilience issues indirectly. Most of this work is again hampered by capacity and funding, and is mainly contingent on funding by providers, which usually work with local NGOs, according to stakeholders interviewed.

5 Data and information for strengthening climate resilience of micro, small and medium enterprises

The INSIVUMEH, Guatemala's national meteorological office, monitors, compiles and processes climate- and weather-related data and information. The INSIVUMEH prepares daily climate bulletins and has an early warning system on droughts; it also operates a webpage with analysis, latest data, and scenarios. When funding is available, the INSIVUMEH participates in awareness raising campaigns (e.g. with KfW, MARN and MAGA in the dry corridor) through television and radio stations, and translating materials into local languages.

The Institute, unfortunately, faces a number of barriers that prevent it from being an effective supplier of relevant and timely climate data and information. The INSIVUMEH,

- Has a limited amount of meteorological stations (97 stations in 2020), and many of these are not automatic or connected to the national meteorological system. The Institute would need to increase the number and update existing stations to produce real-time information and to send it automatically to the headquarters. Besides INSIVUMEH, other institutions operate meteorological stations in Guatemala: the ICC has 23 automatic stations, the ANACAFÉ (coffee producer association) 110 stations, the Guatemala Energy Institute (INDE) 47 stations and WWF 4 stations. These stations do not collect the same type of information, with some geared to emitting early warnings for farmers, while others being used to generate targeted, municipal or sector climate bulletins. For example, the INDE uses this data for energy sector operations. The INSIVUMEH has memoranda of understanding to share data. For example, with ANACAFÉ, it started sharing data to help coffee producers, reduce risks and production losses. However, the INSIVUMEH would need further agreements with all partners to share data and information.
- Works with other domestic institutions, such as MAGA, MARN or MINECO. However, the information gathered is focused on the needs of agriculture and would need to improve communications and collaboration with other institutions working on climate change and MSMEs. The INSIVUMEH also works with the CONRED, which sends climate-related alerts with emergency protocols. However, the location of the Institute, under the Ministry of Communications, is not conducive to synergy building with other institutions on climate change and stakeholders noted it would be important for the Institute to be under the umbrella of the MARN, with a broader mandate and appropriate resources to be able to support MSMEs on climate change.

- Works with the private sector, through memoranda of understanding (as seen with ANACAFÉ), regular meetings, and with the chambers of commerce, to reach MSMEs. MSMEs require targeted information and cannot always access and make sense of available technical climate-related data, requiring separate, time-consuming processes (e.g. making phone calls, translating bulletins into one of the 25 national languages) – activities that go beyond the resources and mandate of the Institute. As a result, the INSIVUMEH does not know how many MSMEs use the information produced, and, more generally, does not evaluate the demand of the services it provides.
- As in other countries, INSIVUMEH's leadership is subject to political rotations, which does not give it the stability or visibility it would need to collaborate horizontally with ministries to promote cross-sectoral climate resilience. Furthermore, its capacity is limited and staff needs more training to remain up to date with technological advances and climate science progress.

Beyond the Institute, socio-economic information that could inform the government and development co-operation providers to support MSMEs' resilience is limited and what is available is scattered. For example, there is scant information on land use and on actual levels of informality, e.g. it is unclear how many animal heads are in the country and how many farmers are operating in each sub-area (e.g. beans, corn, potato). Despite having the *extensionista* system, ministries have a relatively meagre field presence and cannot reach into all areas of the country due to limited resources. As a result, public institutions cannot collect and compile the socio-economic information needed for decision making – this is particularly more difficult now with lockdowns in response to the COVID-19 crisis.

Guatemala does not have one system to collect public or private information of relevance for MSMEs and no ministry or agency has a mandate to do so. In total, there are 14 climate-related data systems, with MSME-related aspects. These are managed by different organisations, with different objectives and sources of information. For example, the MAGA uses satellite data to know the extension of certain crops, see (FAO, 2020_[11]). SEGEPLAN's *Planimuc* portal provides geo-localised information on public sector activities, while the *GIMBOT* database has information on land use change over 2001-10. The MARN has the National Environmental System (SIA) and the National System of Climate Change Information (SNICC). The MINFIN manages the National System of Public Finance (SNFP) to provide information on public finances. The INAB has databases on forests (e.g. the Forest Information System of Guatemala, SIGFUA, recording forest cover and fires). The MAGA manages *Mango Maps*, an online tool with the 10 most planted species in the country. Some of these climate or MSME-related data systems link up with the SNICC but not all – some do so automatically, others manually, some are public domain, while others are private. The data overlaps and may not always be complementary. All of these challenges of data management add up to lack of technical and IT capacity of staff operating many of these databases, limited financing resources, issues with quality control, optimisation of existing resources, protocols for data collection, sharing and dissemination of data (FAO, 2020_[11]).

In terms of disaster risk reduction linked to extreme weather events, Guatemala is developing a process to co-ordinate institutions to unify climate information and develop early warning systems. However, there are still technological, financial and cultural barriers to streamline the response capacity of institutions and the population. Such process could also happen on climate resilience. The MARN could take a leading role, with support of other Guatemalan institutions, the aggregation and centralisation of all relevant information in one platform, as stakeholders judged the current system generates disinformation. Such a platform could build upon existing experiences to develop data tools for MSMEs to build their resilience (e.g. GIZ's project to develop in 2018 a Spatial Monitoring and Reporting Tool app to restore near-natural forests and manage three protected areas), and could be broad enough to include issues that are indirectly related to climate resilience (e.g. to support MSMEs become formal enterprises).

In addition to public information systems on climate change, the private sector also generates data, which can help strengthen the national system. This is primarily thanks to the Climate Change Institute, led by the sugar producers' association, and which often feeds user-friendly information and research. The coffee producers' association, ANACAFÉ, also produces regular early warning systems since 2014, in collaboration with INSIVUMEH, to build the resilience of coffee producers. By doing so, ANACAFÉ helps farmers select suitable seed varieties and carry out adaptation actions in a timely manner. The Food and Agriculture Organization (FAO), Germany's development co-operation agency, GIZ, the Korean International Cooperation Agency and the Green Climate Fund (GCF) are also collaborating with ANACAFÉ and with cocoa farmers to ensure they can access timely climate information and adaptation solutions, e.g. by monitoring local climate variability. These partners will install 20 hydro meteorological stations, to be part of the INSIVUMEH's network to provide real time, gender-sensitive climate data and support in local languages to farmers. This will be done via SMS, *extensionista* officers and existing local organisations, and the information will be complemented with awareness raising campaigns on adaptation strategies and local agro-ecological centres for climate change adaptation (FAO, 2020^[11]).

Private-sector initiatives

Stakeholders interviewed noted there is no overall vision of how the public and the private sectors ought to collaborate. While the private sector is highlighted in many climate-related public policies, supporting and engaging the private sector in decision-making and implementation (with tools and instruments) is less developed. The private sector of Guatemala holds regular dialogues with different ministries, e.g. with the MAGA, MINECO or MINFIN, but less so with the MARN. Most of this dialogue is structured around roundtables that engage chambers of commerce and business associations. They may also include providers of development co-operation. Yet, stakeholders view these roundtables as ineffective (e.g. they are often too large, not speaking the language of businesses, lack dynamism and do not promote public-private dialogue on needs and barriers, or the sharing of available solutions).

As a result, collaboration in public and private sector actors tends to happen on an ad-hoc, rather than regular, basis with approaches that do not necessarily seek sustainable results over time. For example, the MAGA is working with smaller farmers, and has supported projects to promote the production of compost, to capture water in drought-prone areas, to research seed varieties that are drought resistant (notably corn), or to foster good pesticide use. However, dissemination of information on these practices within the country is limited and monitoring, while evaluating outcomes is rare. These public-private collaborations are often discontinued after a project ends.

Against this background, several interviewees noted that chambers of commerce, business associations, co-operatives, individual MSMEs and large companies have taken action to heighten their resilience, despite limited national and sub-national government support. For example,

- In the CIG, the Guatemalan Industrial Chamber, 80% of the members are MSMEs. The Chamber has worked on environmental management and participated in the drawing of the first national environmental law in 1986 and other laws, such as the climate change law. The CIG has taken a broad sustainability focus on its activities and adaptation has also featured in these, recognising the vulnerability of the country. In fact, the CIG has an Environment Forum that deals, inter alia, with adaptation. Their activities included evaluating climate-related risks in the sugar sector (with the CCI and INSIVUMEH), and the development of tools for companies to understand their vulnerability across dimensions (e.g. water resources, land access, transport).

- Co-operatives, such as COOVERA or CuatroPinos, issue recommendations to affiliated farmers, including on climate resilience. They also provide capacity building and awareness raising to these farmers on environment-related matters (e.g. pesticide use, packaging, export standards), which help them secure market access and, indirectly, be more resilient. However, their reach is limited to formal actors supplying national supermarket chains and export markets.
- FUNDESA, a private sector philanthropy, has a mandate to support the competitiveness of Guatemalan MSMEs, through raising awareness, capacity building, technical assistance, studying the impact of public measures on the private sector, lobbying, mediation and co-ordination of actors. Their activities also included resilience issues, such as urban infrastructure, water management and entrepreneurial competitiveness (e.g. support to MSMEs to integrate associates, access markets). The impact of these measures have focused on urban MSMEs, including at regional level, so the impact is limited given that most MSMEs operate in the agriculture sector.
- The coffee sector, through ANACAFÉ, has an Environmental and Climate Change Policy for the Coffee Sector in Guatemala (ANACAFÉ, 2018^[27]). The Policy helps organise, orient, direct, articulate, manage and implement tools to ensure environmental sustainability, improve climate adaptation along the value chain, as well as reduce the vulnerability of coffee producers. To do so, ANACAFÉ created a national information system to reduce vulnerability and increase coffee productivity, as seen earlier. The association also researches on resilience issues in the sector, and develops practices and technologies, notably with respect to the sustainable management of water resources and forests.
- Outside the agricultural sector, the mining and cement industries, have also progressed to foster the climate resilience of MSMEs, notably through targeted education and training around the benefits of green jobs. For example, *Cementos Progreso* – the largest Guatemalan company – has built biological wastewater treatment plants for different municipalities. Due to a lack of resources, including skilled workers, these wastewater treatment plants were not operated to their full capacity. Collaboration between this company, MSMEs and GIZ's *Adáptate* programme helped reactivate these plants, building the resilience of communities where these plants were functional.

The sugar industry, in turn, has been adapting and planning for climate change adaptation as well. It works with through the ICC to improve information and climate analysis with its own meteorological stations and bulletins, promoting drought- and pest-resistant seeds, fertiliser changes, as well as water use and water storage measures. Academia also collaborates with the private sector. For example, the *Universidad del Valle de Guatemala* implements a reforestation project to intensify coffee production, together with ANACAFÉ. The University also collaborates with larger companies in the sugar, coffee, palm industries, as smaller companies are not organised enough to engage in such a process, but still have an impact on MSMEs that are part of larger companies' value chains. Such companies have indeed a key role to play with their strategies to reduce emissions and build resilience. Some sectors are relatively well organised – e.g. the coffee and sugar industries implement local growth strategies and tools so that small MSMEs are resilient, effective and can grow. In other sectors, interest on climate issues is limited and actors may even block change.

6 Finance for enhancing climate resilience of micro, small and medium enterprises

Public investment in climate resilience is small and fragmented

The size of public investment in Guatemala is relatively small (1% of GDP, compared to 13% of GDP by the private sector), which explains why most governmental action is often constrained by insufficient funding. This is particularly true for climate-related action, which is heavily dependent on private-sector actors' own investment (e.g. in no-regret measures) and development finance (e.g. infrastructure investment). The National Climate Change Fund (FONCC) is an important financial instrument for the implementation of the Climate Change Law (Art. 24) and the National Conservation Fund (FONACON), regulated in the Art. 15 of the Decree 109-96. They are instruments to channel the national and international resources necessary to adapt to climate change. By law, these funds must have contributions determined in the annual budget but, as mentioned, these are insufficient to cover Guatemala's climate resilience needs. Additionally, Guatemala has a series of mechanisms that support the implementation of various policies and laws, including:

- A debt-for-nature swap fund with the United States.
- Forestry incentive programmes established by law: the Forest Incentive Programme (PINFOR) and the Forest Incentive Programme for Owners of Small Tracts of Vocation Land Forestry or Agroforestry (PINPEP), which incentivises the sustainable management of forests while promoting local economy development. However, the current system allocates only 0.15% of the GDP to the administration of natural resources (forests) through the budgets of INAB, CONAP and MARN (MARN, 2016^[6]). This, coupled with low private investment in the forestry sector, increases the risks of natural capital deterioration, as well as conflict and socio-environmental vulnerability. Moreover, in 2020, low tax collection rates and the low placement of Treasury Bonds due to the COVID-19 crisis have led to delays in payment of the PINPEP. Such delays in payment schedules are common and generate uncertainty, preventing such payments from being used as debt collaterals.
- More recent forest incentives for the sustainable management of degraded forests and plantations, following the Law to Promote the Establishment, Recovery, Restoration, Management, Production and Forest Protection in Guatemala (PROBOSQUES). The INAB and the IUCN worked to incorporate key elements from the National Forest Landscape Restoration Strategy in the PROBOSQUE Law and its regulation framework, and other important forest policy instruments such as the Climate Change Law and the REDD+ National Strategy. Through PROBOSQUES, the INAB aims at generating 900 000 rural jobs in forest protection and restoration, fostering the resilience of rural areas (CIF, 2017^[28]). The government is expected to invest at least USD 39 million annually, while the private sector is expected to invest USD 76 million.

- Another vehicle to foster public investment is FONTIERRAS, which provides loans for vulnerable families. Since 2013, the Fund has provided 34 loans for the benefit of 2 000 families. The Fund combines financial support (grants and concessional loans) and technical assistance (which includes climate resilience issues, e.g. building terraces to avoid landslides, reforestation and biodiversity preservation). However, its impact is relatively low: with over 3 000 requests a year, the Fund is only able to undertake 5 projects a year on average, mainly due to limited funding.
- Guatemala relies on ex-post budget allocations to respond to disasters caused by adverse natural events. This happens through two mechanisms: (a) the National Fund for the Reduction of Disasters (FONARED), co-ordinated by CONRED and financed according to the guidelines provided by the National Plan for Disaster Prevention and Response (each year the fund receives USD 2 million from the national budget; and (b) on an event-by-event basis (GFDRR, 2010^[29]).

At the same time, a number of Guatemalan stakeholders are aware that the country's macroeconomic stability is highly dependent on the country being resilient to climate change. This is why the Ministry of Finance has developed technical guidelines for Guatemala's Green Fiscal Strategy (with support from the Economic Commission for Latin America and the Caribbean and GIZ). This Strategy was rolled out in 2018 with an inter-ministerial agreement (MINFIN, 2018^[30]) and aims at (a) improving the environmental footprint of public spending; (b) supporting municipalities in green policy spending; (c) developing a green fiscal system that ought to, inter alia, incentivise green entrepreneurship; (d) managing risks, notably by identifying scarce natural resources; and (e) accessing green and climate finance (MINFIN, 2018^[31]). In doing so, the Strategy also aims to promote economic development, entrepreneurship, corporate social responsibility in ways that are environmentally sound. With the first phase implemented, the Ministry is now revising its implementation with all ministries, in particular the MARN, although the COVID-19 has slowed down progress.

Leveraging resources for climate resilience is limited to pilot experiences, mainly in the insurance sector

Access to finance is a major barrier for MSMEs to strengthen their resilience to business-related risks, including the negative impacts of climate change. Companies need to operate in the formal sector to be able to take a commercial loan at competitive rates, otherwise companies are forced to place their production or company as counterparts for a loan, a move that is too risky for MSMEs. In addition, interest rates are too high for informal MSMEs. Against this background, and with limited public investment levels, public authorities have shown limited capacity to leverage private resources and promote green, climate-resilient investments and support MSMEs. MINECO has made efforts to connect MSMEs with investors and there have been some private investments on climate change mitigation (also for MSMEs), notably led by the Banco Agromercantil, e.g. small hydrological energy power stations, energy efficiency, old vehicle and machinery substitution – but the private sector is not yet investing at large in climate resilience. In fact, commercial banks so far do not incorporate resilience standards when extending loans but MINECO is interested in establishing resilience standards for loans to MSMEs, according to stakeholder interviews. The government and development co-operation providers can help the private sector actors identify where their interests and potential contributions lie. The Foundation of Water Conservation in the Metropolitan Region of Guatemala (FUNCAGUA), for example, is an alliance between the government, the private sector, civil society and companies that use water, including Pepsi Co. and beer companies, which promotes water conservation in rural areas.

Development of the insurance industry in Guatemala is still at an early stage, let alone the application of insurance to climate risk management by MSMEs (e.g. crop insurance). The country has a national insurance regulation, but this regulation is only fit for MSMEs in the formal sector. Stakeholders interviewed mentioned that making insurance obligatory for MSMEs, notably rural ones, is challenging, although this would be a way to reach scale and make it affordable for vulnerable and budget-tight MSMEs. Owners and employees of MSMEs, especially those in the informal sector, do not even have bank accounts, hence access to formal financial services, including insurance products. On the demand side, there is limited awareness about the benefits of insurance and potential clients have generally negative experiences with insurance (e.g. expected pay-outs were not made). Potential clients would therefore need to understand the benefits of insurance. Since 2017, the Banco Rural and the Aseguradora Rural work with MiCRO Risk to offer parametric insurance for farmers facing droughts and flooding. The product is specific for the agriculture sector and takes into consideration various types of produce and farmer locations (see Box 6.1).

Providers are also engaged through their activities in enhancing MSMEs' climate resilience. The GCF and the Inter-American Development Bank are supporting the MAGA to promote low emission, climate resilient agriculture in Guatemala through the creation of a risk sharing facility to unlock innovative and scalable financial instruments for MSMEs (GCF, 2020^[32]). The risk-sharing facility will target agricultural MSMEs that demonstrate environmentally sustainable practices, and will attract additional local and international private sector investors, resulting in significant additional private capital being channelled into these activities. The GCF, with partners, also promotes another project, Resilient Livelihoods (RELIVE) of vulnerable smallholder farmers in the Mayan landscapes and the dry corridor (GCF, 2020^[33]). The project helps these farmers in overcoming technical, financial and institutional barriers that prevent them from adopting climate-resilient practices (FAO, 2020^[11]). Over 6 000 families will benefit from the development of climate-resilient adaptation practices and gender-sensitive technology packages for staple crops, coffee and cocoa. The installation of 370 greenhouses micro-tunnel facilities will help farmers to diversify agricultural crop productivity, while the setting up of 13 hydro-meteorological monitoring stations will help to disseminate climate information and early warning of risks, to stakeholders. Moreover, the project aims to restore 13 000 hectares of watershed through reforestation and agroforestry (FAO, 2020^[11]).

Box 6.1. MiCRO Risk model

In 2019, tropical storms Amanda and Cristóbal led to damage in 12 Guatemalan departments, leaving at least two dead, over 40 000 affected people, with over 150 people evacuated from their homes, mainly due to floods and landslides. MiCRO helped alleviate the situation through its inclusive insurance that operates with predetermined parameters and that protects clients against excess rainfall, as well as droughts and earthquakes. These events helped test the design of MiCRO with local stakeholders and Swiss Re, and in both cases the insurance was activated and led to payments that were related with the severity of the events across the country. In the areas most impacted, payments reached up to 50% of the insured amounts, benefiting 15% of the clients under the *Esfuerzo Seguro* product, offered by Aseguradora Rural and distributed through Banco Rural, which also builds awareness on the benefits of insurance. Parametric insurance does not require an individual adjustment of losses, hence the payment of indemnities are swift, contributing to the resilience and a faster recovery of the insured. The insurance is based on data from satellites and local meteorological stations from ANACAFÉ (as MiCRO could not work with INSIVUMEH data, due to limited quality and access) and makes gradual pay-outs to ensure experiences with the insurance sector are positive. In addition, MiCRO works with the Inter-American Development Bank, which provides technical assistance to develop climate resilience and to foster good practices among farmers receiving insurance.

While it is too early to judge the effectiveness of the product in building resilience, MiCRO has provided 20 000 insurance contracts and were expecting to sell another 60 000 contracts in 2020, but the COVID-19 crisis has slowed down progress. MiCRO is now looking to develop additional products with Seguros Universales for the coffee sector. Engagement with the public sector would be positive, according to officials interviewed, notably to share information on how to heighten resilience and exchange on approaches that work. So far, MiCRO has only been able to work with the CONRED, participating in 'risk expos' to explain its model and products directly to farmers.

Source: MiCRO Risk (2020^[34]), 2nd Quarter 2020 – MiCRO's Newsletter, www.microrisk.org/2nd-quarter-2020-micros-newsletter/.

Additionally, the GCF with the Central American Bank for Economic Integration promoted the project Productive Investment Initiative for Adaptation to Climate Change (CAMBio II), which aims at reducing obstacles for MSMEs to access credit and supporting the best available adaptation measures in Guatemala (GCF, 2019^[35]). This initiative will provide concessional loans and technical assistance to encourage MSMEs to invest in adaptation, while a grant component will provide financial rewards to MSMEs and intermediary financial institutions for their successful implementation of adaptation activities in the agriculture, livestock and forestry sectors (GCF, 2018^[36]).

Finally, Guatemala benefits from a Global Ecosystem Resilience Facility (GERF), established in 2018 to protect coral reefs, mangroves and seagrass against hurricanes and coastal erosion. The GERF's objective is to incentivise ecosystem stewardship by supporting the resilience of fishing communities at threat from hurricanes and coral decline, as well as asset maintenance and post-loss insurance for swift recovery. The facility is still looking at how pooling risk and financing could ensure the restoration of both marine and terrestrial ecosystems, but still sends a message to the insurance industry given that one of the largest insurance brokers (Willis CEO) is part of the initiative. However, in its current form, the GERF is mentioning potential instruments to use, with no concrete examples or identified pilots to test these instruments for ecosystem stewardship. The next steps of the GERF include launching a pilot to demonstrate the applicability of the facility and gather first evidence and data for the concepts' success.

7 Role of development co-operation in engaging the private sector in building climate resilience

As mentioned, providers of development co-operation have been central in pushing for climate resilience, including that of MSMEs, in Guatemala. Providers bring information, mechanisms and capacity building, as well as development finance. There are a number of good practice examples from providers of development co-operation mentioned throughout the paper, including GIZ's *Adáptate* project to develop climate change adaptation tools (see Box 7.1); the GCF's work on MSMEs and agriculture; KfW's debt for nature swap projects in the dry corridor; the WFP's work to build the resilience of vulnerable groups and micro enterprises, mainly in the dry corridor; IUCN's work on cocoa plantations; or the IDB's project on agroforestry incentives and loans. On the government side, the planning secretary co-ordinates with all the multilateral and bilateral providers of development co-operation, through the G13 group.

Box 7.1. GIZ's *Adáptate* project

Germany's GIZ has been working in the framework of its *Adáptate* project to promote climate resilience in Guatemala (MARN, 2016^[37]). The project helped with the planning and prioritisation functions of local governments and municipalities in areas such as budget planning. Likewise, the project encourages the improvement and implementation of services and training courses for adaptation to climate change in agriculture, environment and risk management. In addition, the project is implementing a monitoring system for adaptation to climate change. In this way, all municipalities in Guatemala will be able to better assess their vulnerability and act preventively. In order to maintain the effects achieved in the long term, a knowledge management system for adaptation to climate change will be established in MARN and SEGEPLAN. Finally, GIZ also supports the introduction of climate-friendly agriculture in the dry corridor (e.g. use of silos, planting trees, forest management, knowledge dissemination on adaptation, installation of more meteorological stations, modernisation of other ones) (GIZ, 2013^[38]).

Source: (GIZ, 2013^[38]), Promover la adaptación al cambio climático, <https://www.giz.de/en/worldwide/70953.html>; (MARN, 2016^[37]), Desarrollo Rural y Adaptación al Cambio Climático" Fase II ADAPTATE II, https://www.marn.gob.gt/paginas/Desarrollo_Rural_y_Adaptacin_al_Cambio_Climtico_Fase_II_ADAPTATE_II.

Most interviewed mentioned that public authorities would be keen to continue working with development co-operation providers or to scale-up piloted activities. Most of those public authorities have already worked with development co-operation providers (e.g. FONTIERRAS with Japanese consultants and with Sweden; MAGA with WFP (WFP, 2020^[2]); MINFIN with the World Bank). At the same time, interviewed stakeholders have also pointed out several areas for improvement in how Guatemalan stakeholders and development co-operation providers work to engage the private sector to strengthen the climate resilience of MSMEs. First, support of providers is not always aligned with domestic priorities. This is echoed by the

Global Partnership for Effective Development Co-operation (GPEDC) monitoring round of 2018, according to which donors only partially aligned their operations with the needs and priorities of Guatemala (GPEDC, 2018^[39]). For example, at one point there were 12 different providers working in the potato sector in Guatemala, and up until 2012, Chinese Taipei introduced the production of tilapia fish, but these types of produce were not in line with national strategies, according to domestic stakeholders. Guatemala aims at improving alignment by asking providers to go through the SEGEPLAN, which ensures that activities are in line with the *K'atun*³² – still, this is not happening for regional projects – and links public policy processes with the monitoring and evaluation of the *K'atun*. Until the situation changes, providers could ensure that the MARN, the MINECO or other domestic actors are systematically involved to ensure alignment on climate resilience issues for MSMEs.

Second, and related to the misalignment, has to do with providers having own pre-formulated projects and ideas, which may be useful for Guatemala, but that compromise its capacity. The public sector is relatively small and lacks resources, hence asking for public engagement in projects that are not seen as aligned or a priority for the government (the so-called counterparts) could be avoided. This also happens because Guatemala often lacks a more detailed medium- to long-term planning and strategic framework that could help providers guide their interventions. The current PANCC, for example, was mentioned by stakeholders as insufficient to guide providers and other stakeholders over the medium-term. To support Guatemala, providers could therefore help with devising ways to implement activities enshrined in existing policy frameworks. This could include raising awareness on climate resilience and on the resilience of MSMEs, in particular, among the key actors in this space, namely MINECO, MARN or MAGA. In turn, this would help refocus the attention of public actors (and providers, over time) away from climate change mitigation towards resilience as well. Providers could help the government show that climate resilience can be increased through their projects, including seeking co-benefits with climate mitigation, and that it is possible to do so beyond the agricultural sector. They could reach out to the subnational level and work directly with the private sector, e.g. through the chambers of commerce (FUNDESA, CIG), while they support the national government. They could act as bridges between the private and public sectors.

Third, development co-operation providers could move away from projects that only seek the development of regulations, laws or strategies. These are useful but usually are not implemented by the government, and stakeholders note that there are already several normative frameworks in place. For example, USAID devised a tool for climate risk management in the country but the government did not own the tool and did not share it with relevant stakeholders. The model of providers needs to evolve to one where learning and information sharing among public and private actors is more important. This would ensure that climate resilience issues become more visible for MSMEs. At the same time, technical support needs to be accompanied by funding to ensure the sustainability of interventions.

Finally, co-ordination among development co-operation also needs to be strengthened. Providers co-ordinate through the G13 group (13 donor countries), as well as through EU Joint Programming. However, stakeholders noted that it would be important to avoid overlaps (e.g. two providers funding the same activity through the same NGO; funding similar activities, but with different approaches, across ministries), notably to share information on sub-national needs. A platform of co-ordination could help establish a diagnostic of the situation of MSMEs and their resilience needs. Such platforms exist in other areas, e.g. school feeding programmes, where ministries, the local level and providers of co-operation collaborate, and could be a model for climate resilience.

Opportunities for development co-operation providers to seize

- The Guatemalan government has set up extensive policies and projects related to mitigation and environmental protection, e.g. the National Policy for Cleaner Production. Providers could find entry points and find synergies here with climate resilience issues to support MSMEs.
- Traditional practices in agriculture and forest management could be developed further in Guatemala and co-operatives are good entry points to disseminate both innovations and traditions. The country needs to move away from slash-and-burn practices and explore traditional methods can heighten the resilience of farmers, although this requires a mentality change and adequate price incentives. First, the *milpa* could be expanded. This is a traditional cropping system in Mesoamerica, where multiple crops grow in synergy, in terms of climate resilience, environmental sustainability and nutrition. For instance, a common combination is maize, beans and squash. Maize stalk acts as a support for beans to grow on, while beans pull nitrogen from air and provide for maize and squash, which use up nitrogen in soil. Squash helps suppress weeds, conserve moisture and keep the soil cool. Pluriculture also means more resistance to pests and diseases. Maize and beans provide protein and squash vitamins and minerals. USAID has been promoting the *milpa*, as a tool for social-ecological resilience. Second, planting the loroco flower can help regenerate land that had been depleted from sugar cane, banana and palm monoculture and instead helps farmers cultivate corn and sesame, helping families and women gain economic independence. Farmers are generally not aware of the loroco market and pilot projects in the Department of Suchitepéquez accompanied the farmers to alternative livelihood solutions and searching for markets to sell the products.
- Digitalisation, including of MINECO's Centres for Entrepreneurship, has been accelerated due to the COVID-19 crisis, facilitating capacity building, including on climate resilience, through e-learning modules to the informal sector or family-based businesses that are disconnected from the government-provided services. This a possible solution at scale in a country where national authorities have a limited regional presence, especially in remote areas, and with limited relations with MSMEs. A problem which arises is that only 35% of the population has access to the internet, so this potential needs to go hand-in-hand with the digitalisation of the country.
- Governmental authorities such as MAGA need to revive roundtables with the private sector to understand their needs and challenges, fine-tune or develop needed tools. Providers can help by filling capacity building and funding gaps to do so. Such roundtables could encourage the exchange of domestic and regional good practices.
- Social entrepreneurs and innovations that affect the environment and communities, e.g. in eco-tourism and with corporate foundations that may want to diversify their portfolio can help connect business development and climate resilience.
- Indigenous communities were not engaged in the management of environmental issues in the past but interviewees noted that they are increasingly consulted, which was considered a positive development. These communities, for example, could contribute to the conservation of forests and the restoration of mangroves. A similar successful model could be considered to support women – most of whom are farmers or work in the transformation industry. Targeted support for women entrepreneurship would help increase their resilience.

References

- AMSCLAE (2019), *Línea basal de MIPYME's y Plan de Fortalecimiento de las buenas prácticas ambientales, Municipios de Santa Cruz La Laguna, Pajachel, Santiago Atitlán*, AMSCLAE. [16]
- ANACAFÉ (2018), *Política de Ambiente y Cambio Climático para el Sector Café de Guatemala*, ANACAFÉ, <https://www.anacafe.org/uploads/file/c9abfaf7d81846e08b59d19875de5f6e/Politica-Ambiental-Anacafe.pdf>. [27]
- Casado-Asensio, J., T. Kato and H. Shin (2021), "Lessons on engaging with the private sector to strengthen climate resilience in Guatemala, the Philippines and Senegal", *OECD Development Co-operation Working Papers*, No. 96, OECD Publishing, Paris, <https://dx.doi.org/10.1787/09b46b3f-en>. [1]
- CGPL (2020), *Centro Guatemalteco de Producción Limpia*, <https://cgpl.org.gt/>. [18]
- Chrishna Morgado, N. and B. Lasfargues (2017), *Engaging the Private Sector for Green Growth and Climate Action: an Overview of Development Co-operation Efforts*, OECD, <https://doi.org/10.1787/85b52daf-en>. [15]
- CIF (2017), *Investment Plan for Guatemala*, CIF, https://www.climateinvestmentfunds.org/sites/cif_enc/files/fip_18_5_investment_plan_for_guatemala_final.pdf. [28]
- CNCC (2018), *Plan de Acción Nacional de Cambio Climático, Segunda Edición*, National Climate Change Council, https://www.marn.gob.gt/s/produccion-limpia-marn/paginas/Politica_Nacional_de_Produccion_Ms_Limpia. [23]
- FAO (2020), *Resilient Livelihoods of Vulnerable Smallholder Farmers in the Mayan Landscapes and the Dry Corridor of Guatemala - RELIVE Guatemala - Disclosure Document*, FAO, <http://www.fao.org/3/ca9109en/ca9109en.pdf>. [11]
- GCF (2020), *Low Emissions and Climate Resilient Agriculture Risk Sharing Facility*, <https://www.greenclimate.fund/project/fp048>. [32]
- GCF (2020), *RELIVE – RESilient LIVELihoods of vulnerable smallholder farmers in the Mayan landscapes and the Dry Corridor of Guatemala*, <https://www.greenclimate.fund/project/fp145>. [33]
- GCF (2019), *GCF agreement with CABI to unlock finance for climate adaptation in Central America*, <https://www.greenclimate.fund/news/gcf-agreement-cabi-unlock-finance-climate-adaptation-central-america>. [35]

- GCF (2018), *Productive Investment Initiative for Adaptation to Climate Change (CAMBio II)*, [36]
<https://www.greenclimate.fund/project/fp097>.
- GFDRR (2010), *Disaster Risk Management in Latin America and the Caribbean Region: GFDRR Country Notes - Guatemala*, World Bank, <https://www.gfdr.org/en/publication/country-note-guatemala>. [29]
- GIZ (2017), *Implementing adaptation under the Paris Agreement*, GIZ, [14]
https://www.adaptationcommunity.net/wp-content/uploads/2017/05/GIZ_2017_Climate-Change-Policy-Brief-impl-adap-paris-agree.pdf.
- GIZ (2013), *Promover la adaptación al cambio climático*, [38]
<https://www.giz.de/en/worldwide/70953.html>.
- GPEDC (2018), *Guatemala*, GPEDC. [39]
- ICC (2020), *ICC lidera el SGCCC por dos años*, <https://icc.org.gt/es/icc-liderara-el-sistema-guatemalteco-de-ciencias-de-cambio-climatico-por-dos-anos/>. [20]
- International New York Times (2020), *2 Hurricanes Devastated Central America. Will the Ruin Spur a Migration Wave?*, INYT, [10]
<https://www.nytimes.com/2020/12/04/world/americas/guatemala-hurricanes-mudslide-migration.html>.
- IPCC (2014), *Chapter 20. Climate-Resilient Pathways: Adaptation, Mitigation, and Sustainable Development*, Denton, Fatima; Wilbanks, Thomas J; Abeysinghe, Achala C; Burton, Ian; Gao, Qingzhu; Carmen Lemos, Maria; Masui, Toshihiko; O, Karen L; Warner, Koko, [13]
https://www.ipcc.ch/site/assets/uploads/2018/02/WGIIAR5-Chap20_FINAL.pdf.
- MAGA (2020), *CONADEA, MAGA*, <https://www.maga.gob.gt/conadea>. [17]
- MARN (2016), *Desarrollo Rural y Adaptación al Cambio Climático” Fase II ADAPTATE II*, [37]
https://www.marn.gob.gt/paginas/Desarrollo_Rural_y_Adaptacin_al_Cambio_Climtico_Fase_I_I_ADAPTATE_II.
- MARN (2016), *Segunda Comunicación Nacional sobre Cambio Climático Guatemala*, MARN, [6]
<https://unfccc.int/sites/default/files/resource/gtmnc2.pdf>.
- MARN (2015), *Apoyo al MARN en la elaboración e implementación de la estrategia de desarrollo con bajas emisiones de gas de efecto invernadero de Guatemala*, [21]
https://www.marn.gob.gt/paginas/Apoyo_al_Ministerio_de_Ambiente_y_Recursos_Naturales_en_la_elaboracion_e_implementacion_de_la_estrategia_de_desarrollo_con_bajas_emisiones_de_gases_de_efecto_invernadero_de_Guatemala.
- MARN (2013), *Ley Marco para Regular la Reducción de la Vulnerabilidad, la Adaptación Obligatoria ante los Efectos del Cambio Climático y la Mitigación de Gases de Efecto Invernadero (Decreto 7-2013)*, MARN, <https://www.marn.gob.gt/Multimedios/2682.pdf>. [7]
- MARN (2010), *Política Nacional de Producción Más Limpia (Acuerdo Gubernativo Número 258-2010)*, MARN, https://www.marn.gob.gt/s/produccion-limpia-marn/paginas/Política_Nacional_de_Produccion_Ms_Limpia. [22]
- MiCRO Risk (2020), *2nd Quarter 2020 – MiCRO’s Newsletter*, <https://www.microrisk.org/2nd-quarter-2020-micros-newsletter/>. [34]

- MINECO (2015), *Acuerdo Gubernativo 211-2015*, MINECO, [12]
http://www.mineco.gob.gt/sites/default/files/ag_211-2015.pdf.
- MINECO (2015), *Sistema Nacional de Información MIPYME de Guatemala*, MINECO, [5]
http://www.mineco.gob.gt/sites/default/files/Comunicacion%20Social/sistema_nacional_de_informacion_mipyme_guatemala_ano_base_2015.pdf.
- MINFIN (2018), *Acuerdo Ministerial Número 442-2018, Ministerio de Finanzas Públicas, Diario de Centro América Número 47, Guatemala, Viernes 7 Septiembre 2018*, MINFIN. [30]
- MINFIN (2018), *Estrategia Fiscal Ambiental*, MINFIN, [31]
https://www.minfin.gob.gt/images/estrategia_financiera.pdf.
- OECD DAC (2020), *Aid Activities Targeting Global Environmental Objectives*, OECD, [9]
<https://stats.oecd.org/#>.
- SGCCC (2020), *Información General*, <https://sgccc.org.gt/informacion-general/>. [19]
- UNDP (2020), *Guatemala*, <https://www.ndcs.undp.org/content/ndc-support-programme/en/home/our-work/geographic/latin-america-and-caribbean/Guatemala.html>. [26]
- UNDP (2018), *Descripción del Proceso y Costeo del Plan de Acción Nacional de Cambio Climático y Estimación de la Brecha Financiera*, UNDP, [24]
https://www.biodiversityfinance.org/sites/default/files/content/knowledge_products/Costeo%20y%20Brechas%20PANCC%20%28digital%29_v6.pdf.
- USAID (2017), *Climate Change Risk Profile: Guatemala*, USAID, [3]
<https://www.climatelinks.org/resources/climate-risk-profile-guatemala>.
- WFP (2020), *WFP Guatemala: Country Brief*, WFP, [2]
<https://reliefweb.int/sites/reliefweb.int/files/resources/WFP-0000120300.pdf>.
- World Bank (2020), *Public Sector Database*, World Bank, <https://data.worldbank.org/topic/public-sector>. [8]
- World Bank (2020), *Reviewing and Updating Guatemala's NDC: Identification of Priority Adaptation Measures*, <https://www.worldbank.org/en/news/video/2020/07/28/reviewing-and-updating-guatemalas-ndc-identification-of-priority-adaptation-measures>. [25]
- World Bank (2014), *SME Development in Guatemala: Let 10,000 Firms Bloom*, World Bank, [4]
<https://www.smefinanceforum.org/post/sme-development-in-guatemala-let-10000-firms-bloom>.