



**Market Scoping Study to Inform the Development of IFAD's Inclusive  
Green Financing Initiative (IGREENFIN): Greening Agricultural Banks  
& the Financial Sector to Foster Climate Resilient, Low Emission  
Smallholder Agriculture in the Green Great Wall (GGW) countries -  
**Phase I****

**Final Draft Report**

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## EXECUTIVE SUMMARY

Strengthening the environmental sustainability and climate resilience of poor rural people's economic activities while increasing poor rural people's productive capacities and increasing poor rural people's benefits from market participation are crucial determinant of the Enabling inclusive and sustainable rural transformation in the IFAD Strategic Framework 2016-2025.

Small holder farmers in agri-business have limited access to finance, technical assistance and capacity building to modernize their production systems. These barriers widely affect their ability to take advantage of economic opportunities and access resources that can help them start, operate and grow their businesses. While the number of smallholder farmers including women and youth entering the workforce in the Great Green Wall countries has increased substantially over the last decade, smallholder farmers remain excluded from the financial markets and are primarily engaged in the informal sector, operating micro and small enterprises and performing low-earning activities. Many of the MSMEs, Farmers Organizations and cooperatives are found in rural areas where there are fewer opportunities for agricultural business expansion due to lack of finance and capacity.

This study compiles the findings of a market scoping study commissioned by the IFAD to inform the design of the IFAD's Inclusive Green Financing Initiative (IGREENFIN): Greening Agricultural Banks & the Financial Sector to Foster Climate Resilient, Low Emission Smallholder Agriculture in the Green Great Wall (GGW) countries - Phase I in particular to assess the access to finance landscape for smallholder farmers in Agriculture in the 5 countries ( Burkina, Cote d'Ivoire, Mali, Senegal and Ghana). Through virtual meetings and IFAD baseline investments field missions, Small holder farmers and agri-preneurs as well as representatives of cooperatives, farmer's organizations and MSMEs were interviewed in each of the five countries to understand their opportunities and challenges in accessing finance and business growth from a demand perspective. Similarly, national agricultural banks, commercial banks and non-bank financial institutions were interviewed to obtain the supply-side constraints in providing finance for smallholder farmers. Furthermore, a financing gap analysis and banking mapping were completed to obtain a broader picture of the agricultural finance landscape in the region as well the energy sector to invest in when it comes to low emission agriculture.

The findings reveal that the landscape for Smallholder farmers' access to finance in West African and countries within the Great Green Wall remains very limited. When finance is available, the lending terms are not attractive to smallholder farmers (high interest rate, short repayment. The financial institutions perceive women/youth and businesses as risky due to their low number of assets and smaller business size and the impact of climate change. In addition, banks' poor understanding of smallholder farmers results in demands for high-value collateral and the charging of high interest rates. For instance, in Cote d'Ivoire, the collateral requirement was seen as the biggest issue hampering access to finance, followed by high interest rates, resulting in low profit margins. Additionally, smallholder's farmers lack confidence in formal institutions and thus are not willing to ask for a loan. The smallholder farmers' educational attainment and their financial literacy are usually lower; consequently, they are not aware of the development funds or financial products available including highly green concessional climate fund that could better serve them. In general, there is a sound financial system and many agricultural programmes are available, but smallholder farmers particularly youth and women still face numerous challenges in accessing those funds to adopt climate resilient and low emission agriculture. In addition to limited access to domestic and international market information, market regulations, socio-cultural norms further hamper their competitiveness and business growth.

Going forward, IFAD may wish to consider the following recommendations in order to further enhance the prospects for successful programme design and implementation: – The vision for IGREENFIN is rightfully ambitious and innovative but IGREENFIN needs to treat smallholder farmers in agri business as a heterogeneous group of actors with different backgrounds, skills, literacy levels, ages, firm sizes, and, therefore, different needs. – To be successful, IGREENFIN needs to take a country-by-country approach, use cooperatives, MSMEs, Farmers Organizations as entry points and leverage existing best practices in promoting access to finance particularly the first initial green finance. IGREENFIN will not be successful in isolation given the magnitude of the issue and the model should be seen as a catalyst for market forces and the private sector to take over once there is solid proof of concept and solid pipeline of projects financed under IGREENFIN. – A clear implementation plan and growth strategy are integral parts of the programme’s long-term financial sustainability framework and are essential to communicating a long-term partnership vision to participating financial institutions under the Great Green Wall Umbrella Programme. – A short-term (at most one year) flagship programme should be launched. This will ensure that this IFAD potential climate finance brand is picking in a timely fashion if the approach is working or if adjustments are necessary.

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## I. Introduction

1. Access to credit has a significant role to play in increasing farm productivity but remains a key constraint for smallholder farmers, farmers' organizations, cooperatives and micro, small and medium-sized enterprises (MSMEs) in the Great Green Wall countries. Available research indicates that access to finance is one of the major constraints for smallholder farmers worldwide. Access to finance is not gender and youth neutral: men have better access to finance than women and youth particularly in West Africa.
2. Increasing agricultural productivity in a more sustainable way in West Africa will be crucial in developing both farm and off-farm employment opportunities, as well as agriculture and agribusinesses. Smallholders in agriculture urgently require access to resources that they can invest in raising their productivity levels and thus, profitability. Thus, long-term financial services with affordable conditions (interest rates, tenors and grace periods) are needed. However, smallholders in the region experience higher access to finance barriers, which widely affect their ability to take advantage of economic opportunities and access resources that can help them start, operate and grow their agricultural practices.
3. Non-financial barriers often restrain smallholder farmers from accessing financial services and products. These include (i) the broader business and legal environment that may differentially affect smallholder farmers in businesses; (ii) personal characteristics of the entrepreneurs (such as differences in educational attainment and skills); (iii) characteristics of the firm (size, area of specialization, location, formal/informal sector); and (iv) constraints within financial institutions (little familiarity with women entrepreneurs).
4. In 2018, the Government of Niger became the first country of the GGWI to request IFAD's support to develop the "Inclusive Green Financing for Climate Resilient and Low Emission Smallholder Agriculture" (IGREENFIN) project. In November 2019, the SAP012 IFAD-Niger IGREENFIN was approved during the GCF Board no. 24.
5. Early 2020, five West African Countries (Burkina Faso, Côte d'Ivoire, Ghana, Mali and Senegal) with similar development challenges requested IFAD's support to replicate the IGREENFIN project in their countries. In response, IFAD initiated the first phase of an IFAD-funded regional approach with the drafting of a preliminary regional concept note (CN) and annexes (Feasibility Studies, Gender Assessment, Preliminary ESMF), which were submitted in July 2020 to the GCF. After the first review of the CN, and following the virtual Ministerial Conference on the Great Green Wall of 7 September 2020, it was suggested that the project's geographical scope be expanded to all countries of the GGW, plus Côte d'Ivoire and Ghana, which have been engaged in the talks to replicate the IGREENFIN approach since the beginning of 2020. In coordination with UNCCD and the GCF, IFAD reached out to all the GGW countries to assess their interest in participating in the IGREENFIN Programme and supporting the elaboration of the GCF GGW UP.
6. The IFAD is expanding the scope of IGREENFIN to effectively address the financing needs of women and youth led owned agricultural businesses. IGREENFIN is a potential green climate finance programme which aims address the access to finance challenges faced by women, youth and smallholders in agricultural businesses through the mobilization of financial and other non-financial resources.

7. It builds and scale up the resilience and adaptive capacity of farmers' organizations (FOs), cooperatives and micro, small and medium-sized enterprises (MSMEs) in Niger by removing key barriers to farmers' access financial and non-financial services that support the adoption of best climate change adaptation and mitigation practices and solutions. It will contribute to reducing GHG emissions through the promotion of sustainable forest, land, water and energy management and use in selected agricultural value chains, as well as renewable energy technologies (RETs) to power energy efficient processing, storage and packaging equipment and irrigation systems.
8. The proposed IGREENFIN 1 program is structured under three components:
  - **Component 1:** Green Financing Facility which provide concessional loans to foster best adaptation and mitigation practices for the selected agricultural value chains in each target country. Operated by the local national agricultural banks (LNABs): the Agricultural Bank of Burkina Faso, the National Investment Bank of Côte d'Ivoire, the ARB Apex Bank Limited of Ghana, the Agricultural Bank of Mali, and the Agricultural Bank of Senegal, the facility will offer special lines of financing for green businesses prepared by FOs, women and youth organizations, cooperatives and MSMEs (including agribusiness dealers, solar operators). This component will contribute simultaneously to pillar 1 (Investment in small and medium-sized farms and strengthening of value chains, local markets and organization of exports) and pillar 4 (Favorable economic and institutional framework for effective governance, sustainability, stability and security) of the Great Green Wall Accelerator.
  - **Component 2:** Technical Assistance Facility (TAF) – will be created to address capacity, knowledge and policy gaps hindering the uptake of green agriculture projects in the selected countries. It will target LNABs, central banks and clients (FOs, MSMEs and cooperatives), with a special emphasis on women and youth. This component will contribute to pillar 2 (Sustainable management of ecosystems and land restoration), pillar 3 (Climate resilient infrastructures and access to renewable energy) and pillar 5 (Capacity-building) of the Great Green Wall Accelerator.
  - **Component 3:** This component will increase the collective impacts of the individual GCF projects and programmes (including IGREENFIN I and II) through two outputs: i) **Output 3.1.** Enhanced knowledge management and exchanges accelerating the uptake of good practices, increasing learning and informing policy and investments across GCF projects and others ii) **Output 3.2.** Innovation and digital transformation technologies mapped and ecosystem built
9. While local demand for agricultural products is real in most African countries particularly in the GGW countries, understanding new niche market and technologies for investment in the agriculture sector is key for the agricultural sector development. IFAD conducted a market scoping study to inform the design of the Inclusive Green Financing Initiative Phase I (IGREENFIN 1): Greening Agricultural Banks & Financial Sector to Foster Climate Resilient, Low Emission Smallholder Agriculture in the Green Great Wall (GGW) countries to assess the access to green finance landscape for smallholder farmers, farmer organizations (FO), cooperatives and micro, small and medium-sized enterprises (MSMEs) in Burkina Faso, Cote d'Ivoire, Ghana, Mali and Senegal.
10. This report summarizes the findings of both the country visits and the secondary research carried out for all five African countries during and after the visits. As part of the assignment, it was (i) Conducted an assessment of the needs, constraints, gaps and opportunities that smallholder farmers, MSMEs, Cooperatives face in accessing finance, the challenges faced by financial institutions in delivering

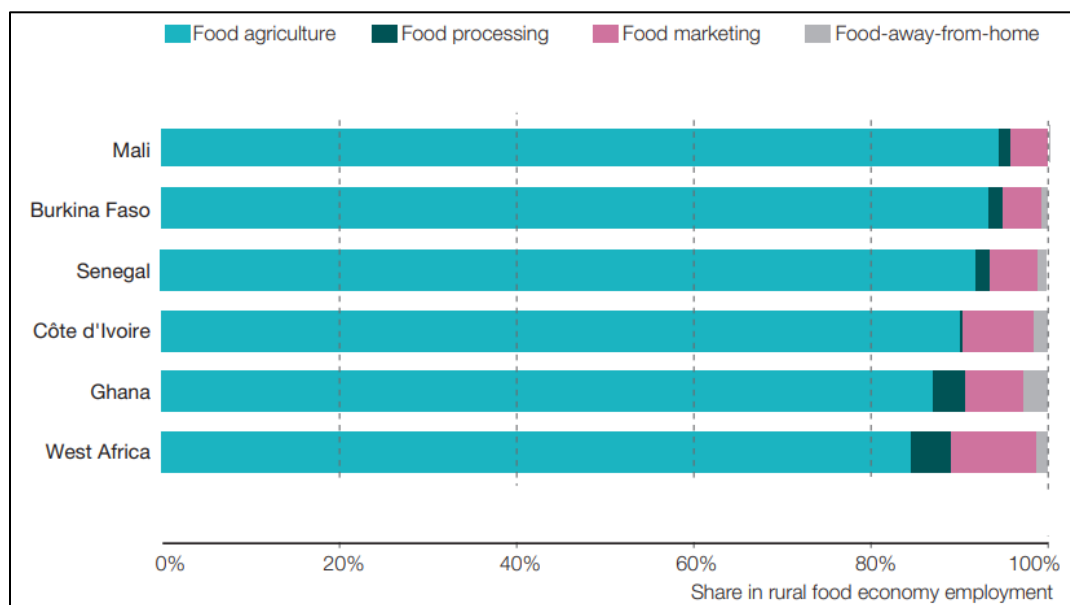
financial services to women, and the enabling policy and regulatory environment and level of commitment from national governments; (ii) Estimated the aggregate financial resources needed to address the credit gap; and iii) supply and demand and new emerging opportunities on green agricultural projects as technologies along viable business models particularly under climate change (iv) Provided an overview of past and existing financial interventions from other bilateral and multilateral banks and development institutions that support women and women-owned businesses in Africa v). the investments opportunities for key crops and technical and financial barriers on climate resilient agriculture for FOs, cooperatives and MSMEs in West African countries, including those in the Great Green Wall Initiative (GGWI<sup>1</sup>).

## II. Strategic Context

### A. Agricultural economies in the selected countries

11. **Agriculture, livestock and forestry activities are the foundations of West Africa and the Great Green Wall Countries' economies and more than 70 per cent of rural communities depend directly on rainfed agriculture (crops, livestock, fishery and forestry).** In the West African Monetary and Economic Union zone (also known under the French acronym, UEMOA<sup>2</sup>), it contributes to 30% of GDP and employs 50% of the labor force<sup>3</sup>. This share is higher in rural areas due to the overall dominance of agricultural activities, which account on average for 85% of rural food economy employment in Burkina Faso, Cote d'Ivoire, Ghana, Mali and Senegal. Figure 1 shows the food economy employment accounting for more than 80% of total rural employment in the five selected countries.

**Figure 1: Rural food economy employment diversification in selected IGREENFIN countries**



<sup>1</sup> The GGW Initiative, a pan-African initiative endorsed in 2007 by the African Union (AU) which aims at restoring 100 million ha of degraded land, sequester 250 million tCO<sub>2</sub>e and create 10 million green jobs by 2030 in 11 countries of the Sahel and the Saharan.

<sup>2</sup> UEMOA member countries: Benin, Burkina Faso, Côte d'Ivoire, Guinea Bissau, Mali, Niger, Senegal and Togo

<sup>3</sup> African Development Bank et al. 2017



Source: OECD,2018<sup>4</sup>

12. **Family farms and small-holders are a growing share of employment in food agriculture. Of the two-thirds of West Africa's population that resides in the rural areas, the majority can be considered as smallholder farmers (Table 1).** However, during the IGREENFIN 1 preparation of the Stakeholder Engagement Plan (Annex 7), there was a case for public interventions to facilitate access to finance for small-holders to improve their agricultural production systems, access to inputs, and varieties. Smallholders in agriculture face a major disadvantage in their ability to provide the necessary documentation and collateral to apply for credit. Banks need to consider this if they want to increase outreach to small farm sizes. The interactions between affordable financing and broader structural transformations are also captured by the relationship between GDP per capita and the share of workers engaged in agriculture. Ghana for instance have the highest GDP per capita among the five participant countries in IGREENFIN 1 as well as the lowest share of food agriculture jobs whereas Burkina Faso, the poorest country among the five selected countries in GREENFIN 1 has one of the highest shares of farming jobs (72%).

**Table 1: Main indicators for food employment in the five countries in IGREENFIN 1**

	GDP per capita (USD PPP)	Employment in agriculture (% of total)*	Food economy employment (% of total)**	Food imports (% of merchandise)	Rural population (% of total)
<b>Ghana</b>	5,596.3	30	61	17	43
<b>Senegal</b>	3,481.3	30	39	20	52
<b>Cote d'Ivoire</b>	5,458.2	40	61	21	48
<b>Mali</b>	2,338.5	62	82	17	56
<b>Burkina Faso</b>	2,279.2	26	80	11	69

Note: \*Modeled ILO estimate, \*\*[OECD,2018](#). Source: World Bank data, 2020

13. **The number of women and young people entering the rural labor workforce in West Africa has been increasing, which impacts the demands facing the region's producers and the capacity of the agri-food system to respond to those demands.** According to the World Bank and IFAD (2017), an estimated 440 million young people will enter the rural labor market by 2030 in Africa alone<sup>5</sup> and according to the World Bank Enterprise Surveys (WBES), about one third (34.5%) of formal firms surveyed in Sub-Saharan Africa reported women ownership participation. In West Africa, development institutions increasingly agree on the huge business potential that women and youth represent, a fact that policy-makers and financial institutions have not widely recognized. To varying degrees across the continent, women and youth in businesses in West Africa and the Great Green Wall Countries continue to face institutional discrimination when accessing the financial sector due to several factors, including prevalent social and legal constraints (See Annex 8 on Gender Assessment and Action Plan).
14. **In consideration of the nature of the challenges smallholder farmers face, in particular women and youth, and based on this market analysis, there is a strong case for supporting smallholder farmers through well-structured financial instruments complemented by targeted capacity**

<sup>4</sup> [\\*dc152bc0-en.pdf \(research4agrinnovation.org\)](#)

<sup>5</sup> World Bank-IFAD. 2017. Rural Youth Employment. Paper commissioned by the German Federal Cooperation and Development as an Input Document for the G20 - Development Working Group.

**building initiatives while jump starting a new market with incentives.** Access to finance is necessary but it is not sufficient and technical assistance is needed. Apart from the traditional focus on loans and other debt instruments for short-term working capital, banking sector and smallholder farmers also expressed a clear need for additional services and products (e.g., advisory services on financial management, acquisitions, working capital and long-term financing, lower interest rate particularly in the COVID 19 context, etc.) that mainstream financial institutions do not offer. Qualified advisory support through each stage of the transaction and at each phase of the business cycle is also necessary using grant instrument.

**15. The following summaries reasons for smallholders' gap in use of formal credit products in sub-Saharan Africa<sup>6</sup>:**

- Rural Smallholder farmers tend to work in the informal sector and run smaller businesses
- They seem to rely on their savings and grow their businesses slowly
- Collateral of substantial value (land property) is a bigger constraint
- Fear of losing collateralized assets and of high interest rates
- Applying for formal loans is more cumbersome and smallholder farmers do not feel confident enough
- Small holders make more use of credit and savings cooperatives and prefer to borrow informally
- There is a cultural bias in favour of men as they are perceived as more business-savvy compared to women
- Banks and MFIs do not want to take risk and the perception prevent them to lend to individual farmers
- Men are seen as head of households and often dominate financial decisions and women / youth have limited access to financial services
- Loan repayment period are short

**B. Agricultural production systems and main value chains in the region**

**16. Agricultural activities in the region range from nomadic pastoralism in the far north through agropastoral systems based in the Sahel, a mixed cereal-root crop system in the Sudanian savannah areas (the so-called “Middle Belt”), root-crop and tree-crop systems in higher rainfall areas farther south, to the sub-humid and coastal-artisanal fishing system along the Atlantic.** Roughly a third of West Africa’s land area is devoted to agricultural uses, of which only one third is used for crop production and the remainder serves as rangeland and pastures.

**17. The humid zones along the coast are suitable for the production of roots, tubers, tree crops such as rubber, coffee, cocoa and oil palm, but also legumes, maize and pineapples.** Tick-borne diseases and trypanosomiasis, however, severely limit cattle production along the humid coast. The Middle Belt has a more diverse production potential due to its climatic and soil conditions. Crops grown include millet, sorghum, maize, oilseeds (sesame, shea and groundnuts), cashew nuts, cotton, cassava, mango, citrus fruits and beans. Its abundant pasture resources support widespread production of livestock, including cattle, goats and sheep.

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<sup>6</sup> based on Adapted from GIZ and Making Finance Work for Africa, 2012 GIZ and Making Finance Work for Africa (MFW4A), 2012

18. **In the arid and semi-arid areas of the Sahel, livestock production is more important than crop production**, which is mainly confined by water availability and concentrated along rivers, irrigated areas and lowland areas.
19. **The Sahelian zone has a long tradition of livestock production based on extensive transhumant systems adapted to seasonal rainfall patterns. Crops grown include millet, sorghum, irrigated and rainfed rice, legumes (especially cowpeas), onions and groundnuts<sup>7</sup>.** There has been an increasing convergence of production in the Sudanian zone, with roots, tubers and maize moving north from their traditional production zones in the south, and Sahelian products such as legumes, sorghum, millet and cattle moving south from their traditional production zones in the north.
20. **The performance of the agricultural sector in West Africa over the last three decades has been characterized by strong output growth. Production volumes of most crops, both for domestic and export markets, has grown vigorously since 1980, often outpacing population growth.** In value terms (based on 2018 production), aggregate agricultural production is dominated by yams, rice, cassava and maize, followed by groundnuts, cattle meat\*, millet and sorghum (Table 2). With the exception of cocoa (cashew nuts), the top items in terms of value of production are all food commodities, destined overwhelmingly for local and regional consumption.

**Table 2: Average agricultural production by value (1000 USD) in Burkina Faso, Cote d'Ivoire, Mali, Ghana and Cote d'Ivoire**

Commodity	2015	2018
<b>Crops</b>		
Cashew nuts, with shell	81753	128972
Cassava	475468	764279
Cow peas, dry	68612	175527
Groundnuts, with shell	173261	316529
Maize	285053	510118
Mangoes, mangosteens, guavas	40955	86224
Millet	161754	259682
Rice, paddy	406013	1007990
Seed cotton	128669	143464
Sesame seed	49149	69114
Sorghum	137503	225558
Vegetables, fresh	151332	184014
Yams	683406	1249879
<b>Livestock*</b>		
Meat indigenous, cattle	166013	226401
Meat indigenous, chicken	105230	128841
Meat indigenous, goat	96393	135372
Meat indigenous, pig	13595	15492
Meat indigenous, sheep	82042	115772

<sup>7</sup> Blein et al., 2008

\*Data for Senegal was unavailable. Source: FAOSTAT, 2018

21. **In terms of land productivity, Table 3 displays examples of striking differences in country-wide average yields in 2016–19 for selected crops. For certain crops, yields may vary by up to a factor of eight, reflecting vast differences in agro-ecology zones, production systems, access to inputs, and varieties.** Among the five selected countries in IGREENFIN 1, the highest average yields of cashew, maize and mangoes were in Mali with 36,761 hg/ha, 27,972 hg/ha and 178,937 hg/ha, respectively. As for cassava, cowpeas, millet, sorghum and fresh vegetable, Ghana has the highest yields (202,885 hg/ha, 13,732 hg/ha, 10,005 hg/ha, 10,981 hg/ha and 99,644 hg/ha, respectively). These disparities across countries also suggest that there is substantial scope for improving yields in low-performing areas by learning climate resilient and sustainable approaches from neighboring countries.

**Table 3: Average yields for selected crops in Burkina Faso, Cote d'Ivoire, Mali, Ghana and Cote d'Ivoire (2016-2019).**

	Cashew nuts	Cassava	Cowpeas	Ground nut	Maize	Mango	Millet	Rice, paddy	Sorghum	Fresh Vegetables	Yams
Country	Hg/ha										
Burkina Faso	10,119	9798	4807	7832	16,788	102,239	7794	21,335	9452	99,043	65,894
Cote d'Ivoire	4188	61,600	N/A	14,375	20,316	5931	8225	26,290	7040	82,416	57,988
Ghana	5368	202,885	13,732	12,985	19,656	136,947	10,005	28,334	10,981	99,644	17,3648
Mali	34,761	14,6731	4278	8646	27,972	178,937	8437	33,954	9555	53,175	17,7053
Senegal	3986	111,163	5757	11,350	18,081	66,911	9098	35,011	10,737	42,876	N/A

Source: FAOSTAT, 2019

22. **Furthermore, regional trade is an important contributor to the food security of West African countries, allowing the region to access a broader range of products than they produce domestically and helping the region to balance fluctuations in national production with imports and exports.** It is also a growing source of income for West African farmers given the growing regional demand for an expanding range of food products. According to the Economic Community of West African States (ECOWAS), Nigeria provides 77% of regional exports and Côte d'Ivoire 10%. For their part, Ghana and Senegal are placed third and fourth with 4% and 2% respectively. Mali following the traditional leaders with 1.7% of regional exports. Five Countries (Benin, Burkina Faso, Guinea, Niger and Togo) carry each 1% of regional exports.

23. **As for regional imports, cereals have the fifth place and fish and seafood, the tenth place. As for the exports, Nigeria appears here also in a dominant position by making alone 41% of transactions against 18 % in Ghana, 10% each for Senegal and Côte d'Ivoire.** Nigeria and Ghana together perform 59 % of the Community imports against 36% for the eight Countries of the West African Economic and Monetary Union (WAEMU). The other five countries of the ECOWAS Member States realize only 5 % of the Community imports. Among the key agricultural commodities important in regional trade are the following<sup>8</sup>:

- **Ruminant Livestock.** Exports of cattle, sheep and goats typically flow from the Sahelian and Sudano-Guinean zones towards the demand centers of the humid coast, where disease problems limit ruminant livestock production;

<sup>8</sup> FAO and AfDB. 2015. Agricultural Growth in West Africa (AGWA). Available at: <http://www.fao.org/3/i4337e/i4337e.pdf>

- **Coarse grains (millet, sorghum, and maize).** Trade in coarse grains flows in both a north-south and a south-north direction, depending on the season. The largest flows appear to be between Nigeria, Benin, and Niger, with over 50 000 tons of millet and sorghum flowing northward, while Nigeriens export livestock and cowpeas to their southern neighbors;
- **Rice.** All countries in West Africa are net importers of rice, but there is a substantial trade in re-exported rice across borders<sup>9</sup>. In addition, some of the major rice producers in the region (e.g., Guinea and Mali) export some locally produced, higher-valued rice (e.g. parboiled rice from Guinea) to their neighbors, while compensating with imports of cheaper Asian rice to cover some of their domestic consumption.
- **Cowpeas.** They are an increasingly important source of high-quality protein in several countries, particularly Nigeria, Niger, Ghana, Burkina Faso and Mali. Nigeria is the world's largest producer of cowpeas, but is a net importer, with Niger being the largest exporter in the region.
- **Horticultural products.** Niger, and to a lesser extent Mali and Burkina Faso, have been major exporters of onions in both fresh and dried forms to the coastal countries for many years.
- **Roots and tubers.** As documented by FEWSNet, there has been a growing trade in cassava products and yams, both among the coastal countries and from the coastal countries to the Sahel, as consumers in the Sahelian countries begin to diversify their staple food consumption away from just cereals.

24. **Agriculture in the West Africa and the GGW is almost entirely rain-fed and limited to three to four months of variable summer rainfall (June-September; annual precipitation between 200 mm to 1200 mm), making it highly vulnerable to increasing climate variability and putting at risk the large percentage of the region's people who rely on agriculture as their primary source of livelihood.** FAO estimates 20-80 percent of the inter-annual variability of crop yields is associated with weather phenomena and 5-10 percent of national agricultural production losses are associated with climate variability<sup>10</sup>. In addition, agriculture suffers 26 percent of the damage and loss during climate-related disasters. In the Sahel region, dry spells and droughts lead to increased evaporation, which can reduce water resources and diminish soil moisture and fertility, with negative implications for agricultural yields. In tropical and coastal zones, where famine is already widespread, heavy rainfall events, flooding and reduced overall annual rainfall are among the main climate threats to agricultural production<sup>11</sup>. The generally nutrient limited soils in the regions, which are being degraded by overgrazing, continuous cropping and deforestation, will be further threatened by desertification and sand intrusion brought about by reduced precipitation and higher temperatures. Table 4 summarizes the key climate change trends and analyses their impacts on agricultural value chains, water, the financial system and energy sector. The last two elements have been included due to their relevance to the proposed programme.

25. **The resilience of smallholder farmers to climate change is being undermined by the impacts of COVID-19.** For instance, the prices of Senegal and Côte d'Ivoire's cashews have dropped a record 47 percent due to the decline in demand in domestic markets, while demand for cocoa beans from Côte d'Ivoire and Ghana (the two largest cocoa producers in the world) has reduced across Europe. Unemployment is expected to increase while household monetary incomes decline due to the closure of several micro enterprises along agricultural value chains. A drop in household income affects savings or access to credit. The unanticipated shock of COVID-19 underscores the need for a shift from

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<sup>9</sup> Hagblade et al., 2012; Soulé and Gansari, 2010

<sup>10</sup> FAO, 2019

<sup>11</sup> USAID, 2018

“business as usual” practices to a more forward-looking approach that invests in the productivity, sustainability and resilience of food systems.

**Table 4:** Summary climate trends and impacts

Climate Trends			Impacts			
Increased temperature	Shifts in precipitation patterns	Extreme weather events	Agricultural and food security	Water	Financial system	Energy resources
Temperatures are expected to increase by between 1 and 1.72°C for 2031-2050 compared to the reference period 1986-2005. Temperature increases higher than 2°C are projected to decrease millet and sorghum yields by 15-25per cent by 2080 <sup>12</sup>	Precipitation is projected to decline by as much as 30per cent by the end of the century under RCP8.5 scenario. Greater frequency and intensity of heavy precipitation events that are likely to produce floods. For the northern part of the target region, including part of Senegal, Mali and Burkina Faso, the decline in the intensity (r1xday, r5xday, R95Ptot) and frequency (R20mm) of heavy precipitation events is accompanied by an increase in dry spell length (CDD) <sup>13</sup>	The effect of increased temperatures will result in floods, droughts, heatwaves, locusts, desertification, sandstorms <sup>14</sup>	One in six trees in the region has died since the 1950s and one fifth of all species has disappeared locally because of rising temperatures and lower rainfall linked to climate change. At some sites in the Sahel, temperatures rose by 0.8 degrees Celsius and rainfall decreased by 48per cent. Trees have shifted southward towards wetter areas <sup>15</sup>	Increase in temperature and intensification of hydrological cycles is expected to result in water stress, affecting supply of ground and surface water. Further, climate change is expected to impact water quality as well as water variability	Risks for financial institutions are higher and reluctance of farmers and MSMEs to borrow <sup>16</sup>	Hotter temperatures are likely to increase energy demand due to increased air conditioning requirements & consequently increase GHG emission and use of fossil fuel <sup>17</sup>

**26. Despite countries’ commitment to fight against climate change in their Nationally Determined contributions (NDC) and a number of initiatives supported by Governments and bilateral/multilateral donors in the agricultural sector, climate finance market is still nascent in West Africa and the Great Green Wall countries.** This is due to the presence of a number of market barriers that hold back investment at scale both from public and private sector: The lack of climate finance is the main barrier and it is partially due to an unattractive risk-return because of high (real or perceived) levels of risk or insufficient risk taking capacity of financial institutions and to limited local capital. Together, these translate into inadequate sources of necessary long-term debt finance which prevent small holder farmers to invest. Most of the existing lending capacity is focused on a small number of big companies with high creditworthiness. **Addressing the barriers to climate finance is crucial to unlock the climate investment potential. IGREENFIN is designed to remove or reduce the financial and technical barriers faced by local project sponsors.**

<sup>12</sup> RCP8.5

<sup>13</sup> IBID.

<sup>14</sup> IPCC, 2013, [https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5\\_Chapter12\\_FI](https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_Chapter12_FI)

<sup>15</sup> FAO, 2020.

<sup>16</sup> IFAD 2021, [https://www.ifad.org/en/web/knowledge/-/ifad-inclusive-financial-services-portfolio-stocktaking?p\\_i\\_back\\_url=%2Fen%2Fweb%2Fknowledge%2Fpublications%3Fdelta%3D125](https://www.ifad.org/en/web/knowledge/-/ifad-inclusive-financial-services-portfolio-stocktaking?p_i_back_url=%2Fen%2Fweb%2Fknowledge%2Fpublications%3Fdelta%3D125)

<sup>17</sup> IPCC, 2013, [https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5\\_Chapter12\\_FI](https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_Chapter12_FI)

### C. COVID-19 impact on the socio-economic, financial, agriculture and energy sectors

27. The COVID-19 pandemic is having a severe impact on economic and social prospects across the world. The section below highlights the impact on the selected countries for IGREENFIN and in particular the financial, agriculture and energy sectors.

#### ✓ Socio-economic

As of June 2021, more than 4 835 646 cases of COVID-19 have been recorded in Africa, with over 130,000 deaths<sup>18</sup>. While the virus has spread more slowly in Africa than other parts of the world, the number of cases, and deaths, has been growing exponentially in the five IGREENFIN 1 countries (Table 5).

**Table 5: Number of confirmed COVID-19 cases in targeted IGREENFIN 1 countries** (as of October 2021)

Country	Cumulative cases	Cumulative deaths
Burkina Faso	14759	20
Cote d'Ivoire	61053	681
Ghana	129516	1167
Mali	15697	558
Senegal	73875	1873

Source: World Health Organization Covid-19 database, 2021

**The coronavirus outbreak is causing a fast and deep slowdown of economic activity, significantly impacting economic growth. Restrictions on movements to contain the virus have resulted in a decrease in productivity and economic activities in West African and GGW regions. The pandemic is projected to widen fiscal deficits; government budgets face a significant decline in revenues, while expenses increase to combat the effects of COVID-19.** COVID-19 is estimated to double the global population facing acute food insecurity to 265 million, with a large proportion anticipated in Africa<sup>19</sup>. The slowdown in overall economic growth is leaving many businesses, including in the agricultural sector, under significant cost pressure, potential closure and bankruptcy, likely to lead to widespread job losses. The forecast on real GDP in sub-Saharan Africa is projected to contract by -3.0 percent in 2020, real GDP growth for the IGREENFIN 1 countries are given in Table 6. Given the still profound uncertainties around how long the COVID-19 pandemic will persist, it is hard to predict what its true impact on consumption, job losses and bankruptcies will be.

**Table 6 : Real GDP growth IGREENFIN countries (compared to the previous year)**

Country	Real GDP Growth (percent)	
	2019	2020

<sup>18</sup> World Health Organization

<sup>19</sup> World Food Programme



Burkina Faso	5.69	0.79
Ghana	6.48	0.88
Cote d'Ivoire	6.23	2.28
Mali	4.77	-1.98
Senegal	4.4	0.83

Source: World Bank

## ✓ Agriculture sector

### *Food production and security*

**The COVID-19 pandemic and its associated economic impacts have implications for agriculture, food, and rural West Africa. There was a disruption in global supply chains and food chains (quality climate resilient seeds, fertilizers, post-harvest packaging materials and crop-nurturing and protection inputs to maintain agricultural production), which affected farms, processors, handlers, retail outlets, and trade and decreased global food security due to:**

- loss of income from workers who are fully or partially furloughed affecting their ability to purchase food;
- stay-at-home orders and restricted physical access to food markets and/or indigenous food gathering activities;
- closure or diminished capacity of institutions that support food social safety nets, such as food banks and school feeding programs; and
- lack of the ability of supermarkets to rapidly restock from centralized distribution systems following unprecedented demand (i.e. panic buying) for pantry staples.
- wastage of fresh vegetables, fruits and milk due to inability by farmers or entrepreneurs to transport them from point of production to local markets or supermarkets in nearby towns or cities.

### *Labor*

**A second emerging issue concerns labor availability in the agri-food sector. Limited availability of farmers and workforce (young seasonal and permanent workers) suddenly restricted in many regions due to quarantine measures and loss of workforce from COVID-19 deaths and serious illness, has been negatively impacting agricultural productions in some sectors.** This seems particularly severe in horticulture, livestock production systems, and processing but also for planting and harvesting of crops that are relatively labour-intensive<sup>20</sup>. The timing of labour needs is often inflexible for seasonally produced foods. Resolving these labour shortages and designing working conditions that are safe for workers and the community, is of critical importance in order to secure future growing seasons and avoid disastrous consequences for future food security and supply.

### *Livestock*

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<sup>20</sup>Stephens et al.,2020. Available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7237936/>



**The pandemic is impacting on livestock sector due to reduced access to animal feed and slaughterhouses' diminished capacity (due to logistical constraints and labour shortages).** In countries already affected by other crises, emerging evidence from FAO's assessments highlights the livestock sector is particularly vulnerable to the effects of the pandemic. For example, in Afghanistan, the nomadic Kuchis have been severely impacted due restricted access to pasture, lack of adequate fodder/feed and increased prices of the same, coupled with diminished access to assured veterinary services. Close to one-third reported that their transhumance was either blocked or limited, resulting in some localized tension.

### ***Transport***

**Blockages to transport routes are particularly obstructive for fresh food supply chains and have resulted in increased levels of food loss and waste.** Fresh agricultural products, which are highly perishable and therefore need to be sold, processed, or stored in a relatively limited time are at particular risk. Transport restrictions and quarantine measures are likely to impede farmers' and fishers' access to markets, curbing their productive capacities and hindering them from selling their produce. Shortages of labor could disrupt production and processing of food, notably for labor-intensive industries (e.g. high-value crops, meat and fish).

### ***Markets***

**The closure of restaurants and street food outlets removes a key market for many producers and processors that may produce a temporary glut or trigger upstream production cuts as can be seen in the fish and meat sectors.** In some developing countries, urban supply and demand for fresh produce are both in decline due to restrictions and aversion behavior by traders and consumers<sup>21</sup>.

### ***Spread of pathogens***

**Furthermore, as documented in the CBD/WHO 2015 Report, the spread of pathogens is exacerbated by climate change, ecosystem destruction, land use change, deforestation, biodiversity loss and the removal of essential protective barriers.** Indeed, there is a risk of locust invasion due to climatic conditions during the pandemic could negatively affect farm yields. The 'efficiencies' of global trade have paved the way for increasingly uniform farming systems and removed the firebreaks of biodiversity.

### **✓ Financial sector**

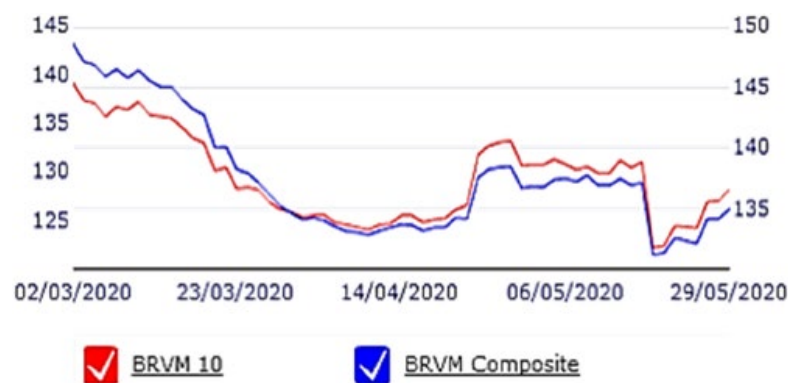
**The impact of COVID-19 is felt throughout the entire financial sector in West Africa. On the WAEMU stock market in countries such as Burkina Faso, Cote d'Ivoire, Mali and Senegal, there are two main indices, representing the activity of equity market securities: BRVM 10 and BRVM Composite<sup>22</sup>.** Since the advent of Covid-19 in the WAEMU, the two benchmark indices have been declining with a general deterioration in return by 20 percent between the beginning of March and the first half of April 2020 (Figure 3.1). A slight recovery is observed during the first half of May; however, this recovery is not sustained over time because the stocks plunged again in late May. This figure suggests a presumed negative effect of Covid-19 on the WAEMU stock market since the appearance of the first case on March 2, 2020. The transmission channel of COVID-19 to the BRVM market relies on the Keynesian theory of supply shock. As a shock, the pandemic leads to a complete stop or a slowdown in the economic

<sup>21</sup> <http://www.fao.org/2019-ncov/q-and-a/impact-on-food-and-agriculture/en/>

<sup>22</sup> The BRVM Composite is a general index that takes into account all the companies listed on the stock market. The BRVM Composite is adjusted each time a new company is listed (but also in the event of an increase or reduction in the capital), to be adapted to the evolution of the Regional Financial Market.

activities of the region (Zoungana et al. 2021)<sup>23</sup>. Consequently, the supply and demand may fundamentally change and lead to layoffs. Moreover, limited by the unavailability of information associated with the evolution of the pandemic, investor's sentiment in the region could deteriorate due to their rationality. All the above contribute to an overreaction of the BRVM market because of the uncertainty surrounding the WAEMU economy in general and particularly companies' futures (Figure 2).

**Figure 2: Evolution of the BRVM benchmark indices from the beginning of March to the end of May 2020**



Source: WAEMU Regional Securities Market (May 2020)

**The unprecedented pandemic has created supply chain disruptions, reduced mobility due to travel and health restrictions, increased currency risk, and decreased investor appetite due to heightened financial and economic uncertainty.** The national financial institutions, mainly agricultural banks of the five countries within the IGREENFIN framework, are exposed to limited financial activities, collection of repayments, and disruption in logistics and supply chains - challenging the continuation of services to existing and new customers, and adversely affecting revenues. After lockdowns are lifted, the anticipated economic downturn is expected to diminish growth projections and credit portfolios. The reduction in revenues, in combination with tight cashflows, exposure to FX fluctuations in Ghana often being highly leveraged, leave access-to-finance institutions extremely vulnerable.

**The difficulties experienced by companies in the WAEMU have led the regional central bank (BCEAO) for the WAEMU to take preemptive steps to better satisfy banks' demand for liquidity and mitigate the negative impact of the pandemic on economic activity.** The BCEAO first raised the liquidity made available to banks at its weekly and monthly auctions of March 23, allowing average refinancing rates to remain relatively close to the floor of the monetary policy corridor of 2.5%. This was followed, starting with the weekly refinancing auction of March 30, 2020, by the adoption of a full allotment strategy at a fixed rate of 2.5% thereby allowing banks to satisfy their liquidity needs fully at a lower rate<sup>24</sup>.

#### ✓ Energy sector

**The impact of COVID-19 is felt throughout the entire sustainable energy sector in West Africa, from end-users of energy services to businesses, utility companies and international financiers.**

<sup>23</sup> <https://doi.org/10.1002/ijfe.2484>

<sup>24</sup> Zoungana et al. 2021

Governments are refocusing priorities and resources towards COVID-19 response and the emerging strained economic realities. Utility companies and independent power producers suffer losses; revenues are at risk due to reduction in electricity demand resulting from decreased economic productivity. Social safety net programs (such as deferral of electricity billing and payments) provide relief to customers, further impacting operational budgets. Energy infrastructure construction is being deferred, and delays in power projects are expected due to supply chain disruptions. Increased risk and uncertainties, and limited ability to conduct due diligence, delays or reduces investments into the sector. The existing and anticipated impacts of the pandemic on the energy sector are shown in Table 7.

**Table 7: COVID-19 Impacts on the Sustainable Energy Sector in West Africa**

Stakeholder Group	COVID-19 Impacts	Implications for Sector Development
<b>End-users of energy services</b>	<i>Public Facilities, Businesses:</i> <ul style="list-style-type: none"> <li>• Temporary closure and decrease in productivity</li> <li>• Reduced revenues</li> </ul>	<i>Public Facilities, Businesses:</i> <ul style="list-style-type: none"> <li>• Decreased energy consumption</li> <li>• Decreased ability to repaying obligations</li> </ul>
	<i>Households, Communities:</i> <ul style="list-style-type: none"> <li>• Decreases in employment, income/revenue</li> <li>• Limited access to goods and services due to disrupted supply chains and lockdowns</li> <li>• Limited ability to pay for goods and services.</li> </ul>	<i>Households, Communities:</i> <ul style="list-style-type: none"> <li>• Limited access to energy services; unavailability of repair and customer support</li> <li>• Limited developmental benefits of modern energy access</li> <li>• Reverse energy transitions – i.e. a surge in demand for diesel- or fossil-fuel-based equipment</li> </ul>
<b>Energy Enterprises: Decentralized Energy Services Companies (DESCOs), IPPs, Developers, and other Private Energy Enterprises</b>	<ul style="list-style-type: none"> <li>• Disrupted supply chains and operations and delays in construction, operations, and maintenance activities</li> <li>• Limited ability to connect new customers and service existing customers</li> <li>• Decreases in revenue due to disrupted operations</li> <li>• Increased payment risk from off-takers</li> <li>• Heightened currency risk</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced growth</li> <li>• Reduced service quality due to limited “in-person” activities – e.g. sales, O&amp;M</li> <li>• Liquidity shortfalls and reduced ability to service debt</li> <li>• Events of default and bankruptcies, inability to reach financial close, projects not materializing</li> <li>• Increased cost of risk-adjusted lending</li> <li>• Reduced investor confidence; less capital available across sector and increased cost of capital</li> </ul>
<b>Financial Intermediaries and Investment Funds</b>	<ul style="list-style-type: none"> <li>• Reduced portfolio quality and ability to recoup investments</li> <li>• Limited ability to conduct on-site due diligence for new transactions</li> <li>• Limited ability to conduct portfolio management operations</li> </ul>	<ul style="list-style-type: none"> <li>• Delay and/or reduction of investments in sustainable energy</li> <li>• Reduced investor confidence and market spoilage effects</li> <li>• Increased risk adjusted cost of capital</li> </ul>

<b>National Utilities and Rural Electrification Agencies</b>	<ul style="list-style-type: none"> <li>• Disrupted operations and teleworking</li> <li>• Decreases in revenue due to limited business activity and customer demand, as well as mandatory payment exemptions for poor clients on lifeline tariffs</li> <li>• Decreases in global oil prices</li> <li>• Heightened currency risk</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced growth of service coverage and reduced quality of services</li> <li>• Liquidity shortfalls and reduced ability to service debt</li> <li>• Higher likelihood of defaulting on commitments with private counterparties (e.g. IPPs, EPCs)</li> </ul>
<b>Government Counterparts</b>	<ul style="list-style-type: none"> <li>• Reduction in tax revenue collection</li> <li>• Re-allocation of existing budgets to emergency response efforts</li> <li>• Reduction in foreign currency reserves</li> </ul>	<ul style="list-style-type: none"> <li>• Reduction in budgets for the energy sector</li> <li>• Reduction in progress towards Sustainable Development Goals and other agendas related to climate resilient development</li> </ul>

Approximately 84 million off-grid solar units are in use today, providing clean energy solutions and benefiting more than 420 million people.<sup>25</sup> These solutions collectively create approximately 31 million tCO<sub>2</sub>eq GHG emission reductions per year. Most recent industry survey<sup>26</sup> conducted by EnDev in a cooperation with several industry associations and including 465 energy access companies across Africa, confirms that over 70% of energy access companies are experiencing significant disruption of operations. Sales volumes are substantially down with almost 50% of companies reporting a reduction of over 50% in the last quarter compared to the same quarter in 2019. 370,000 green jobs are at risk<sup>27</sup> and if these companies fall into bankruptcy, households may lose access to modern energy solutions. A “reverse energy transition” could affect an increase in GHG emission due to households returning to fossil fuel-based energy solutions. While this in itself is problematic, the effect of energy access companies being unable to weather the downturn may be dramatically more severe. Due to the nascence and relative fragility of the industry, the sector may require several years before it could recover to its level of operational scale in Africa, of close to 500,000 units sold/month across the continent.<sup>28</sup> This would cause an extended increase in carbon emissions and almost certainly preclude the achievement of SDG 7 in Africa.

**In a post COVID-19 context, contributing to the elimination of these technical and financial barriers would allow institutions in the five targeted countries of the IGREENFIN programme to finance transformational change towards climate compatible investments at a time when local financial institutions, FOs, cooperatives, MSMEs and governments are suffering greatly from the impacts of the pandemic.**

#### **D. Expected role of IGREENFIN in the region**

**28. At IFAD, access to finance is seen as priority to modernize and improve agricultural production and productivity.** IFAD has embraced a rural finance strategy which the updated version was approved

<sup>25</sup> GOGLA (2020). Off-Grid Solar Market Trends Report 2020

<sup>26</sup> EnDev (2020), COVID-19: Energy Access Industry Barometer - Results and observations

<sup>27</sup> <https://www.energyaccessrelief.org/>

<sup>28</sup> GOGLA (2020). Global Off-Grid Solar Market Report Semi-Annual Sales and Impact Data

in 2021 as a high priority policy issue along with the IFAD West Africa Rural Finance mechanisms. Through these policies, IFAD considers that smallholder's economic empowerment is not only a key element but also an indispensable component of poverty reduction and sustainable development.

29. **When it comes to social and economic development, inclusive rural finance is largely recognized as an essential instrument in the fight to reduce poverty. The justification, especially for IFAD to get involved with financial institutions, is to deploy appropriate financial services targeting beneficiaries, namely smallholder farmers and their associate micro, small and medium enterprises (MSMEs), and also FOs, youth and women organizations and as well as cooperatives which draw livelihoods and subsistence mainly from and/or linked to agriculture.** Recently, financial institutions have been used to achieve some environmental sustainability and climate change management objectives. However, the activities remain on a small scale, crippled by lots of constraints including small farm size, limited capacity, loose organizations, limited access to sustained input and viable output markets, limited bargaining power, and high vulnerability to climate change, with women and youth weathering the worst. IFAD has been doing a lot to support farmers to improve their capacities and boost productivity in rural areas by investing in many of the required activities, for example, irrigation or pre-financing inputs for a cropping season, etc.
30. **Financial institutions are often reluctant to serve poor farmers in rural settings given the inherent risks in agriculture and high transaction cost, especially when dealing with smallholder agriculture.** Financial service providers' (FSPs) reluctance to serve rural poor people is compounded by the lack of risk mitigation measures (e.g., insurance, guarantees, fair pricing, good governance, etc.) at micro level, proper mechanisms/financial infrastructure at meso level to assess credit risks such as credit bureaus as well as limited capacity of FSP to assess agriculture credit applications and adapted enabling environment at macro level. Credit risks are typical in every of the 23 countries covered in WCA. Unless de-risked, the reality of small-scale farming militates against the extension of financial services into the rural areas, in spite of the real need to efficiently allocate resources to the rural economic actors in order to accelerate rural economic growth and development.
31. **The overall IGREENFIN design requires the IFAD to play specific roles and functions in each of the programme's three components.** These roles will include: (i) overall coordination and management (with the GGWUP and (ii) providing catalytic financing, which other funders iii ) provide technical assistance to build the capacity for both supply and demand side . IGREENFIN's aim is to set ambitious goals and be transformative and far-reaching. IGREENFIN success factors will be measured in terms of providing financial resources to smallholder farmers organized into cooperatives, FOS and MSMEs.
32. **The financing component of IGREENFIN will be done in parallel with technical assistance for improving the installed capacity of tier 3<sup>29</sup> financial institutions as well as secondary level intermediaries (MFIs, business development institutions, etc.) to better service the smallholders in business segment and make them bankable.** Furthermore, IGREENFIN will work with the GGW

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<sup>29</sup> **Tier 3 Financial Institutions** are not authorized to establish checking accounts or deal in foreign exchange. The companies are authorized to take in customer deposits and establish savings accounts and provide collateralized and non-collateralized loans to savings and non-savings customers. Their activities are supervised by the Central Bank of the country.

countries to establishment of an enabling legal and regulatory framework for an improved financing sector on low emission and climate resilient agriculture.

#### E. IGREENFIN programme design parameters

33. **The focus of the market scoping was to identify feasible intervention(s) that can be implemented by IFAD in the short, medium and long term and have an impact that is transformational and scalable in nature.** The initial meetings with the IFAD team in Abidjan and Dakar in 2020 (See Annex 7 on Stakeholder Engagement Plan) indicated that the following parameters should be taken into account in exploring a potential financial solution :
1. **Choice of the instrument:** IFAD is accredited only for loan and grant at the GCF, it is recommended that at this point in time, the IFAD engage in line of credit (LoC), senior debt and grant
  2. **Choice of client:** IFAD will only engage with regulated financial institutions as IGREENFIN national executing entities, with a preference for well-established low to moderate-risk tier 3 financial institutions such as the agricultural bank or a state owned bank.
  3. **The programme scope is broad is mainly on smallholder farmers organized into cooperatives, farmers organizations and MSMEs.** Five countries were selected for the on-site visits under the market scoping exercise. Three selected countries ( Burkina, Mali and Senegal) are Great Green Wall countries while the others ( Cote d'Ivoire and Ghana) are IFAD clients and have engaged in the IGREENFIN since 2020.

### III. IFAD Experience to date

#### A. Selected lessons learned from IFAD's inclusive financial services portfolio stock-taking diagnostic

34. **In West and Central Africa, IFAD conducted an analysis 36 projects (Table 8), each with at least one significant rural finance activity in the WCA portfolio over a period of 10 years, from 2009 to 2020.** The 36 projects approved by/or before 2020 are a subset of the IFAD rural finance projects selected based on a rigorous process<sup>30</sup> for the 2020 IFAD Inclusive Financial Services Portfolio Stock-Taking analysis.<sup>31</sup> The 10-year period provides a perspective on how the design and implementation of the projects may have evolved over time under the overall oversight of IFAD's Rural Finance Policy (RFP) and its Decisions Tools for Rural Finance (DTRF)<sup>32</sup>, both of which came into effect in 2010. The RFP and its DTRF provide an improved framework and updated guidelines for design, implementation, monitoring and evaluation of results and impact of IFAD-supported inclusive rural finance operations.

**Table 8: 36 projects with a rural finance activity in the WCA portfolio (2009-2020)**

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<sup>30</sup> For the rigorous process deployed to select projects with a rural finance activity in IFAD's portfolio, readers are encouraged to read this WCA focus in tandem with the 2020 IFAD Inclusive Financial Services Portfolio Stock-Taking analysis (click here: [IFAD Inclusive Financial Services Portfolio Stocktaking](#)).

<sup>31</sup> APR = Asia and the Pacific Region, ESA = East and Southern Africa, LAC = Latin America and the Caribbean, MNA = Middle East and North Africa.

<sup>32</sup> <https://www.ifad.org/documents/38714170/39144386/IFAD+Decision+Tools+for+Rural+Finance.pdf/67965f15-2388-4d23-8df6-aee97bade810>

#	Country	Approval Year	End Year	Project short name	Project Characterization
1	Benin	2010	2017	PACER	Non-financial sector value chain project with financial inclusion components
2		2015	2022	PAPSFRA	Standalone financial inclusion project
3		2018	2025	PADAAM	Non-financial sector value chain project with financial inclusion components
4	Burkina Faso	2010	2017	PASPRU	Non-financial sector value chain project with financial inclusion components
5		2017	2024	PAPFA	Non-financial sector value chain project with financial inclusion components
6		2020	2026	PAFA-4R	Non-financial sector value chain project with financial inclusion components
7	Cameroon	2010	2017	PADMIR	Standalone financial inclusion project
8		2015	2022	PEA - J	Non-financial sector value chain project with financial inclusion components
9	Chad	2010	2017	PADER-G	Non-financial sector value chain project with financial inclusion components
10		2019	2025	RePer	Non-financial sector value chain project with financial inclusion components
11	Cote d'Ivoire	2014	2021	PROPACOM/O	Non-financial sector value chain project with financial inclusion components
12		2018	2025	PAPFA	Non-financial sector value chain project with financial inclusion components
13	Gambia	2012	2020	NEMA	Non-financial sector value chain project with financial inclusion components
14		2019	2026	ROOTS	Non-financial sector value chain project with financial inclusion components
15	Ghana	2011	2020	REP	Non-financial sector value chain project with financial inclusion components
16		2014	2020	GASIP	Non-financial sector value chain project with financial inclusion components
17		2019	2026	AAFORD	Large financial sector project with value chain and financial inclusion components
18	Guinea	2011	2017	PNAAFA	Non-financial sector value chain project with financial inclusion components
19		2013	2030	PNAAFA-II	Non-financial sector value chain project with financial inclusion components
20	Liberia	2015	2022	RCFP	Standalone financial inclusion project
21		2019	2029	STAR-P	Non-financial sector value chain project with financial inclusion components
22	Mali	2009	2019	RMP	Standalone financial inclusion project
23		2010	2018	PAPAM	Non-financial sector value chain project with financial inclusion components
24		2016	2020	FIER/Crowdfunding	Non-financial sector value chain project with financial inclusion components
25	Niger	2019	2025	INCLUSIF	Large financial sector project with value chain and financial inclusion components
26		2015	2019	PASADEM	Non-financial sector value chain project with financial inclusion components
27		2019	2025	PRECIS	Non-financial sector value chain project with financial inclusion components
28	Nigeria	2012	2017	RUFIN	Standalone financial inclusion project
29		2012	2023	VCDP	Non-financial sector value chain project with financial inclusion components
30		2014	2021	CASP	Non-financial sector value chain project with financial inclusion components
31		2017	2024	LIFE ND	Non-financial sector value chain project with financial inclusion components
32		2020	2025	IABH	Non-financial sector value chain project with financial inclusion components
33	Sierra Leone	2012	2017	RFCIP I	Standalone financial inclusion project
34		2013	2022	RFCIP2	Standalone financial inclusion project
35	Togo	2014	2020	PNPER	Non-financial sector value chain project with financial inclusion components
36		2019	2025	ProMIFA	Standalone financial inclusion project

35. Over the past few decades, IFAD has shifted its rural finance operations evolving from (i) focusing on delivering micro credits and grants, through (ii) providing financial services and is currently (iii) bringing more comprehensive and diverse inclusive financial services with technical assistance (TA) including climate/green finance to poor rural people, with a focus on savings mobilization. The diverse but inclusive rural finance encompasses innovative financing schemes, whose effective delivery is guaranteed only by a customized combination therein of two sets



of things: (i) tailored instruments, tools, and products accompanied by (ii) associate non-financial services and innovation.

36. As such, the financing schemes deployed in WCA are composed from a combination of different but tested financial instruments, tools, and products, and their associate non-financial services plus innovations (delivery platforms: including digital platforms, channels, and approaches). Figure 3 summarizes some of the themes from which IFAD has generated financing schemes for WCA.

**Figure 3: Themes for inspiration for IFAD-supported innovative rural financial services in WCA**



Source: Compilation by authors

37. This review complements IFAD’s Inclusive Financial Services Portfolio Stock-Taking, 2020<sup>33</sup> by assuming a consistent basis and a common understanding through the application of the definitions used in the IOE IFS Synthesis. This review adopts the same terminology summarized as follows<sup>34</sup>:

- **The term instrument(s) is used to refer to the tools used by IFAD programmes to affect change in a financial market system.** They describe how funding is distributed by IFAD. Examples of instruments are credit lines, matching grants, technical assistance (TA) or equity investments. The word “instrument” is used broadly across IFAD programming and the meaning can vary widely across different contexts: a credit guarantee scheme can be an instrument but so can an individual loan to a farmer.

<sup>33</sup> Readers are encouraged to read this report in tandem with the rural finance stock-take report

<sup>34</sup> The differences between the categories are not always perfectly distinct but are covered in more details in the 2020 rural finance stock-take, which we recommend for more reading

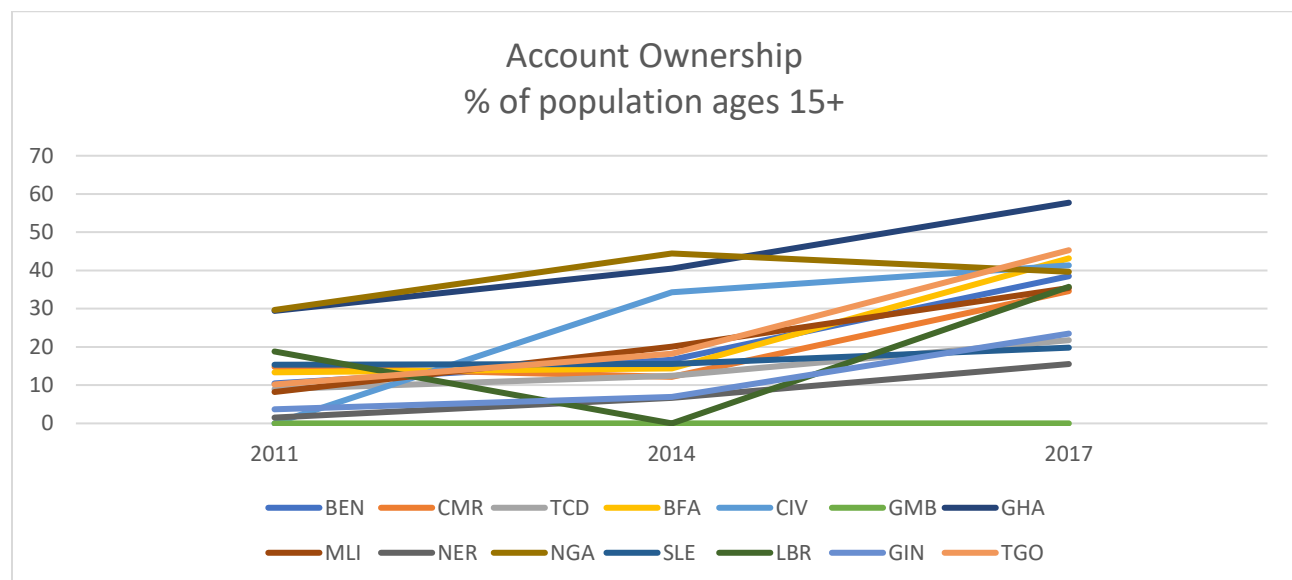


- **Approaches describe the high-level ways in which IFAD engages with a market system.** These are often more abstract and can be overlapping. Examples of approaches are the graduation approach, value chain approach, community-based finance approach or commercial finance approach.
- **Products (and services) are how the end-customers engage with the financial sector.** Examples include agri-SME loans, microcredit, mobile payments or community-based savings accounts.
- **The renewed inclusive approach to rural finance looks beyond microcredit** to embrace a wider scope of financing schemes to serve diverse demands from actors along the diverse segments of a typical rural pro-poor agribusiness value chain.

## B. IFAD financing schemes in West Africa

38. **There is a relationship between financial sector performance and financing schemes deployed by IFAD-supported projects in WCA (2009-2020).** Complementing Table 8 above, Figure 4 depicts more characteristics of the 14 case countries and the 36 IFAD projects. Each has an inclusive rural finance activity in WCA (2009-2020)<sup>35</sup>.

**Figure 4: Trends in financial sector performance in the 14 WCA case countries (2009-2020), including the selected five countries in IGREENFIN 1**



Source: Data from database for World Development Indicators (Last Updated: 12/16/2020)

## C. Financing schemes used to address the constraints of access to finance

39. **Grant:** In the days of micro credit, IFAD used grants almost exclusively as a standalone financial instrument to capitalize FBOs to on lend to farmers to finance their intended increased investments. The loans were used together with GAPs for production and productivity enhancement. These days,

<sup>35</sup> This analysis does not look at costs, because costs available are total costs related to the rural finance component. It is very difficult to accurately extract the costs per scheme or per associated non-financial services deployed.

the simple and direct grant is not used anymore as such, at least for reasons related to the sustainability of such a scheme. From the sample reviewed, PNAFA-HMG in Guinea transferred grant funds directly to capitalize farmer-based organizations (FBO). The FBOs in turn used the grant funds for one instrument or another to facilitate credit financing to its members (mainly project beneficiaries). However, this scheme using the grant funds in different financial instruments by participating FBOs was a diversion of what was initially intended in the design<sup>36</sup>.

40. **Input Revolving Fund:** For some projects, the issue of pre-financing inputs at the beginning of the cropping season is addressed through an input revolving fund put in place as part of the project activities. The principle is quite simple with the project providing an initial fund (aka, the first generation capital) to finance credit for inputs on behalf of the farmers. After the cropping cycle and sale of the produce<sup>37</sup>, beneficiaries are incentivized to pay back the cost of the inputs (aka, reflows in cash) to reconstitute the fund. It is assumed that the initial fund (the first generation capital) most often would all have been loaned out (aka, exhausted) for the first business cycle. The reflows or paybacks or repayments were used to reconstitute the exhausted first generation capital fund. This reconstitution resulted in the second generation capital, which fund became available for the financing of the next cropping season. In capitalizing FBOs and doing away with subsidization, this mechanism assisted the FBOs in accumulating liquidity over time to secure the resources, thereby allowing them to sustainably meet their members' input needs. Across WCA cooperatives and farmers, the revolving fund scheme had been well understood and had spurred a change of practices related to the need to put resources aside for the next cropping season. However, the repayment rate had always been disappointing for diverse reasons related to poor yields due to insufficient rainfall or delay in the delivering of the inputs, which led to put the whole mechanism at risk, especially when the fund was directly run by cooperatives and unions. Another reason for the poor performance of the input revolving fund is related to observation that there are a lot of free input schemes being run across WCA, which act as a disincentive in this context and have made the success of this type of scheme more challenging.
41. **Two parties matching grants schemes:** The concept of a matching grant (MG) is simple: one party (the project) gives a grant and the second party (the beneficiary) accepts the grant on condition that they match it up (matching contribution). The matching grant portion in many cases is provided on a reducing scale such that the ratio at the beginning of the project is higher than the beneficiary's matching contribution. At the end of the agreed period, the matching requirements would be inversed over repeated financing cycles with the project contributing progressively less than the beneficiary. At the end of the project period, it is expected that the beneficiary would have accrued capacity and graduated to be fully responsible to take up 100% of their financial needs as the grant would have phased out.
42. **The use of this basic two-party matching grant in a financial scheme requiring the beneficiary to contribute (aka, matching contribution) tends to be less favored in the recent project design.** Only seven projects (21%) out of the 36 sampled included such an instrument over the last decade. The seven projects are REPER in Chad (ongoing), VCDP in Nigeria (ongoing), PASADEM in Niger (closed), PAPAM in Mali (closed), PASPRU in Burkina Faso (closed), STAR-P in Liberia (ongoing) and PADER-G in Chad (closed). Out of the seven projects, two didn't yield good results in terms of uptake

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<sup>36</sup> The financing was supposed to be used by CAFODEC, a second-tier institution that would have provided financing line to ASF (associations de services financier) but due to performance issues at CAFODEC, a decision was taken and the grant funds were deposited directly with the FBOs whose members were same members of the ASFs that would have accessed the LoC at CAFODEC.

<sup>37</sup> Usually there is no collective sales and each farmer has to repay the respective individual amount in full.

(PASADEM/Niger and PASPRU/Burkina Faso) and 3 others finally evolved toward a tripartite agreement (VCDP/Nigeria, PADER-G/Chad and PAPAM/Mali). The initial approach looked at providing funding for farmers to invest in a number of assets locally through demand-based micro-projects or development plan (including input financing). As per the definition, which entails a one-off support in consideration for reaching out to a large number of farmers, only the first cycle is usually funded with a prospect that DFIs (Development Finance Institutions) will follow up to finance further any development through credits or loans. Matching ratios always depend on the nature of the assets/goods required (inputs, machines, infrastructures) and the target beneficiary. For women and youth farmers, the required contribution tended to be smaller as with PAPAM in Mali or PASPRU in Burkina Faso.

43. **Matching grant funds pose a serious challenge when it comes to sustainability.** With a lack of incentive for repayment, this scheme has been inclined to lure farmers looking to capture the matching grant component only, without serious consideration for profitability of their activities. For example, with PASPRU in Burkina Faso, the quality of the proposed micro projects highly depended on the ability of the support system to guide promoters towards a viable project and ensure that the return on investment (ROI) is seriously factored-in. The personal cash contribution of the beneficiary is supposed to encourage a sense of ownership; an incentive that would push the beneficiary to do well. But in practice beneficiaries often face hard times to mobilize their matching contribution, with some seeking for their in-kind contributions (land, labor, local materials) to be valued and considered as their matching contribution.
44. **For several projects, the ratios were consequently modified to lower the farmer contribution or alternatively to allow for contribution in-kind so as to increase uptake.** As an example, the Community Development Fund of RFCIP in Sierra Leone reduced the individual contribution from 20% to 10% only, with possibility to bring it in-kind matching contribution. For PAPAM in Mali, it was initially foreseen that beneficiaries would have required a loan from a local FIs to finance their own 25% matching contribution. However, beneficiaries in Mali (in an attempt to avoid credit risks and costs) rather used other solutions to do so than taking a loan from the participating FI: some used personal savings, others borrowed money from neighbors and family, etc. From the PAPAM MTR, due to poor uptake of the matching grant, the resources allocated by the project were finally reallocated and used as a term deposit to support linking beneficiaries to FIs and encourage a professional use of the grant with a longer term perspective.
45. **The MG instrument is used nowadays more as part of a more comprehensive scheme with concern for linking beneficiaries to FIs and ensuring their access to financing solutions beyond the project completion.** PADER-G in Chad with an initial ratio of 85/15 matching grant, led the way with its MG scheme that evolved over the course of the implementation toward being a tripartite agreement including a compulsory credit component, which was not in the initial design. This spurred an increased involvement of the FIs into the financing of farming activities (almost 70 million frs XAF disbursed: for a total of 40 business plans, against 42 million as grants, 23 million from the beneficiaries and the balance – 5 million as loans from PFIs).
46. **Tripartite Cost Sharing Mechanism:** Besides the project grant and the matching contribution, the tripartite cost-sharing financing mechanism (TPFM - aka, a three-party matching grant financing scheme) includes a compulsory loan from a local PFI, under different ratios that determine the priorities of the scheme (target people, nature of the assets, etc.). This form of subsidization in development

finance is almost being mainstreamed across IFAD projects for the last ten years but fairly recently in WCA. The main objective is to make sure a relationship between producers/entrepreneurs and PFIs is set up and running by the completion of the project with concern for sustainability. Over the course of the project activities, the incentive brought to the beneficiaries in the form of a grant, aims at partially de-risking PFIs engagement while building a credit history for beneficiaries with a longer term perspective. With the PACER in Benin that came to its end in 2016, lessons learned showed however that a tripartite scheme is not a silver bullet when it comes to inciting/incentivizing PFIs. PFIs indeed proved to be reluctant even with a grant component involved, considering the risks remained high when lending to target producers that demonstrated weaknesses in their capacities to manage a productive investment plan. Under conditions of unabated risks, PFIs expressed the need to also benefit from a credit guarantee mechanism if financing was to be forwarded to risky smallholder producers.

47. **This scheme of grants-turned-“compulsory savings” addresses effectively the issue of the risk associated with the financing smallholder farmers and works well in incentivizing FIs to provide financing to beneficiaries with viable business plans developed with the help of dedicated BDSs.** For example, FIER Mali experienced loan repayment rates of nearly 100%. Youths who benefitted from the first round of loans guaranteed by the security deposits (especially those in livestock fattening), were able to access loans up to 600% their first round amounts. Business-minded youths were able to use part of the proceeds from their first loans to augment their “compulsory savings”, to create a larger cash collateral that was used by participating FIs to appraise and give them even larger loan amounts. The larger loans were based on the bigger and much improved business propositions with reliable cashflow forecasts and a verifiable repayment history. Under PEA-J in Cameroun, the youth entrepreneurs had access to a 0% interest loan to finance the first cycle of activities. After a first cycle of investment, it was expected that the fledgling business had gotten strong enough with a better credit worthiness to attract more credit from partner financial institutions (PFI). At the time of this report, the repayment rate were not reported yet for PEA-J Cameroon.
48. More generally, the TPFM cannot be effective enough without the support from associate non-financial services (e.g., technical assistance (TA) for PFIs and business development services (BDSs) and coaching for farmers during their business plan preparation processes as this is the case with FIER in Mali). In FIER Mali, an intensive coaching that runs up to the post-financing phase led to good repayment rates (90%+). However, when the project grants expired and compounded by the limitations of COVID-19 (e.g., inter-border travel restrictions on livestock and crop movements), only few young entrepreneurs kept using financial services from PFI partners in Mali.
49. **The Matching Grant for equity mobilization:** MG as an incentivizing tool is also used to facilitate partnerships between actors within the value chain and support the inclusion of smallholder farmers. In this case, the project scheme looks at co-financing a more comprehensive business plan, which would include farmers through their FBO and a formal downstream private company. The private sector based off-takers that source directly from farmer organizations are interested in expanding their supply base and strengthening their supply chain. The focus is very much on connecting farmers to those potential buyers, but also to the market. In such a case, the MG instrument finances a business plan comprising productive investments and technical assistance to increase farmer capacities to deliver.
50. **This approach which seeks to engage the downstream private sector (processors, agribusinesses, buyers) is relatively recent across the IFAD portfolio in WCA.** Only five projects in the sample include such a scheme geared toward securing an enduring access to the market for farmers through

incentivizing buyers to commit on a longer term. Four of them are quite recent (approved after 2018) and are thus yet to produce first outcomes (no supervision as yet). Among them, three types of productive partnerships could be found according to the level of integration between farmers and their off-takers:

- The first one includes STAR-P in Liberia for example (contributions are 70%/30%). In this project, **the MG scheme supports the realization of simple short-term contracts between producer and buyer**. On the condition of providing such a contract, smallholder farmers have access to financing through matching grants to contribute to the costs of investment subprojects that will support a one-off connection with agribusiness firms and off-takers, with no particular focus on the sustainability, only expecting that the contract will be renewed afterwards if it goes well. For this model, only the farmers invest in the development plan.
- For the second type, **the private partner is expected to contribute financially in the plan to make the partnership stronger**. This is the case for example with NEMA and ROOTS in the Gambia or INCLUSIF in Mali (in this last case, the contributions are 70% for the private partner and 30% for the FBO of which 70% is granted by the project). The partnership is not based only on a simple contract, but partners share a co-investment (usually referred as a 4P for public private producer partnership) where each party has a stake and interest for positive outcomes. It is thus supposed to be built to last beyond the initial contract. Under such a scheme, private companies also benefit from grants from the project along with the FBOs to support the implementation of the partnership.
- Finally, one step further in the **integration is the third type of partnership, co-enterprise**, which is today quite an innovation. In this model, the capital of a new enterprise is shared between farmers and buyers, and consequently farmers with equity or stake have a say in the overall management of the common firm beyond a simple access to the market. That is what PADAAM in Benin is promoting with a financing scheme implying that three partners (private company, FBO and an investing fund) will finance one third each of the capital. The project provides 90% of the FBO equity contribution. Evidence of success is still needed to prove the concept.

**51. Debt, market priced lines of credit and concessional loans:** Credit is the main instrument developed by FIs, and IFAD-funded projects are largely supporting them to deliver this primary financial service to small farmers, particularly for large projects dedicated to boosting financial services. This is achieved by helping PFI to develop new credit products that are well aligned with producers' capacities and needs. The primary financial function is also achieved through providing the necessary lending resources for smallholder farmers to expand their operations. Most of the intermediary FIs are not creditworthy enough for the banks and therefore not able to access affordably-priced refinancing to increase their capacity to on-lend to their smallholder farmer clients. Their source of funding is made of internal capital only: share capital (for community shareholder-owned institutions) and savings. However, in rural areas, clients are largely poor people with scarce disposable revenues to be saved. Consequently, the resources available are by far insufficient to cover the need for credit. CASP in Nigeria showed that only 18% of Financial Service Associations (FSA) shareholders accessed loans for their activities. To fill part of the financial gap in the CASP area, IFAD, through its non-sovereign operation (NSO) has responded further to debt needs of Babban Gona (a private sector company)<sup>38</sup>, which are tailored to a niche demand for smallholder finance. For FIs, access to external refinancing

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<sup>38</sup> Babban Gona Farmer Services Nigeria Limited: IFAD's EB approved a 7-year partnership project with Babban Gona. The project will mobilize private sector resources and know-how to support targeted smallholders in the CASP area in northern Nigeria in transitioning from subsistence agriculture to sustainable agribusiness. The total cost of project of the 7-year project is US\$150 million, with IFAD's contribution as senior loan of up to US\$5 million for the first round (US\$90 million). For more details, please, contact IFAD's PAI at PMI.

led to increasing portfolio size and reduction of operating costs with the prospect of reaching profitability and OSS/FSS autonomy.

52. An extreme case of concessional capital has recently been designed in PRECIS Niger, where the national development bank (BAGRI) as a wholesaler, is benefiting from State resources borrowed through IFAD's IGREENFIN agenda<sup>39</sup> from the Green Climate Fund (GCF) green financing program at zero per cent interest. With the GCF taking the credit risk, the climate-smart green resources are on-lent at zero per cent interest rate to a specially-targeted group of poor rural people engaged with renewable energy technologies used for smallholder income-generating activities.
53. **Risk mitigation instruments ( guarantees, insurance, securities and collateral<sup>40</sup>s) :** Partial credit guarantee funds (PCGFs) and insurance are instruments still uncommon across IFAD-funded projects, but they are gaining traction for their capacity to potentially help credit providers reach out to risky but market-driven smallholder farmers, in particular for countries where the financial system is the most advanced (Ghana, Nigeria, Togo). Out of the 36-project sample under review, only 5 projects include exploring such instruments. In one of the projects (PACER in Benin) the apparent function of the PCGF was actually confused with that of security deposit that was meant to be used as a cash collateral for refinancing. The difference is that a PCGF is not a cash collateral that could be used to constitute lending resources. Experience has shown that in spite of the PCGFs and agricultural insurance program, banks and other financial institutions, which are very risk-averse, continue to charge very high interest rates to cover their risks. In addition to the partial credit guarantee funds (albeit non-silent)<sup>41</sup> and insurance, PFIs still demand physical collaterals (valuable mobile and immobile assets) from the beneficiaries. The interest rates have remained high and unaffordable in most cases because the various risk mitigation and/or risk transfer schemes put in place have not translated or contributed to reducing the risk premium factored in the on-lending interest rates. However, supporting FIs to partner with PCGF and insurance initiatives can improve their lending capacities through a better access to concessional credit funds, which would in turn lead to reduce on-lending interest rates for smallholder agricultural loans.
54. RUFIN in Nigeria is one of the most prominent projects that tested the PCGF for FIs. The design included provision of USD 1.5 million for the NIRSAL guarantee mechanism that aimed at facilitating access to the MSMEDF refinancing fund (Micro and Small Enterprise Development Fund). The mechanism was based on a risk sharing scheme with NIRSAL covering 25% of the loan amount toward easing the 50% collateral requirements for FIs. At completion, the Central Bank of Nigeria (CBN)

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<sup>39</sup> See more on greening the financial sector agenda through the lens of IFAD's 2020/2021 IGREENFIN concept currently planned to cover 12 countries with at least 8 of them in WCA and also as part of the African Great Green Wall Initiative (GGWI).

<sup>40</sup> Generally, PCGFs are supposed to be "silent" but during start-up workshops, everyone thereto represented, including famers/potential borrowers (of course) are sufficiently educated on the components and activities of the project. Because of adverse selection and moral hazard issues, borrowers who are knowledgeable of the PCGF, most often silently and wilfully resist or deny paying back their loans, in the hope and expectation that their lenders/PFIs will fall back to partially or totally cover any losses resulting from non-repayments. In addition to low revenues generated due to productivity and marketing issues, the non-silent PCGF affect borrow behaviour and inadvertently contributes to the high non-performing loan ratios recorded in rural smallholder lending portfolios.

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reduced the collateral requirement for refinancing at 30% only, with NIRSAL covering 10%. However, a number of technical factors hindered the mechanism to fully benefit the targeted FIs. The cap placed on the interest rate at 9% per annum to the farmer beneficiary was one of the reasons, which made this fund unattractive to the FIs.

55. Togo's ProMIFA, which just started operations in 2020, will build on PNPER achievements. With the latter, ANPGF (Agence Nationale de Promotion et de Garantie de Financement aux PMI/PME), a public fund, provided a 75% guarantee to FIs for lending to smallholder farmers for a commission of 1% of the guaranteed amount. However, operations have just begun and it is still too early to conclude on the impact. Since the PNPER will come to an end soon, ProMIFA will follow suit. It is expected that ANPGF will receive USD 1 million to abound the guarantee fund that will cover the financial institution risk on agricultural loan at 50%. Although the availability of "de-risking" instruments such as guarantees and insurances is increasing, there is limited awareness about their features, the capacity needed to partner, and partnership mechanisms.
56. The new AAFORD in Ghana offers to set up a dedicated platform with a specific objective of reducing the gap in the availability of affordable agricultural production loans for smallholder farmers. The Blended Financing Facility (BFF) will simultaneously facilitate access to portfolio loan guarantee with GIRSAL (the Ghana Incentive-based Risk Sharing System for Agricultural Lending) for financial intermediaries, access to agricultural insurance protection with GAIP (the Ghana Agricultural Insurance Pool) for smallholders, and access to a structured output/commodity market with GCX (the Ghana Commodity Exchange). All of these systems are meant to reduce the overall credit risk for FIs. With all these financial de-risking mechanisms put in place, it is expected that BFF's on-lending rates will be negotiated to make sure the repayment burden on production loans for farmers is minimized and providing for reasonable returns on their production activity
57. **Going forward with IGREENFIN**, it appears critical to establish schemes that reduce the cost of credit for smallholder farmers as a way to boost their access to finance and its impact on their livelihood and wellbeing. Taking into consideration the fact that the current margins the smallholders are realizing on their sales are extremely thin (and sometimes negative under serious subsidies), they simply cannot afford to pay for costly financial services. Uptake of financial services will increase only when these services are adjusted to their needs, at a cost that will allow for them earning a living sustainably from farming. The newly-promoted de-risking tools have the potential to reassure PFIs, leading to reducing the credit risk for farmers and thus the cost of credit in turn. However, they are yet to show evidence of their effectiveness in the rural context.
58. **Another aspect going forward is that the cost of credit for small farmers could even be lowered through PFIs having access to cheaper capital for their refinancing solutions in a context of climate change**. The different approaches used to increase access to liquidity have shown interesting results so far. However, not every PFI has today the capacities and skills to manage a financing line through a quite complex scheme that seeks to secure the return on investment for creditors, while also ensuring reasonable economic and financial returns on investments of their smallholder clientele. As a consequence, IFAD shall should maintain the good industry practice of applying the value chain approach, seeking a viable product market first and then conduct the screening of the most capable institutions second, while keeping on investing on capacity building on both the demand and supply sides proportionately to increase access.

59. **Thirdly, increasingly, IFAD-funded projects have showed that the use of direct subsidization for farmers may be effective only in specific situations, for specific uses, to specific targets (youth, women, nutrition, climate change management).** Otherwise, the use of subsidies to try to increase uptake of interest-bearing financial instruments, tools and products and build relationships with PFIs has not achieved desired results, highlighting fact that the incentive effect of subsidies crowding-in private capital as was initially foreseen hasn't occurred and should not be encouraged/supported anymore.
60. **As a fourth point going forward, technical assistance (TA) with promotion of the best farming practices (GAPs) in addition to the other associate non-financial services, remain critical to ensure an increase in yield and production in a sustainable manner for smallholder farmers.** However, this review has showed that projects would also have to include capacity building on themes related to access to viable market, as pushing for production surpluses without increased capacity to sale cannot constitute a sustainable solution for access to external financing. Facilitating partnerships with offtakers has great potential through ensuring that famers would have access to viable and reliable markets, while reducing credit risks for PFIs. This approach to genuinely look for viable and reliable markets is still in its infancy in WCA and would have to be rolled out on a greater scale.

## IV. Insights from IGREENFIN country visits

61. **The following section provides an overview of key determinants of access to finance issues in West Africa and the GGW region, with a focus on the five targeted countries by IGREENFIN 1—Ghana, Senegal, Cote d'Ivoire, Mali and Burkina Faso— followed by detailed case study reports for each of the countries visited during the inception phase.** The selection of countries was guided based on: (i) IFAD membership with resource allocation under IFAD 11 (2019-2021); (ii) GGW Initiative membership with a Non-Objection Letter to participate in the programme; (iii) high level of poverty, food insecurity and nutrition; (iv) Rural gender disparities and youth unemployment; (v) vulnerability to climate change; (vi) country need and request IFAD support to mobilize GCF resource; and (vii) opportunities to green business development in the country. **The case studies share the insights gained from a country agricultural and climate change profile, followed by the existing market dynamics and regulatory environment in each country through financial and energy point of views, and a section on existing finance in climate resilient and low emission agriculture as well as financial inclusion patterns prevalent in each country** (using qualitative data from the country visits, as well as Finscope, World Bank etc. data when available).

### A. Insights from IGREENFIN 1 local national agricultural bank discussions and visits

62. **The findings reveal that the landscape for smallholder in agriculture's access to finance in West Africa remains limited. Based on the discussions held with the five country Agricultural Banks within the IGREENFIN 1 framework<sup>42</sup>, it seems that there is limited access to credit and finance towards the adoption of CSA practices as they hinder access to farm tools and inputs.** The respective banks argue that initial investment into CSA is prohibitive, attracting relatively high-interest rates, especially for small farmers that constitute the largest share of agriculture investment in Africa.

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<sup>42</sup> Banque Agricole du Faso (BADF), Banque Nationale d'Investissement of Côte d'Ivoire (BNI), the ARB Apex Bank Limited of Ghana (APEX Bank), Banque Nationale de Développement Agricole of Mali (BND) and Banque Agricole of Senegal (LBA)



The most commonly mentioned factors discouraging banks from investing in smallholder agriculture are: (i) lack of usable collateral due to lack of assets and unsecure land tenure; (ii) high transaction costs due to remoteness of clients; dispersed demand for financial services; (iii) lag between investment needs and expected revenues; (iv) underdeveloped communications and transportation infrastructure; (v) covariate risks due to rainfall and price risks; poorly developed value chains which increase risks and thus exposure for banks, and (vi) lack of understanding among financial institutions of the agricultural sector and opportunities<sup>43</sup>.

63. Literature reviews of credit suppliers in each country and interactions held with the selected five agricultural banks revealed that while the agricultural banks in Burkina Faso, Côte d'Ivoire, Mali and Senegal have set interest rates at 10 per cent (interest rates for all UEMOA agricultural banks), commercial banks and MFIs charge around 20 per cent, which is much higher than international standards (Table 11). Such high interest rates prevent smallholder farmers – especially youth and women as ‘agri-preneurs’ – from investing in low emission, climate resilient agriculture and raising their productivity and thus, return on investments.

**Table 11: Interest rates per banking sector in the five selected countries in IGREENFIN 1**

Country	Interest rates per banking sector					Sources
	Commercial Banks		Microfinance institutions	Agricultural Banks	Central Bank	
<b>Burkina Faso</b>	7,44% in 2018	Interest rate applied by Commercial Banks	About 70 percent of all the loans are short-term credits with average loan duration of between 6-12 months and an interest rate of between 10-17 % per year in nominal terms.	Maximum interest rate 5%	4%	Burkina Faso is a member of the Economic and Monetary Community of West Africa (UEMOA). In UEMOA, interest rates decisions are taken by the Central Bank of West African States' Monetary Policy Committee. The Central Bank of West African States' official rate is the key interest rate.  <a href="https://tradingeconomics.com/burkina-faso/interest-rate">https://tradingeconomics.com/burkina-faso/interest-rate</a>  <a href="https://www.diva-portal.org/smash/get/diva2:207141/FULLTEXT01.pdf">https://www.diva-portal.org/smash/get/diva2:207141/FULLTEXT01.pdf</a>  <a href="http://www.commodafrica.com/10-02-2021-lancement-du-fonds-de-developpement-de-la-banque-agricole-du-faso">http://www.commodafrica.com/10-02-2021-lancement-du-fonds-de-developpement-de-la-banque-agricole-du-faso</a>
	6,30% in 2021	Lending interest rate on credit from banks to prime borrowers i.e. to the lowest risk borrowers in the private sector				
<b>Ghana</b>	34,50% in May 2018	Average rate of interest charged on short term loans by commercial banks to companies	20%	20%	14,5%	The Bank of Ghana kept its monetary policy rate at an eight-year low of 14.5% during its March 2021 meeting, to continue supporting the domestic economy from the pandemic crisis while it assesses the impact of new tax measures announced this month and higher utility costs on inflation.  <a href="https://tradingeconomics.com/ghana/bank-lending-rate">https://tradingeconomics.com/ghana/bank-lending-rate</a>  <a href="https://tradingeconomics.com/ghana/interest-rate">https://tradingeconomics.com/ghana/interest-rate</a>  <a href="https://www.mfransparency.org/wp-content/uploads/2012/05/MFT-RPT-102-EN-Country-Survey-Ghana.pdf">https://www.mfransparency.org/wp-content/uploads/2012/05/MFT-RPT-102-EN-Country-Survey-Ghana.pdf</a>
<b>Ivory Coast</b>	5,14% in 2017	Lending interest rate	All in rate at 24%-CAP	between 10% and 13% for short term and	4%	Cote d'Ivoire is a member of the Economic and Monetary Community of West Africa (UEMOA). In UEMOA, interest

<sup>43</sup> Langyintuo, 2020

	6,33% in 2018	Interest rate applied by Commercial Banks		9% to 11% for mid-term and long-term		rates decisions are taken by the Central Bank of West African States' Monetary Policy Committee. The Central Bank of West African States' official rate is the key interest rate.	<a href="#">Rapport Annuel 2018 Situation Inclusion Financiere.pdf (bceao.int)</a> <a href="https://tradingeconomics.com/ivory-coast/interest-rate">https://tradingeconomics.com/ivory-coast/interest-rate</a> <a href="https://www.convergences.org/en/ensuring-the-profitability-of-microfinance-in-cote-divoire-a-case-study-from-the-advans-group/">https://www.convergences.org/en/ensuring-the-profitability-of-microfinance-in-cote-divoire-a-case-study-from-the-advans-group/</a> <a href="http://finclusion.org/uploads/file/ivory-coast-report_final.pdf">http://finclusion.org/uploads/file/ivory-coast-report_final.pdf</a>
<b>Mali</b>	7,86% in 2018	Interest rate applied by Commercial Banks	17,8% in rural area	4%	4%	Mali is a member of the Economic and Monetary Community of West Africa (UEMOA). In UEMOA, interest rates decisions are taken by the Central Bank of West African States' Monetary Policy Committee. The Central Bank of West African States' official rate is the key interest rate	<a href="#">Rapport Annuel 2018 Situation Inclusion Financiere.pdf (bceao.int)</a> <a href="https://tradingeconomics.com/mali/indicators">https://tradingeconomics.com/mali/indicators</a> <a href="https://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/ADB-BD-IF-98-87-EN-ESPS-003677830.PDF">https://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/ADB-BD-IF-98-87-EN-ESPS-003677830.PDF</a> <a href="http://planipolis.iiep.unesco.org/sites/planipolis/files/ressources/mali_2008_rndh.pdf">http://planipolis.iiep.unesco.org/sites/planipolis/files/ressources/mali_2008_rndh.pdf</a>
<b>Sénégal</b>	Bank of Africa: 9-13% for a 2 to 6 years loan Banque Régionale de Solidarité: 12-14% Société Générale de Banque au Sénégal: 5-10% selon nature du crédit Alliance du crédit et d'épargne pour la production: 13,5% Crédit mutuel du	Interest rate applied by Commercial Banks	12% (PAMECAS-2013)	Average interest rate 10%	4%	Senegal is a member of the Economic and Monetary Community of West Africa (UEMOA). In UEMOA, interest rates decisions are taken by the Central Bank of West African States' Monetary Policy Committee. The Central Bank of West African States' official rate is the key interest rate.	<a href="#">Rapport Annuel 2018 Situation Inclusion Financiere.pdf (bceao.int)</a> <a href="https://digitalcollections.sit.edu/cgi/viewcontent.cgi?article=2706&amp;context=isp_collection">https://digitalcollections.sit.edu/cgi/viewcontent.cgi?article=2706&amp;context=isp_collection</a> <a href="https://tradingeconomics.com/mali/indicators">https://tradingeconomics.com/mali/indicators</a> <a href="https://horizon.documentation.ird.fr/exl-doc/pleins_textes/pleins_textes_4/colloques/23371.pdf">https://horizon.documentation.ird.fr/exl-doc/pleins_textes/pleins_textes_4/colloques/23371.pdf</a>

	Sénégal: 10-13%					
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64. Weak credit appraisal by banks due to inadequate technical capacity of credit officers in delivering quality agricultural credit, and resulting in banks carrying high non-performing loans in their books remain a major problem. **Therefore, credit models typically employed by credit suppliers do not match loan repayment to cash flows, leading to high default rates.** Out of the 5 selected national agricultural banks, 2 representing 40% are experiencing a default rate of less than 1 to 3%, which is consistent with the internationally accepted rate of default. The implication is that 60% of the 5 selected national agricultural banks have their default rates more than the internationally acceptable rate of 3%. Building technical capacity and fostering the introduction of risk mitigating schemes are essential tools that IGREENFIN will provide to guarantee quality credit delivery (see the Operation Manuel annex on technical assistance). Table 12 demonstrates the rates of default of the targeted local national agricultural banks in IGREENFIN 1.

**Table 12: Rates of default in the five selected countries in IGREENFIN 1**

Countries	Targeted local national agricultural banks' (LNABs)	Rates of loan default
<b>Ghana</b>	ARB Apex Bank Limited of Ghana	11.57%
<b>Cote d'Ivoire</b>	Banque Nationale d'Investissement (BNI)	12.72%
<b>Burkina Faso</b>	Banque Agricole du Faso (BADF)	1.05%
<b>Mali</b>	Banque Nationale de Développement Agricole (BNDA)	0.13%
<b>Senegal</b>	Banque Agricole (LBA)	5.00%

65. **In addition, smallholder's inadequate financial literacy limits their knowledge of available funds and financial products that they could avail of otherwise.** According to the IGREENFIN 1's Gender Assessment and Action Plan (see more details on Annex 8), women smallholder's educational attainment and their financial literacy are usually lower than men's; consequently, they are not aware of the development funds or financial products available that could better serve them. Moreover, smallholder's limited access to domestic and international market information, market regulations, and socio-cultural norms further hamper their competitiveness and business growth.
66. **A number of FIs offer tailored products for smallholder in agriculture in the five selected countries, but the country visits suggest this typically does not represent a major share of their portfolio.** Even when FIs are involved in financing agriculture, they usually deal with large businesses and primarily have corporate clients. Some FIs in the countries studied reported having higher rates of non-performing loans by smallholder in agriculture, making them skeptical about the financial behavior of their clients and requiring valuable collateral as security on loans disbursed to smallholders. Microfinance institutions, leasing companies, guarantee funds, and other non-financial institutions were often found to have a substantial share of smallholders in their portfolio. These institutions focus on micro, small and medium-sized enterprises (MSMEs) and have the necessary MSME lending methodology knowledge and the requisite know-how, in contrast to other commercial banks.

67. **There is a sizable credit gap for smallholder including FOs, MSMEs and cooperatives in agriculture in all of the countries studied.** According to IFC study on Supply Chain Finance for SMEs<sup>44</sup>, around more than 70% of SME (formal and informal) in Burkina Faso, Mali and Cote d'Ivoire are estimated to be unserved or underserved by the formal financial sector. The number for Senegal and Ghana was estimated to be around 40 – 50% of SME (formal and informal) to be unserved or underserved. When analyzing the same set of data but for the formal micro sector, the total number of formal microenterprises is estimated to be around 25 million in Sub-Saharan Africa. An estimated 70% or more of the formal microenterprises in Burkina Faso and Cote d'Ivoire are unserved or underserved and 60-70% was estimated for Senegal, Ghana and Burkina Faso to be unserved or underserved. SMEs and microenterprises also suffer a gap in deposit services, which is estimated to be \$195 to \$350 billion in developing economies.
68. **In addition, an analysis of the supply of finance in the GWW countries illustrates that credit from both microfinance institutions and the banking sector to the whole agricultural sector currently accounts for roughly 2per cent of total credit offered by regulated financial systems<sup>45</sup>.** The 2017 International Finance Corporation (IFC) research on the MSME finance gap estimated that there was, on average, 21 per cent of microenterprises in developing countries that were fully credit constrained, 19 per cent were partially credit constrained and 60 per cent were credit unconstrained. Sub-Saharan Africa had the second largest proportion of financially constrained microenterprises – both fully and partially constrained (52 percent)<sup>46</sup>.
69. **Despite significant progress in the rural agricultural finance sector (see the next section on existing financial institutions for access to credit by country), credit suppliers are still unable to meet 73 per cent of the short-term agriculture-related needs of smallholder farmers in the region.** In sub-Saharan Africa– a percentage that rises to 99 per cent for long-term needs; the funding gap is estimated at USD 17 billion and USD 19 billion for short and long-term needs, respectively<sup>47</sup>. To go beyond production for subsistence and truly become resilient to climate change, farmers urgently require access to resources that they can invest in raising their productivity levels and thus, profitability. There is a need for new models for understanding the rural agricultural finance market that lays out the different transition pathways rural households may take as they pursue increased resilience and agency through various livelihoods strategies.
70. **There is also a demand for local currency finance in non-UEMOA countries such as Ghana.** Local currency financing enhances the ability to manage currency exposures and better match project cash flows of sovereign and subnational entities in West Africa. Subject to market availability, FOs, MSMEs and cooperatives may access local currency financing at loan approval or through conversion of disbursements or outstanding loan balances of dollar denominated loans. Figure 6 illustrates how the exchange rates of the Ghanaian currency has moved against the US dollar since 2010, which shows that the Ghanaian Cedi has experienced a significant loss in value, particularly in 2010 when it lost 73 per cent. There is a need for credit lines that help financial service providers supporting climate resilient, low emission agriculture to raise local currency financing from local/regional banks and manage portfolio risk of grants and loans in the Ghanaian Cedi. FX rate risks do not apply to the euro-pegged

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<sup>44</sup> [PowerPoint Presentation \(ifc.org\)](#)

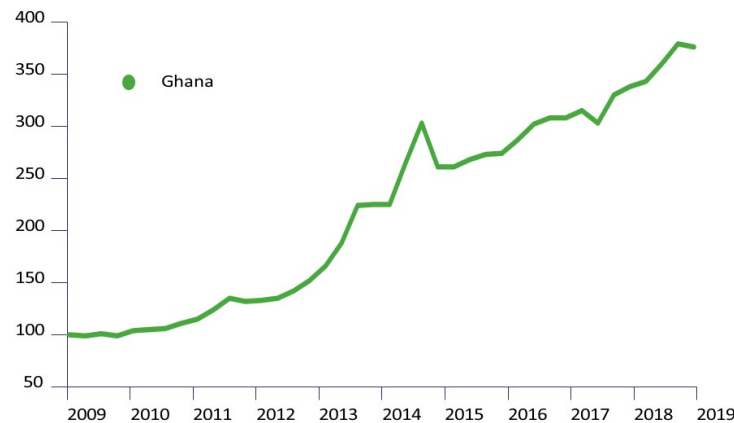
<sup>45</sup> Terfa Abraham, 2019

<sup>46</sup> IFC, 2017

<sup>47</sup> Shakhovskoy et al. (2019)

CFA franc of the rest of the targeted countries (Burkina Faso, Côte d'Ivoire, Mali and Senegal), whose currency is seen as an anchor of financial stability within the West African Economic and Monetary Union (known by its French acronym, UEMOA)<sup>48</sup>.

**Figure 6: Exchange rate movements of selected Ghanaian currency against the US dollar (December 2009=100)**



Source: Bloomberg, CEPA analysis.

## B. Insights from IGREENFIN country visits: case studies

### ✓ Burkina Faso

#### a) *Agricultural sector and climate change impacts on agricultural economy*

**71. Burkina Faso is one of the fastest growing countries in the world; the annual population growth rate of 3.1per cent is expected to drive the population to 42 million by 2050.**<sup>49</sup> Burkina Faso's 2018 national GDP was USD 14.4 billion, or USD 731 per capita; this is below the sub-Saharan African average of USD 1,574, and far below the world average of USD 11,300. There are 19.75 million inhabitants of Burkina Faso, and the population density is relatively high--72/ km2, versus the global average of 60/ km2. While 70.6per cent of the total population is poor, 47.5per cent of those in poverty live in rural areas. Just 9.5per cent of rural residents had electricity in 2017<sup>50</sup>. Food insecurity ranges from 23.8per cent to 54.2per cent of the population across regions<sup>51</sup>. Burkina Faso sits near the bottom of the Human Development Index; it ranked 183/189 countries in 2017 with a score of 0.423, versus the Sub-Saharan African average of 0.537. This represents a significantly improvement from a score of 0.286 in 2000.<sup>52</sup>

**72. Agriculture is the main source of livelihoods, employment, and exporting in Burkina Faso.** Agriculture employs 80per cent of the country's workforce and contributes nearly 28.6per cent of national GDP<sup>53</sup>. Smallholder producers operating on 5ha or less account for about 80per cent of total agricultural production. Further, women account for over 50per cent of the agricultural workforce and

<sup>48</sup> <https://www.imf.org/external/pubs/ft/fabric/backgrnd.htm>

<sup>49</sup> FOA, "Africa Sustainable Livestock 2050." <http://www.fao.org/in-action/asl2050/countries/bfa/en/>

<sup>50</sup> World Bank, "Burkina Faso." 1. <https://data.worldbank.org/country/burkina-faso>

<sup>51</sup> William, *Country Assessment Studies on Climate Change, Agricultural Trade and Food Security in ECOWAS BURKINA FASO REPORT*.

<sup>52</sup> UNDP, "Burkina Faso Human Development Report." <http://hdr.undp.org/en/countries/profiles/BFA>

<sup>53</sup> UC Davis "Burkina Faso" <https://gfc.ucdavis.edu/profiles/rst/bfa.html>

produce more than 66per cent of the food consumed in-country. However, women are given markedly lower access to crucial resources, most notably access to land and land tenure rights. Youth are leaving rural areas to seek out viable career options in urban areas. Yet despite this exodus, there has been a marked increase in the rural population density and agricultural expansion<sup>54</sup>. The agricultural economy has been growing rapidly since the 1990s and has outpaced the general economy. Burkina Faso's agricultural sector experienced 8.4per cent growth in 2018 alone<sup>55</sup>.

73. **Agriculture is Burkina Faso's predominant land use. Burkina Faso's total land area is 273.6 million ha, with 121 million ha (44.22per cent) under agricultural production and 52.9 million ha (19.33per cent) under forest<sup>56</sup>.** Of the agricultural land, about 60 million ha (21.9per cent) is under arable production, 1 million ha is under permanent crops, and 60 million ha is under permanent meadows and pastures. The agricultural land cover has expanded 91per cent since 2001, when it accounted for just 116.9 million ha. Much of this expansion has been onto unsuitable land; just 13.3per cent of the national land area is suitable for cultivation. This drastic rate of agricultural expansion onto lands with low agricultural productivity has been an attempt to feed the burgeoning population. Yet farming on unsuitable land, climate change, and desertification mean that 34per cent of the land area is already degraded. Significant increases in productivity and intensification would enable both economic prosperity and regeneration of degraded forests. The country has significant carbon sequestration potential and could reduce emissions by up to 19,020,600 tCO<sub>2</sub>e annually if deforestation and land degradation were effectively mitigated.
74. **Burkina Faso has a warm Sahelian tropical climate with significant temporal and geographic variation, with three climatic zones: the northern dry Sahel, the central North Sudan zone, and the humid South Sudan in the south (Figure 7).**<sup>57</sup> Average temperatures are consistently high both temporally and spatially; the national monthly mean temperature sits between 25.8°C and 29.6°C year-round. Temperatures are highest in the Sahel, ranging between 15-45°C.<sup>58</sup> National annual rainfall ranges between 400-900 mm, with 50-70 rainy days annually. There is significant spatial and temporal variation; the Sahel receives 300-600 between July and September, followed by a 7-9 months dry season. The North Sudan receives 600-900mm between June and October, and the South Sudan receives 900-1200mm between May and October<sup>59,60</sup>.

**Figure 7: Climatic zones in Burkina Faso**

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<sup>54</sup> Knauer et al.

<sup>55</sup> World Bank, "Burkina Faso Indicators." <https://data.worldbank.org/country/burkina-faso>

<sup>56</sup> USGS

<sup>57</sup> UC Davis "Burkina Faso" <https://gfc.ucdavis.edu/profiles/rst/bfa.html>

<sup>58</sup> USAID (2017), Climate Risk in Food For Peace Geographies Burkina Faso. USAID Washington DC. Document attached

<sup>59</sup> Knauer, K., Gessner, U., Fensholt, R., Forkuor, G., & Kuenzer, C. (2017). Monitoring agricultural expansion in Burkina Faso over 14 years with 30 m resolution time series: The role of population growth and implications for the environment. *Remote Sensing*, 9(2), 132.

<sup>60</sup> UC Davis "Burkina Faso" <https://gfc.ucdavis.edu/profiles/rst/bfa.html>



Source: UC Davis “Burkina Faso”<sup>61</sup>

75. Furthermore, the national economy is closely tied to agricultural productivity and, implicitly, weather and climate; the 2018 national economic growth of 6.8per cent was attributed to a rainy year and the consequent increase in cereal production<sup>62</sup>. **The country’s primary staple crops, including maize, millet, sorghum, and rice are crucial to food security<sup>63</sup> (Tables 13 and 14). Cereals constitute a large and increasing share of the Burkinabe diet and cultivated area (Figure 8).** People have increased their daily consumption of cereals (maize, sorghum and millet), and this increased consumption and the population increase have led to a doubling of the area planted since 1973. Pulses, mainly cowpea, production has increased and occupies over 10per cent of the cultivated land, but cowpea consumption has not kept pace with increased production.

**Table 13: Key Burkinabe food and commodity crops**

	% of Cultivated Land	Yield (tonnes/ha)	Production (1000 tonnes)	Food consumption (g/capita/day)	Kcal/capita /day
Cotton	6.98%	1.00	844,337		
Sorghum	13.78%	0.80	1,365,898	158.69	438
Millet	10.04%	0.68	828,234	155.83	404
Maize	7.90%	1.60	1,533,431	187.70	597
Cashew nuts	0.82%	1.00	99,027	2.75	9
Beans	0.006%	13.43	9,913		
Sesame	2.41%	0.56	164,787	2.78	15
Sweet potatoes	0.04%	11.72	58,749	24.40	23
Sugarcane	0.04%	100.54	487,643		
Rice	1.36%	1.97	325,566	88.04	207
Cowpeas	10.37%	0.48	603,966		
Cassava	0.03%	1.26	4,842	2.35	2
Ground Nut	4.58%	0.60	334,328	28.93	159
Soybean	0.17%	0.93	18,500	3.34	11
<b>TOTAL</b>	<b>58%</b>			<b>1.47</b>	<b>1815</b>

<sup>61</sup> <https://gfc.ucdavis.edu/profiles/rst/bfa.html>

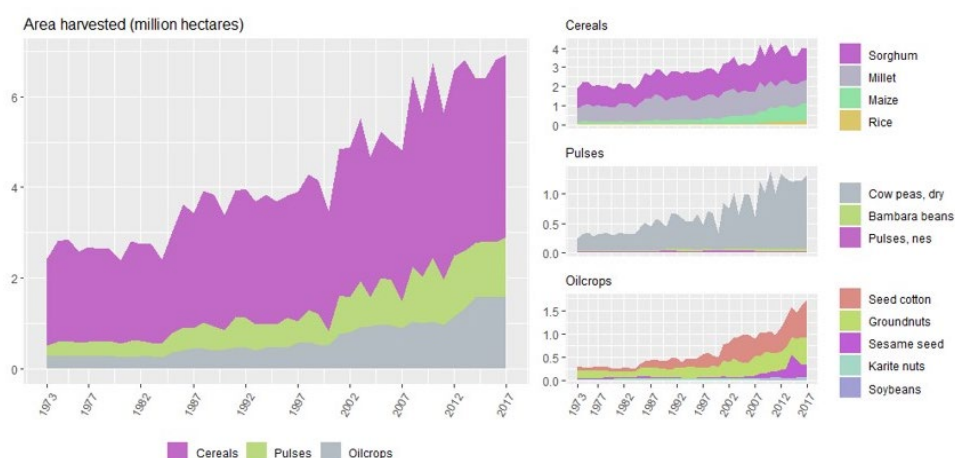
<sup>62</sup> World Bank, “Burkina Faso Overview” <https://www.worldbank.org/en/country/burkinafaso/overview>

<sup>63</sup> FAO (2010). Monitoring African Food and Agricultural Policies Project (MAFAP) Commodity Selection in the Five pilot countries. Document attached



Note: Darker colors show higher values for each indicator. Grey color shows missing value. Source: FAO – MAFAP (2017)<sup>64, 65</sup>

**Figure 9: Harvested area in Burkina Faso, 1973-2017**



Source: FAO, 2017

76. **Primary agricultural commodities produced include maize, sorghum, millet, rice, cowpea, sesame and cotton (Table 14).** Along with gold exports, the Burkinabe economy is fueled by exports of cotton, sesame, peanut, and soy, and cash crops such as maize, sorghum, millet, cowpeas, and sugarcane<sup>66</sup>. While maize is exported, as noted above, domestic demand for it has increased. Demand for additional cereals, (rice and wheat) is increasing and driving imports, as is demand for cattle meat.

**Table 14: Import, export, and production of key commodities in Burkina Faso**

	Export (1000 tons)	Imports (1000 tons)	Production (1000 tons)
<b>Millet</b>	8,700	475	828,234
<b>Sorghum</b>	3,020	-	1,365,898
<b>Maize</b>	44,902	2,036	1,533,431
<b>Rice</b>	2,047	431,917	325,566
<b>Sesame</b>	110,490	1,208	164,787
<b>Soybean</b>	1159	43	18,500
<b>Cotton</b>	250,233	2,806	844,337
<b>Cattle Meat</b>	2	6	-
<b>Wheat</b>	278	246,593	-

Note: Darker colors show higher values for each indicator. Grey color shows missing value Source: UC Davis “Burkina Faso”<sup>67</sup>

77. **Agricultural productivity is persistently low and has increased only 10% in the last decade. For example, Burkina Faso has regional competitive advantages in the livestock sector, but current**

<sup>64</sup> FAO, “Crop” <http://www.fao.org/faostat/en/#data/QC>

<sup>65</sup> FAO, “Food Supply.” <http://www.fao.org/faostat/en/#search/Food%20supply%20kcal%2Fcapita%2Fday>

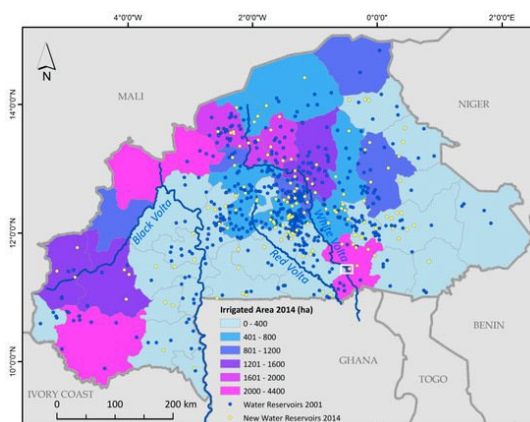
<sup>66</sup> UC Davis “Burkina Faso” <https://gfc.ucdavis.edu/profiles/rst/bfa.html>

<sup>67</sup> <https://gfc.ucdavis.edu/profiles/rst/bfa.html>



**policies substantially limit opportunities**<sup>68</sup>. Some of the challenges facing the agricultural sector are low diversification, vulnerability to weather and climate impacts, and persistent discrimination. Agricultural value chains remain largely undeveloped, the policy and finance environments are non-conducive to business development. Most workers do not have the skills demanded by firms.<sup>69</sup> Significant opportunities exist to increase national productivity and economic growth<sup>70</sup>. The first step is removing some of the barriers cited above. Additional opportunities can be found through intensifying smallholder production. The agricultural sector in Burkina Faso is highly reliant on a rain-fed production system. Yet expanding irrigated agriculture is an important step toward delinking climate and economy; Burkina Faso has abundant water resources and approximately 233,500ha of irrigable land, but only about 34,500ha were under irrigation in 2014 (Figure 10)<sup>71</sup>.

**Figure 10: Irrigated area per province 2014 and locations of artificial water reservoirs in 2001 and 2014**



Source: Knauer et al.

78. **An analysis in the Climate Sustainable Agriculture Investment Plans (CSAIP) for Burkina Faso performed using the International Model for Policy Analysis of Agricultural Commodities and Trade (IMPACT) shows that climate change will negatively affect the yield of all staple crop groups, in both the medium and long term, under a variety of socio-economic and representative carbon concentration scenarios.** Projected yields are shown for low, medium and high scenarios and for two time periods in 2030 and 2050. For many of these crops, it does not matter which scenario is viewed, there are similar declines in yield across all three RCPs at each time point. This is the case for temperate fruits, (declining around 5per cent in the short term and 105 by 2050), vegetables (declining around 5per cent in the short-term and 8per cent by 2050) and sugar cane, declining between 4-5 per cent in the short term and 9-12per cent in the long term.
79. **Cotton, one of Burkina Faso's most important exports, shows declines of between about 4per cent to 7per cent under all scenarios.** Given yield gaps in this sector, and the potential to improve resilience, these numbers are not so bad. They suggest that with appropriate interventions, there is the potential to increase the resilience of Burkina Faso's most important export crop.

<sup>68</sup> William, *Country Assessment Studies on Climate Change, Agricultural Trade and Food Security in ECOWAS BURKINA FASO REPORT*.

<sup>69</sup> Country Management Unit AFCF2, "Country Partnership Framework for Burkina Faso."

<sup>70</sup> Ksoll, C., Morgan, S., Bos, K. & Blair, R. (2018) Evaluation of the Burkina Faso Agricultural Development Project: Baseline Report. Mathematica Policy Research, NE. Document attached

<sup>71</sup> William, *Country Assessment Studies on Climate Change, Agricultural Trade and Food Security in ECOWAS BURKINA FASO REPORT*.

80. **Some crops are climate resilient and offer potential for expansion.** Sweet potato and yams are nutritionally important and show resilience to a warmer future. Cowpeas and potatoes also show relative levels of resilience to climate change impacts under all RCPs for both time periods. As noted previously, other cereals and rice also appear to be relatively resilient.
81. **Most cereals, especially maize, exhibit high vulnerability to climate change no matter what scenario is picked,** from losses of between 9per cent to 12per cent in 2030 to over 18per cent to 22per cent in 2050 compared to a no climate change baseline. The good news is that millet and sorghum show relatively smaller declines in the short-term, but both only show losses of around 2per cent - 5per cent by 2050, while other cereals do better. Rice also declines, but less so than other cereals, suggesting there is room to grow resilient rice. Overall, however, climate change impacts on cereals are of relevance in Burkina Faso, where they constitute a large share of daily caloric intake and cultivated area (maize, sorghum, and millet are especially dominant).
82. **Other crops, especially fruits, vegetables, soybeans, groundnuts, oils seeds and sugar cane are likely to perform badly over the long term.** For many of these crops, it doesn't matter which scenario is viewed, there are similar declines in yield across all three RCPs at each time point. This is the case for temperate fruits, (declining around 5per cent in the short term and 105 by 2050), vegetables (declining around 5per cent in the short-term and 8per cent by 2050) and sugar cane, declining between 4-5 per cent in the short term and 9-12per cent in the long term.

**Table 15: Percentage difference in Burkina Faso rainfed crop yields over a no-climate change reference scenario for 2030 and 2050,** under different representative carbon concentration scenarios (RCPs), with business-as-usual demographic and economic growth trajectories (SSP2).

crops	2018 Baseline Value(MT/ha)	RCP4.5_SSP2		RCP6.0_SSP2		RCP8.5_SSP2	
		2030	2050	2030	2050	2030	2050
CER-Maize	1.9391	-9.42	-18.12	-8.53	-16.34	-11.50	-21.69
CER-Millet	1.0411	-0.47	-0.97	-1.97	-3.88	-2.56	-5.03
CER-Other Cereals	1.0409	-0.98	-1.53	-1.08	-1.63	-1.88	-3.08
CER-Rice	1.5953	-1.87	-3.77	-1.41	-2.87	-0.97	-1.99
CER-Sorghum	1.2922	-3.77	-7.46	-3.70	-7.28	-4.75	-9.32
COT-Cotton	0.4965	-2.04	-3.87	-3.66	-6.78	-3.64	-6.50
COT-Other	1.1522	-0.18	-0.29	-1.05	-1.87	-0.78	-1.17
F&V-Temperate Fruit	6.7094	-5.66	-10.99	-4.93	-9.63	-5.66	-10.85
F&V-Tropical Fruit	6.9021	-1.25	-2.18	-3.37	-6.08	-3.57	-6.13
F&V-Vegetables	9.9878	-5.02	-9.73	-4.23	-8.24	-4.64	-8.87
OLS-Groundnut	0.8500	-1.70	-3.01	-4.10	-7.34	-4.47	-7.62
OLS-Other Oilseeds	1.3220	-1.70	-3.04	-3.73	-6.80	-4.07	-6.99
OLS-Soybean	1.2798	-3.65	-6.97	-4.97	-9.16	-5.46	-9.64
PUL-Cowpeas	0.5919	0.16	0.41	-0.79	-1.31	-0.46	-0.57
PUL-Other Pulses	0.8835	-1.75	-3.40	-2.71	-5.11	-2.61	-4.59
R&T-Cassava	4.3989	-2.28	-4.53	-1.95	-3.89	-2.00	-3.92
R&T-Potato	5.5495	0.28	-0.58	-1.91	-4.70	-0.12	-1.82
R&T-Sweet Potato	11.7151	-0.56	-0.75	-0.91	-1.41	-0.52	-0.33
R&T-Yams	10.1577	0.17	0.46	-0.45	-0.64	0.12	0.64
SGC-Sugarcane	104.8499	-4.83	-9.53	-4.34	-8.55	-6.04	-11.79

CER- cereals; COT-cotton; F&V- fruits and vegetables; OLS-oilseeds; PUL- pulses; R&T – roots and tubers; SGC- Sugarcane

83. **Cultivated area is projected to be higher for more crops under climate change than under a no-climate change reference scenario,** although many crops show less than a 1per cent change either way. Increased area under production is not necessarily a good thing, since expansion on to land with poor agricultural suitability drives land degradation (Table 16). CSA practices that improve intensification, in turn reducing land conversion, can therefore directly contribute to mitigation.

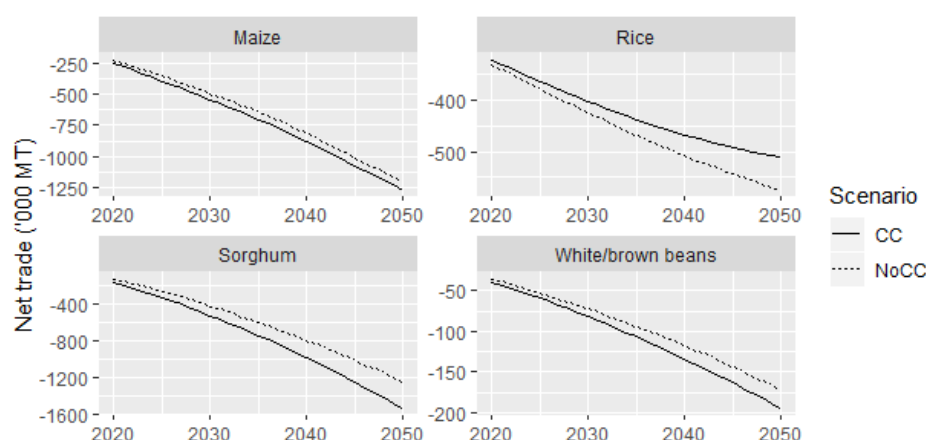
Potatoes, groundnut, oilseeds, cowpeas, rice, millet and sugarcane all show an increase in harvested area expansion, in both the short and long term. For most time periods, pulses, vegetables, temperate fruits and other cereals show a decline in area.

**Table 16: Percentage difference in Burkina Faso rainfed crop area over a no-climate change reference scenario for 2030 and 2050, under low, medium and high and carbon emission scenarios (different representative carbon concentration scenarios (RCPs)), with business-as-usual demographic and economic growth trajectories (SSP2).**

Crops <small>CER- cereals; COT-cotton; F&amp;V- fruits and vegetables; OLS-oilseeds; PUL- pulses; R&amp;T - roots and tubers; SGC- Sugarcane</small>	Percentage Change in Area Harvested from No Climate Change Scenario					
	Low Emissions		Medium Emissions		High Emissions	
	2030	2050	2030	2050	2030	2050
CER-Maize	-0.43	-1.48	-0.34	-1.15	0.35	-0.25
CER-Millet	0.83	1.43	0.45	0.68	1.13	2.06
CER-Other Cereals	-3.27	-6.19	-3.07	-5.86	-3.59	-6.58
CER-Rice	1.19	2.41	1.54	2.97	2.16	4.40
CER-Sorghum	-0.55	-1.22	-0.46	-0.95	-0.28	-0.62
COT-Cotton	-0.07	-0.05	-0.67	-1.24	-0.67	-1.19
COT-Other	0.04	-0.12	-0.04	-0.23	-0.18	-0.54
F&V-Temperate Fruit	-2.10	-4.09	-1.75	-3.48	-2.09	-4.12
F&V-Tropical Fruit	0.51	1.10	-0.12	-0.22	-0.27	-0.40
F&V-Vegetables	-2.86	-5.29	-2.09	-3.89	-2.66	-4.85
OLS-Groundnut	2.51	5.02	1.65	3.23	1.72	3.37
OLS-Other Oilseeds	1.31	1.96	1.87	2.51	1.79	1.86
OLS-Soybean	-0.08	-0.21	-0.32	-0.64	-0.46	-0.94
PUL-Cowpeas	1.10	2.22	0.95	1.90	0.86	1.76
PUL-Other Pulses	-5.08	-10.04	-5.24	-10.40	-6.22	-11.81
R&T-Cassava	0.39	0.91	0.25	0.56	-0.06	0.09
R&T-Potato	3.28	4.50	1.71	1.19	4.47	5.27
R&T-Sweet Potato	-0.15	0.09	0.03	0.32	-0.17	0.12
R&T-Yams	0.61	1.35	0.52	1.12	0.51	1.18
SGC-Sugarcane	2.39	3.99	2.16	3.60	3.00	4.69

84. **Climate change will change Burkina Faso's comparative trade advantage for different crops. Climate change suitability and yield across countries, and also affects the complex international interplay of socio-economic factors.** Maize is expected to decline sharply, and so too will maize exports. Burkina Faso is dependent upon imports to meet its internal cereal demand—especially for maize and sorghum—and this dependence is aggravated by climate change (Figure 16). Rice does a bit better than expected, as it is more resilient to climate change impacts than other cereals. While the net trade declines, it is possible that actions could be taken to improve modelled trajectories. Sorghum and white and brown beans will also decline. The steepening trade deficit in maize shows little difference under climate change.

**Figure 11: Net trade projections out to 2050. SSP2 RCP 8.5**



85. **Most predictions of climate change impacts on biophysical suitability hold management and technology constant at current levels. In reality, ongoing agricultural technology improvement in breeding and management will likely be able help offset some of these reductions.** Moreover, farmers will certainly exercise adaptive agency—intentionally switching to an improved variety or an alternative crop or changing levels of inputs or farming methods—actively responding to shifting economic incentives induced by climate change. These techniques may bolster the resiliency of farmers, and the agricultural sector as a whole, to climate change<sup>72</sup>.

*b) Financial sector context*

86. **The Central Bank of West African States (BCEAO) serves as Burkina Faso’s central bank. The financial sector in Burkina Faso is dominated by the private sector and is relatively well-capitalized with sufficient liquidity in line with the BCEAO norms<sup>73</sup>. The banking sector consists of 14 banks, of which the three largest ones – Coris Bank, EcoBank and Bank of Africa – are pan-African and together, hold 55 per cent of total assets. Other banks include privately-owned domestic banks and two small state-owned banks.** The banks are adequately capitalized: the average capital adequacy ratio (CAR) is 13.75 per cent vis-à-vis the BCEAO norm of eight per cent, and the liquidity ratio was 88 percent, higher than BCEAO’s norm of 75 percent. The microfinance sector consists of 133 MFIs, with 130 of these being cooperatives. The microfinance sector is highly concentrated, with one MFI – Réseau des Caisses Populaires du Burkina, or RCPB – representing more than 73 per cent of the clients and 70 per cent of the deposits. While large MFIs appear to be in good health, a majority of medium and small MFIs are struggling to operate, with some having negative equity and/or negative returns. The number of mobile money agent outlets increased by five-fold during 2014-2017, opening a new opportunity to bring the unbanked into the financial system.
87. According to the IMF’s Standardized Reports Forms (SRF) for end-July 2018, banks’ exposure to non-residents (including mostly regional governments) reached 14.5 percent of GDP. While such exposure entails assets mostly denominated in the regional currency which eliminates the exchange rate risk, it makes banks potentially vulnerable to fiscal shocks in the region. Exposure to the domestic public

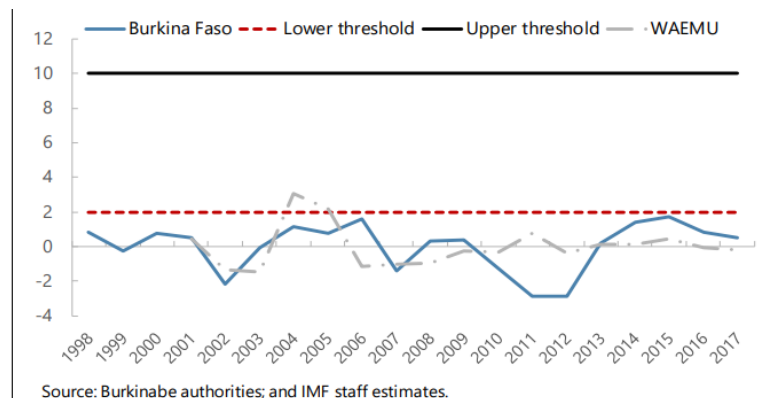
<sup>72</sup>World Bank Group.2019.Mali Climate-Smart Agriculture Investment Plan. World Bank, Washington, DC. © World Bank.

<sup>73</sup> IFC,2019

sector is smaller, with banks' net claims amounting to 3.5 percent of GDP. Banks have net liabilities to the private sector (nonfinancial corporations and households), amounting to 5.5 percent of GDP<sup>74</sup>.

88. **Net domestic assets grew by 13 percent in 2017, with the ratio of private credit to GDP reaching 31.3 percent at end-2017, up from 30.4 percent at end-2016.** Table 17 presents the total assets and liquidity of the financial sector in Burkina Faso from 2021 to 2018. Despite a cyclical build up in credit during 2014-15, credit imbalances remain contained. **A credit gap analysis (that analyses the difference between the credit-to-GDP ratio and its long-term trend) suggests that credit growth is within levels that do not give rise to a buildup of financial vulnerabilities<sup>75</sup>.** The cyclical credit gap has consistently remained lower than the 2 percent of GDP threshold above which financial sector risks are deemed to start rising (Figure 12).

**Figure 12: Credit-to-GDP Gap, 1998-2017 (in percent of GDP) in Burkina Faso**



89. **The profitability of the sector, based on either ROA or ROE, is sufficient, which makes the banking system stable with potential to expand into underserved portions of the economy. However, the level of profitability of banks in Burkina Faso also remains low compared with other UEMOA countries, such as Côte d'Ivoire, Senegal and Mali.** For MFIs, the portfolio quality, as measured by the portfolio at risk indicators, has declined and is 4.95 percent, above the three per cent norm mandated by the BCEAO<sup>76</sup>. Profitability of MFIs remains low and the liquidity ratio is at the threshold. Most MFIs do not meet the coverage ratio of medium and long-term financing with stable resources. Furthermore, regulatory oversight of the microfinance segment is weak, with the responsible regulatory teams being understaffed and having limited capacity. Micro and digital financial institutions are attempting to bridge the funding gap for SMEs; however, their products may not always match their consumers' demands. So far, microfinance has concentrated on the development of short-term financing.
90. **In terms of risks, capital ratios remain overall above prudential norms amid BCEAO's new regulatory capital requirements phased in from January 2018 (Table 17).** The new requirements raise the minimum risk-weighted capital ratio to 8.6 by end-2018, moving banks closer to Basel II/III standards. Credit risk is broadly contained as NPLs have consistently remained low, including during the political transition of 2014-2015. However, asset concentration is substantial, with the top five borrowers (including the state-owned enterprises SONABHY and SOFITEX) accounting for nearly 10

<sup>74</sup> IMF country report: Burkina Faso 2019

<sup>75</sup> The credit gap is calculated as the difference between the private sector credit-to-GDP ratio and its long-term trend derived using the Hodrick-Prescott filter. If the credit-to-GDP ratio is significantly above its trend (i.e. there is a large positive gap), this could be an indication that credit may have grown excessively relative to GDP.

<sup>76</sup> IFC, 2019

percent of total credit to the economy. Exchange rate (currency mismatch) risk is prevented by the fact that lending in foreign currency is not permissible in the WAEMU. While banks have a large net creditor position to nonresidents (14.5 percent of GDP), the underlying assets consist mostly of regional governments' bonds issued in CFAF thereby limiting the exchange rate risk. Liquidity risk is broadly contained. While declining in recent years, the ratio of liquid assets to total assets remained at around 25 percent at end-2017. Risks from tighter global financial conditions are limited. **On the asset side**, banks have limited international exposure outside the regional debt market and are not involved in complex derivatives or other risky financial instruments. On the other hand, the shareholding structure of most banks is dominated by Pan-African bank groups, potentially limiting the banking system's vulnerability to tighter funding conditions in advanced economies. However, security risks have risen. Recent terrorist attacks have somewhat increased banks' operational risk in remote areas, leading a few banks to temporarily close their branches. The deterioration in security conditions, while it has not led to major disruptions in the banking system, could undermine banks' ability to expand into underserved remote areas and hence hamper the authorities' efforts to promote financial inclusion.

**Table 17: Financial section indicators (2011-2018)** in percent, unless otherwise indicated

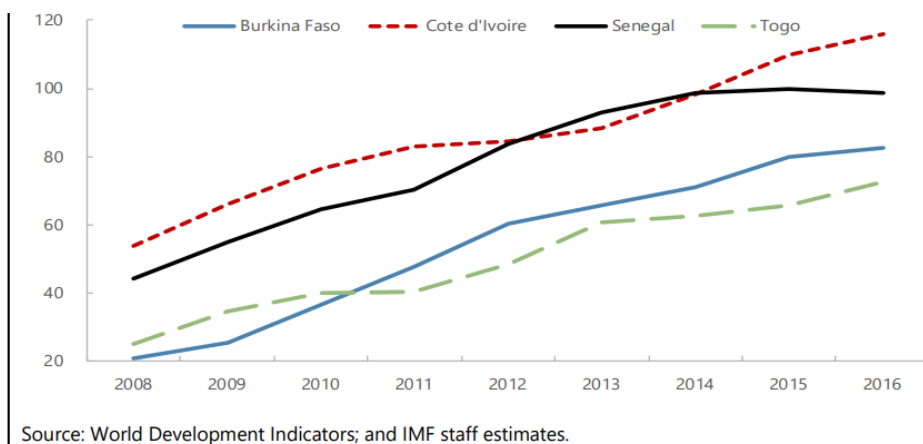
	2011	2012	2013	2014	2015	2016	2017	2018
			(end of year)					(end-June)
<b>Solvency Ratios</b>								
Regulatory Capital/ Risk-Weighted Assets	11.7	12.4	10.2	11.4	11.1	13.0	12.2	11.4
<b>Asset Quality</b>								
Provisions/ NPLs	64.4	67.7	62.6	64.9	67.6	70.4	66.4	69.9
Total Loans/ Total Assets	54.9	54.9	57.4	60.3	54.9	49.9	50.6	53.9
Concentration: Credit to the 5 Biggest Borrowers/ Regulatory Capital	103.0	157.9	108.4	158.4	179.6	114.5	79.8	60.8
<b>Earnings and Profitability</b>								
Average Cost of Borrowed Funds	2.9	2.9	2.9	3.5	2.9	3.0	3.1	...
Average Interest Rate on Loans	9.9	9.9	9.6	10.6	8.6	8.3	7.9	...
Average Interest Rate (after taxes on financial operations)	7.0	7.0	6.7	7.1	5.7	5.3	4.9	...
Return on Assets (ROA), After-Tax Return	1.9	2.0	1.7	1.5	1.3	1.4	1.4	1.1
Return on Equity (ROE), After-Tax Return	19.3	22.5	22.5	19.4	17.5	18.2	18.5	9.7
Non-Interest Expenses/ Net Banking Income	54.6	49.5	47.9	48.5	48.4	52.0	49.7	...
Salaries and Wages/ Net Banking Income	24.8	22.1	21.5	21.1	20.3	21.9	21.1	...
<b>Liquidity</b>								
Liquid Assets/ Total Assets	33.9	34.8	34.7	34.8	29.2	23.2	24.7	...
Liquid Assets/ Total Deposits	47.1	48.5	49.7	54.4	45.6	37.4	38.6	...
Total Credit/ Total Deposits	83.4	82.1	87.7	99.8	91.2	86.1	83.9	96.2
Total Deposits/ Total Liabilities	72.1	71.8	69.7	64.0	64.1	61.9	64.1	61.0

Source: BCEAO, Burkinabe authorities; and IMF staff estimates.

91. Table 17 also shows some notable successes include the country's ability to close the financing gap with some of its WAEMU peers in terms of the percentage of the population with a bank account and also the rapid increase in the percentage of the population that has used mobile money services, consistent with growing cell phone utilization rates (Figure 13). These results are encouraging and provide a base to build upon.

**Figure 13: Mobile Cellular Subscriptions, 2008-2016** (per 1000 people)





### c) *Energy sector context*

92. **The power sector in Burkina Faso is characterized by a low electrification rate (18.4% in 2019 according to World Bank data) and a heavy reliance on expensive thermal generation (90% of total power generation capacity). Rural areas of Burkina Faso are far way underserved with electricity, with an access rate of only 4.7%<sup>77</sup>.** The Government of Burkina Faso has set as targets by 2027 to achieve: (i) 80% national electricity coverage; (ii) national electrification of 60%; (iii) 90% national urban electrification; and (iv) rural national electrification of 30%. The Government has also set itself the goal of increasing and diversifying the supply of electricity through the massive development of renewable energies (solar in particular) in order to increase its share to 50% in total electricity production. By 2027, the country is committed to devoting a great deal of effort and resources to making electric power "available and accessible to all" by correcting the current disparities between urban and rural areas<sup>78</sup>. This has created an opportunity for green mini-grid technologies in Burkina Faso, given the quick pace at which these technologies can be deployed compared to alternative electrification solutions.
93. **In order to promote a fair coverage of the national territory in electricity, the government of Burkina Faso has put in place the Burkinabe Rural Electrification Agency (ABER) whose main mission is rural electrification, support the implementation of rural electrification pilot projects and facilitate rural people's access to electricity.** Since 2017, ABER has been using a local cooperative (COOPEL) model as a mechanism to promote electrification in rural areas where the National Electricity Company of Burkina (SONABEL), due to technical and financial constraints, was not able to serve. Currently, there are more than 90 COOPELs with an authorization or concession to manage a local distribution network, which are mainly connected to the grid and purchase power in bulk from SONABEL, but several have generation capacity<sup>79</sup>. One third are estimated to include PV systems. These mini-grids average 300 customers but may supply anywhere from 50 to a few thousand customers. COOPELs are generally managed by a small team of people, often volunteers, which execute simpler tasks such as administration, invoicing and bill collection. There is a national

<sup>77</sup> [Access to electricity, rural \(% of rural population\) - Mali, Burkina Faso, Cote d'Ivoire, Ghana | Data \(worldbank.org\)](https://data.worldbank.org/indicator/YS.EC.RS.CV.RD?locations=SS)

<sup>78</sup> [Burkina Faso | Africa Energy Portal \(africa-energy-portal.org\)](https://africa-energy-portal.org/)

<sup>79</sup> [GMG%20Burkina%20Faso%20report%20-%20final.pdf \(afdb.org\)](https://www.afdb.org/en/documents/burkina-faso-report-2020-final)

coordinator, the National Union of Electricity Co-operatives in Burkina Faso (UNCOOPEL), which lobbies for financing of the COOPELs and conducts trainings and support visits.

94. **Under concession agreements, independent power producers such as EDENE, GG-Y and BERCODE can carry out studies, manage energy supply systems and support COOPELs as well as municipalities and users in the implementation of their projects.** Medium- to long-term infrastructure projects, including private-sector projects, are often financed by development partners rather than commercial banks in the country. Multilateral lending institutions such as the World Bank (WB), the African Development Bank (AfDB) and the International Finance Corporation (IFC) have shown interest in providing funding for agribusiness, small business and infrastructure projects among other areas of support.
95. **Despite these institutional efforts, a few barriers are still impeding the uptake of mini grids in rural Burkina Faso.** Those are: (i) limited technical capabilities to COOPELs, which increase reliance on external technical providers (so called fermiers in French) to manage the distribution network<sup>80</sup>; (ii) financial constraints impacting the capacity of COOPELs to pay fermiers and reimburse the concessional loans provided by the Electrification Development Fund (FDE), which coordinates electrification programmes and provides funding to rural electrification promoters in the form of grants and loans. These barriers are limiting private companies' appetite for owning and operating mini grids in Burkina Faso. By working with the Agricultural Bank of Burkina Faso and providing concessional finance to small farmer cooperatives for owning mini-grids, IGREENFIN will reduce financing barriers for COOPELs while enabling the adoption of Renewable Energy Technologies alongside agricultural value chains.
96. **Energy demands for agricultural processing and transformation within IGREENFIN scope of work in Burkina Faso have been estimated at 3580 MWh annually.** These demands are for the following activities:
- Storage of vaccines to address growing livestock diseases due to climate change
  - Powering drip irrigation to address declines in agricultural yields
  - Powering processing techniques to reduce post-harvest losses
97. **The energy demands will be fully covered by solar and storage solutions. In the absence of the GCF proceeds under IGREENFIN 1 for renewable energy technologies, these energy demands would be covered using diesel generators, which would have led to an estimated 110,367 tCO<sub>2</sub> eq emissions in Burkina Faso over the project's lifetime.**

*d) Overview of existing finance in climate resilient and low emission agriculture*

98. **Authorities have recently launched their 2018-2022 roadmap for financial inclusion which is in line with the regional financial inclusion strategy adopted by BCEAO.** The roadmap builds on an extensive financial inclusion diagnostic exercise<sup>81</sup>. **On the supply side**, the financial inclusion strategy hopes to expand microfinance, improve digital and mobile financial services, risk analysis, and promote

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<sup>80</sup> The role of the tasks assumed by the fermiers varies from one COOPEL to another, but may include extending the network, connecting customers, billing, collection, etc. The relationship between fermiers and COOPELs varies drastically from one case to another and may be regulated by contract or not.

<sup>81</sup> UNCDF and FinMark Trust 2017; and Jefferis and Abdulai, 2017



financial institutions dedicated to the agricultural sector. The envisaged expansion of the microfinance sector could help narrow gender imbalances in financial inclusion, given women's higher reliance on informal micro businesses. On the other hand, the creation of a state-owned agricultural bank in March 2018, while motivated by a legitimate concern to revert the financial exclusion of the agriculture sector, could be a source of contingent liabilities. Further supply-side policy actions could aim at fully operationalizing the existing private credit bureau. Like in some African countries, an effective private credit bureau could contribute to scaling up access to credit by narrowing information gaps between banks and potential borrowers<sup>82</sup>. **On the demand side**, the authorities' roadmap envisages the intensification of financial literacy programs, especially in rural areas. It could also explore reforms to modernize the legal framework on bank collateral to better align it with the specific reality of local households and businesses. **Finally**, given the cross-cutting nature of financial inclusion, it will be important that policy actions are framed within the broader context of the PNDES.

99. **The Government has also launched the Program for Economic Growth in the Agricultural Sector (PCESA) from the Agro-Industry Fund.** According to the technical adviser to the Minister of Agriculture, Hydro-Agricultural Development and Mechanization, Ismaël Nandian Ouédraogo, since the beginning of the program, the Kingdom of Denmark has worked with all partners to facilitate access to financing for businesses in partnership with financial institutions (Ecobank, Coris Bank and Sofigib) which have granted 363 loans, 35 per cent of which are managed by women's businesses, at a total cost of about 21 billion CFA francs. Over the same period, 105 SMEs/SMIs benefited from advisory support, 123 green projects were financed for a total cost of about CFAF 7.8 billion. In three years the Agro-Industry Fund has helped about fifty agribusinesses in their development through facilitating access to finance and increasing turnover. While reaffirming its willingness to continue this type of initiative in its 2021-2027 programming, the European Union welcomes the key role of facilitators in the support and access to finance.
100. **According to the Smallholder Finance Product Explorer, Burkina Faso has four types of smallholder finance loans offered by one institution, the First Agency of Microfinance<sup>83</sup>.** The four types of loans include the animal fattening loan, which is cash loan to support activities undertaken during the fattening period for livestock; the trading loan supporting small-scale commerce; the horticulture loan supporting activities related to vegetable cultivation and the agricultural loan supporting agricultural production or storage.<sup>84</sup>
101. **Young farmers have access to a number of funds and tools managed by the Ministry in charge of Youth designed to provide them the means to start a viable business (FAIJ: Fonds d'Appui aux Initiatives des Jeunes, FAFPA: Fonds d'Appui à la Formation Professionnelle et à l'Apprentissage).**

*e) Insights from on-site interviews*

102. **In Burkina Faso, insights were obtained from on-site and virtual consultations with various stakeholders at the national and local levels during the IFAD baseline project design (PAFA) in Ouagadougou and the three intervention regions, discussion sessions of the 2020 IFAD-NDA Partnership workshop in Dakar on climate finance for agriculture as well as the IGREENFIN 1**

<sup>82</sup> Triki and Gajigo, 2012

<sup>83</sup> <https://sfpedata.oneacrefund.org/resource/?customOrder=country&order=ASC>

<sup>84</sup> In terms of financial figures, the data shows only the portfolio size and, for some of the instruments, annualized total amount lent or disbursed over a 12-month period, without however indicating the exact year of the transactions. The dataset does not contain any information on environmental impact, links to climate adaptation or mitigation, type of agricultural practices promoted.

**design preparation (see Annex 7 Stakeholder Engagement Plan for details on list of participants). The findings are presented below.**

103. **The feedback collected during the interviews points to the fact that financial sector could play a stronger role in supporting Burkina Faso's economic growth.** Low financial inclusion is a key challenge that can constrain the development of the private sector. Access to finance is particularly constrained for those in rural areas, women, and lower-income individuals. There also exists significant informational, IT, and collateral barriers to affordable credit for MSMEs, which again hamper private sector-led development and poverty reduction. There are many microfinance institutions and developing the sector is a government priority. Nevertheless, microfinance remains relatively underdeveloped due to IT barriers, lack of economies-of-scale, and weaknesses in business operations. In Burkina Faso, less than 25 percent of the population has an account at a financial institution (FI) and less than 10 percent have been able to borrow from FIs. Indeed, the 2016 Finscope report, which assesses the level of financial inclusion in sub-Saharan African countries, Burkina Faso is ranked 13<sup>th</sup> out of 21 countries.
104. **The existence of structural impediments such as low incomes, service costs, distance from the source of service and onerous documentation requirements help explain these low rates. Furthermore, access to finance is becoming increasingly differentiated depending on education and salaries, as well as the fact that women are less likely than men to have a bank account.** Because official bank credit is scarce, informal arrangements such as borrowing from family and friends continue to be common. Only informal procedures are used by 21 per cent of respondents polled in the Finscope. Similarly, despite the enormous number of mobile phone customers (estimated at over 12 million in 2015), mobile banking usage is still quite low.
105. **Furthermore, financial literacy is also low in Burkina Faso**<sup>85</sup>. While micro and digital finance institutions are trying to fill the financing gap for smallholders in Burkina Faso, these products do not always meet customers' needs. In addition, financial sector processes and risk culture are not conducive to improving financial inclusion for firms and individuals. When bank financing is available for smallholders, it is usually small (covering only about 16 per cent of the total investment), with high interest rates (anywhere from 7.75 to 15 percent) and of short duration (maximum of two years), with stringent collateral requirements that are difficult for smallholders, FOs and cooperatives to meet. In addition, the absence of a functioning digital collateral registry impedes access to credit. Though Burkina Faso recently launched a new credit bureau, it covers only 1.1 per cent of the adult population. In comparison, coverage in Côte d'Ivoire is about 9.6 per cent of its adult population<sup>86</sup>.
106. **Interviews with smallholders revealed that the finance needs of agricultural households, agricultural firms and young farmers must be distinguished. Short-term financing needs of farm households are:** (i) funding of the agricultural campaign (inputs: seeds, fertilizers, pesticides; labour: soil preparation, transplanting, weeding, harvesting...); (ii) financing of fattening (pig, sheep, goat, cow) and; (iii) financing storage and processing. **Longer terms agricultural financing needs of agricultural households relate to:** equipment financing (production intensification: harnessed cultivation, motor pumps, modest mechanization, etc.); marketing of production (transport) or storage (buildings); infrastructure financing including storage warehouses, wells, boreholes and hydro-agricultural initiatives; access to land and its security.

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<sup>85</sup> In addition, according to Finscope (2017) over 75 per cent of the population do not ask for financial advice or rely on their families.

<sup>86</sup> IFC, 2019

107. **Regarding supply in agricultural financing, banks' lending to the private sector is oriented toward large corporations in commerce, services, public infrastructure and extractives, which account for about 80 per cent of total bank assets.** For instance, banks have strong preference for public enterprises, particularly the state-owned oil import monopoly SONAHBY, at the virtual complete exclusion of the agricultural sector with the exception of cotton. Uneven credit allocation is also evident with the top 5 creditors accounting for around 10 percent of the total credit to the economy. The share of loans to SMEs (6 percent of total bank assets) and the agriculture sector (around 4-5 percent of total bank assets) remains low. This represents an imbalance in the economy, as the agriculture sector accounts for around 25 percent of GDP, and SMEs represent the overwhelming majority of Burkina Faso's 99,261 firms. This offer can take the shape of MFI refinancing or direct intervention, such as the fattening loan, if the banks do not have other agricultural-related products. A few large producers (with an almost agribusiness profile) are among the clients for fattening loans, but the bulk are small farms. However, the lack of guarantees remains a major obstacle. Considering this, banks continue to consider warrantee as an option, but only under particular conditions such as good producer organization in the intervention areas, presence of outlets for the sale of stored agricultural products and provision of reliable infrastructure/depots.
108. **Limited access to finance is especially detrimental to the development of agriculture and agribusinesses in Burkina Faso.** Potential supply-side constraints for access to finance are the fact that interest rates are as high as 15 per cent, well out of reach collateral requirements and the limited access to bank branches (only one bank per square km).

✓ Cote d'Ivoire

a) *Agricultural sector and climate change impacts on agricultural economy*

109. **Côte d'Ivoire is a lower-middle-income country, with high poverty and a high dependence on agriculture for food security, livelihoods, employment and foreign exchange.** According to the comprehensive food security survey, 12.6per cent of rural households in Côte d'Ivoire are food insecure, of which 2.5per cent are severely food insecure and 10.1per cent are moderately food insecure. Côte d'Ivoire's score on the World Bank's human capital index (0.38) improved slightly in 2020 relative to 2019. Poverty fell sharply from 46.3per cent in 2015 to 39.4per cent in 2020, but this decline was confined to urban areas as rural poverty levels rose by 2.4per cent over the same period. While Côte d'Ivoire has had high economic growth (7per cent–8per cent) in recent years, agricultural prosperity and poverty reduction remain elusive for most smallholders. High regional and rural-urban inequality exists, and agricultural households are both poorer and more likely than urban residents to face challenges related to food insecurity, illiteracy and limited access to productive resources<sup>87</sup>.
110. **Agriculture is Côte d'Ivoire's largest economic sector, contributing over 21per cent of the country's GDP, employing over half of the working population and providing over 75per cent of export earnings. However, agricultural sector productivity as a share of total GDP has been declining<sup>88</sup>.** Agriculture, including forestry, hunting, fishing and livestock production, contributes about 21.2per cent of GDP and accounts for 47per cent of total exports of the country. This sector

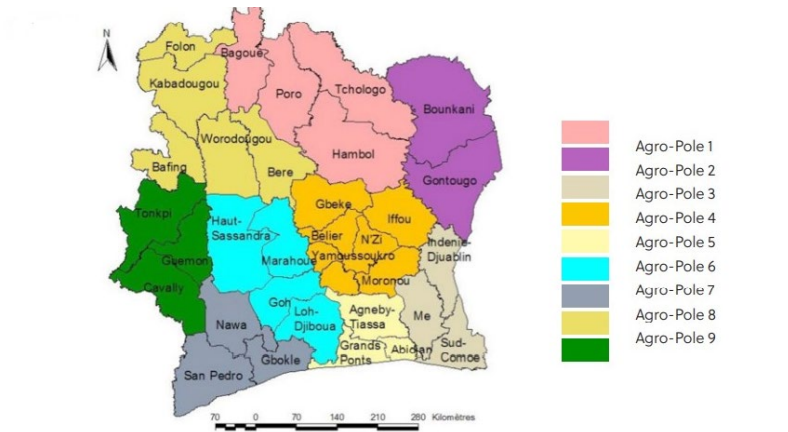
<sup>87</sup> World Bank Group. 2019. Cote d'Ivoire Climate-Smart Agriculture Investment Plan. World Bank, Washington, DC. © World Bank. <https://openknowledge.worldbank.org/handle/10986/32745> License: CC BY 3.0 IGO

<sup>88</sup> World Bank Group. 2019. Cote d'Ivoire Climate-Smart Agriculture Investment Plan. World Bank, Washington, DC. © World Bank. <https://openknowledge.worldbank.org/handle/10986/32745> License: CC BY 3.0 IGO

employs 46per cent of the country’s labor force and constitutes a source of income for two-thirds of the population.

111. Côte d’Ivoire is divided into four large agro-climatic zones based on biophysical and socioeconomic characteristics (Figure 9). The four agroclimatic zones are: Sudan savannah (900-1400mm) Guinea savannah (1000-1500mm), Western semi -mountainous forest zone (1200 to more than 1600mm) and the forest zone (1200mm to more than 1600mm) based on biophysical and socioeconomic characteristics. The savannah zones are in the north region, while the semi-mountainous forest is a transition zone in the central part of the country. Cocoa and coffee (accounting for almost two thirds of the cultivated land) are predominantly grown in the fertile forest zone of the south (including in many legally protected areas). Farm sizes for these crops in this zone are often larger than average (e.g., 10–13 ha) and, while less than 10per cent of farmers live in this zone, they receive greater support and production incentives than smallholders elsewhere. The north savannah region is characterized by rainfed crop systems of maize, millet, groundnuts and cotton and transhumance herding, while in the south cocoa, coffee, rubber and cashew nuts are produced. Yams are produced countrywide and occupy the largest cultivated area. Ghana

Figure 14: Agroclimatic zones in Côte d’Ivoire, as they relate to agropoles



ZONES	AGROPOLES	AGROCLIMATIC PRODUCTION ZONE CHARACTERISTICS
Northern savannah	1,2,8	Northern area with rainfed crop systems of maize, millet, groundnuts and cotton, as well as transhumance herding
Central	4,6,9	Semi-mountainous area
Southern forests	3,5,7	Larger farms with fewer farmers, mostly cocoa, coffee, rubber and cashew nuts, as well as forested lands

Source: World Bank Group, 2019<sup>89</sup>

112. Côte d’Ivoire’s natural agricultural potentialities (fertile land, important hydrological resources, and favorable climate) and a wide variety of agro-ecological conditions place the country at the forefront of Africa for many agricultural productions (rubber, palm oil, banana,

<sup>89</sup> World Bank Group.2019.Cote d’Ivoire Climate-Smart Agriculture Investment Plan. World Bank, Washington, DC. © World Bank. <https://openknowledge.worldbank.org/handle/10986/32745> License: CC BY 3.0 IGO.

**pineapple, cotton, coffee, coconut, and cola nut**). Indeed, Côte d'Ivoire is now the world's largest producer of cocoa and second largest producer of cashew nuts, with other expanding export productions, including rubber and mango.

113. **The main cropping systems include food crop-based systems and perennial crop-based systems.** The food crop-based systems include yam, rice, plantain, cassava and maize. Yam is mainly produced in the northern part of the country and contributes about 4.7per cent of GDP. Yam also provides about 510 Kcal/day/inhabitant, making it the second energy source just after rice. Rice is produced in the country under three production systems (rainfed, lowland and irrigated) and contributes 1.72per cent of the agriculture GDP. Plantain is produced mainly for the domestic market and normally grown in association with coffee and cocoa. Cassava is grown on 4/5 of the national territory, but it is the forest region which provides most of the production. Maize is mainly grown in the Sudanian and Sudano Guinean regions<sup>90</sup>.
114. **Perennial crop-based systems include cocoa, cashew nut, coffee, rubber and palm tree-based systems.** Cocoa is mainly produced in the forest zone. It constitutes the pillar of the Ivorian economy contributing about 15 percent of the country's GDP and provides employment for 7 million Ivoirians.<sup>91</sup> Cocoa is vitally important to Côte d'Ivoire, providing over 50per cent of the agricultural export value annually, and about 32.2per cent of total global output. The crop is grown by between 800,000 and 1,200,000 smallholder farmers on farms averaging about 4.87 ha. A survey of cocoa farmers done in 2013–2014 showed that 96per cent of the farmers are men, and that cocoa farmers are among the oldest in the country<sup>92</sup>. The export value for cocoa shows a general increase, with occasional declines attributed to production shocks due to harsh weather and volatility in international cocoa prices. Over 6 million people depend on cocoa production, and its share of agricultural exports and livelihoods is likely to continue increasing, making investments in production, research and policies essential, especially for reducing poverty<sup>93</sup>. From 2012–2016, the export value for cocoa was on average USD 2.86 billion<sup>94</sup>.
115. **Cashew is mostly cultivated in the Sudan and Sudano Guinean zone of the country. It contributes 1.3per cent of GDP.** Cashew production in Côte d'Ivoire increased by 40per cent from 2009 to 2013 placing the country as the second largest producer in the world<sup>95</sup>. Livestock is still a secondary economic activity with a direct contribution of around 4.5per cent to agricultural GDP and 2per cent to total GDP. The 2001 national consumption coverage rate was 59per cent for meat and offal, 100per cent for eggs and 18per cent for milk and dairy products<sup>96</sup>. Traditional cattle breeding is practiced in two extensive forms: sedentary breeding with small size of herd in the savanna zone and transhumant breeding. The improved traditional system results from a gradual intensification of the traditional system. It is found throughout the country but with a higher concentration in the Central and North Central regions.

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<sup>90</sup> RONGEAD. 2015. Etude de la filière Banane plantain en Côte d'Ivoire en Côte d'Ivoire. Projet « Promotion et commercialisation de la banane plantain et du Manioc en Côte d'Ivoire » financé par le Comité Français pour la Solidarité Internationale (CFSI).

<sup>91</sup> [AfDB report: Cocoa represents 15 pct GDP, over 50 pct Côte d'Ivoire's exports \(devdiscourse.com\)](https://devdiscourse.com)

<sup>92</sup> Balineau et. al 2016

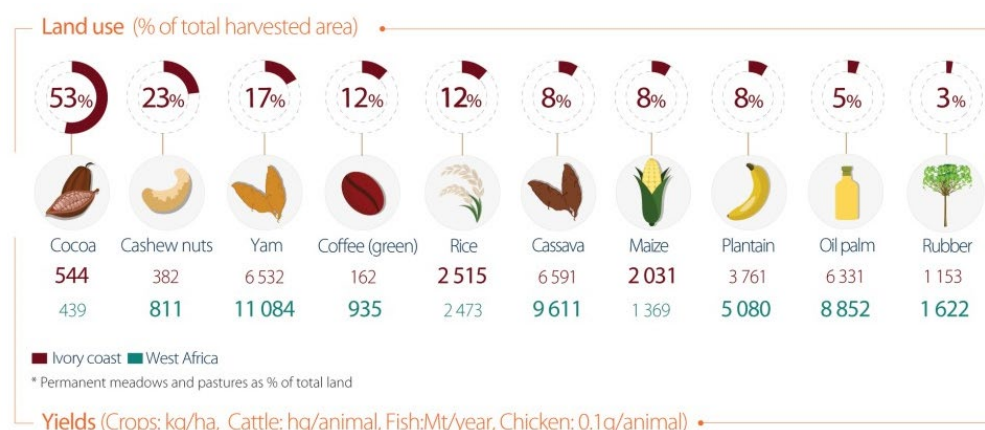
<sup>93</sup> Katayama et al. 2017

<sup>94</sup> FAOSTAT data (2018)

<sup>95</sup> FAO, ICRISAT, CIAT, CCAFS. 2016.

<sup>96</sup> MPARH. 2003. Rapport national sur l'état des ressources zoo génétiques. Ministère de la production animale et des ressources halieutiques (MPARH) ; République de Côte d'Ivoire, 80p ; SARA. 1999. L'agriculture ivoirienne à l'aube du xxi ème siècle. Une publication du salon de l'agriculture et des ressources animaux (SARA) d'Abidjan ; république de côte d'ivoire, ministère d'état, ministère de l'agriculture et des ressources animales ; ministère de l'environnement et de la forêt ; ministère de l'enseignement supérieur et de la recherche scientifique, 242p.

**Figure 15: Production systems key for food security in Côte d'Ivoire**



Source: FAO, ICRISAT, CIAT, CCAFS. 2016.<sup>97</sup>

116. **Climate change and year-to-year variability has already impacted agricultural productivity in Côte d'Ivoire.** Trends for cocoa, the most closely monitored crop, show that years with less rain have lower yields. Rice yields are also lower when there is less rain, with a 27per cent yield drop over the 2016/2017 planting season due to poor rains. The 2015/2016 post-harvest assessment revealed that 60per cent of farmers in the north and northeast had lower yields due to poor rainfall and lack of resources to purchase inputs. Another 2016 survey of rural households showed that 72per cent of the households consumed fewer meals. The fishing sector has declined since the 1990s, with fish die-offs as temperature have increased and lack of rain shrinks lake size and adversely affects water quality<sup>98</sup>.
117. **Suitability of crops and areas where they are grown will change because of these new temperature and precipitation patterns.** Changes in temperature and rainfall mean that many crops will be more prone to failure or will have to be shifted from current production zones, increasing food insecurity. Climate change will have pronounced negative effects on agriculture in the south, the region with the highest population concentration and where most cocoa is produced. For instance, the suitability for growing cocoa in many of the current growing areas will decrease (Figure 16) as higher temperatures cause more evapotranspiration, and increase in drought risk is likely by 2050 (even in areas that might see rises in annual precipitation)<sup>99</sup>. A combination of the temperature increase and reduction in precipitation will greatly affect crop suitability in the southern zone. These projected changes demonstrate the importance of ensuring that climate resilient agriculture investments are made to diversify crops and maintain yields amid declining suitability, while reducing environmental degradation and deforestation.

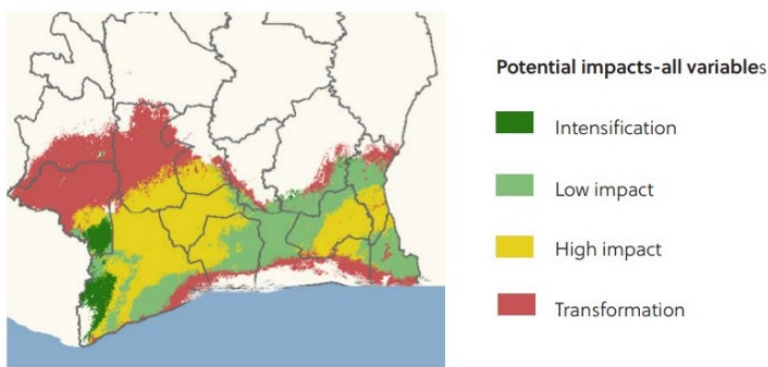
**Figure 16: Suitability change for cocoa growing regions to 2050.** Dark green areas are opportunity areas; light green areas are adjustment or incremental adaptation areas; yellow areas are designated systemic adaptation zones; and red areas will transition to other crops without substantial changes in production systems

<sup>97</sup> [ca1322en.pdf \(cgiar.org\)](http://ca1322en.pdf.cgiar.org)

<sup>98</sup> <http://www.wamis.org/agm/meetings/etdret09/WOS2-CouliDKbaly.pdf>

<sup>99</sup> Laderach et al., 2013





Source: Bunn et al. 2018

118. In Côte d'Ivoire, the IMPACT modeling from the Climate-Smart Agriculture Investment Plan (CSAIP) for Cote d'Ivoire<sup>100</sup> shows that the shifting economic landscape induced by climate change could exacerbate biophysical damages for cereals, vegetables, pulses and sugar crops (figure 12). Some of these commodities warrant protective action because of their importance for food security, as discussed in the following sections. For example, in a scenario of high emissions, high population growth and low to moderate GDP growth (RCP 8.5, SSP3), yields of rainfed and irrigated vegetables—a critical source of nutrients—exhibit aggravated vulnerability to climate change when international market incentives are taken into account, falling 3.8 pp and 5.7 pp beneath their No CC baselines, respectively (tables 18 and 19). Areas under rainfed and irrigated vegetable cultivation, meanwhile, are also projected to fall 1.2 pp and 4.4 pp below their No-CC baselines (tables 18 and 19, respectively). Relying on imports to meet domestic vegetable consumption is projected to increase at an alarming rate out to 2050.

**Table 18: Percentage point difference in yield and area of production with different levels of climate change for rainfed crops in Côte d'Ivoire** (shown as percentage point differences over the baseline No-CC)

<sup>100</sup> IMPACT is a model of the global agricultural sector that takes account of climate change as well as economic agency. See Robinson et al. (2015) for model documentation.

	Difference in yield (SSP3)				Difference in area of production (SSP3)			
	RCP 4.5		RCP 8.0		RCP 4.5		RCP 8.5	
	2030	2050	2030	2050	2030	2050	2030	2050
<b>Rainfed crops</b>								
Banana	-1.7	-4.5	-1.0	-2.7	0.3	1.0	0.9	2.8
Cassava	-1.2	-3.3	-1.2	-3.2	0.1	0.5	0.1	0.7
Cotton	-2.5	-7.7	-2.7	-7.2	-0.8	-2.1	-0.3	-0.8
Cowpeas	-1.6	-5.5	-1.7	-5.6	0.1	0.4	0.5	1.4
Groundnut	-3.4	-9.3	-4.6	-12.4	1.2	3.6	2.0	6.1
Maize	-5.9	-17.2	-7.6	-21.7	-0.1	-0.5	0.2	-0.3
Millet	-1.7	-6.5	-2.4	-9.2	0.1	0.2	0.4	1.1
Potato	-1.5	-4.7	-1.0	-3.7	1.1	1.1	2.2	2.8
Rice	-1.7	-5.9	-2.3	-7.6	0.4	0.9	0.8	1.9
Sorghum	-1.4	-5.4	-2.3	-9.0	0.4	1.2	0.3	0.8
Soybean	-2.3	-5.1	-3.7	-7.8	0.0	-0.1	-0.2	-0.4
Tea	-2	-5.5	-1.3	-3.6	-0.1	-0.1	0.4	1.3
Tropical fruit	-2.7	-7.1	-2.8	-7.0	-0.3	-0.8	0.0	0.0
Yams	-0.9	-2.3	-1.0	-2.4	0.2	0.5	0.1	0.4

**Table 19: Percentage point difference in yield and area of production with different levels of climate change for irrigated crops in Côte d'Ivoire** (shown as percentage point differences over the baseline No-CC)

	Difference in yield (SSP3)				Difference in area of production (SSP3)			
	RCP 4.5		RCP 8.0		RCP 4.5		RCP 8.5	
	2030	2050	2030	2050	2030	2050	2030	2050
<b>Irrigated crops</b>								
Cowpeas	-1.9	-7.9	-1.9	-8.2	0.7	2.4	1.1	3.7
Groundnut	-3.6	-11.5	-4.5	-14.2	1.6	7.9	2.7	13.3
Maize	-6.3	-21.2	-8.0	-26.7	0.0	-1.0	0.4	-0.6
Millet	-1.4	-5.3	-2.2	-8.2	0.7	2.1	0.9	2.9
Rice	-1.7	-6.0	-2.2	-8.1	1.0	3.2	1.4	4.8
Sorghum	-1.3	-5.0	-2.2	-8.3	1.0	3.4	0.6	1.9
Sugarcane	-2.8	-7.3	-3.6	-9.5	1.7	4.3	2.5	5.9
Sweet Potato	-1.3	-3.7	-1.5	-4.3	-0.1	0.1	-0.2	0.0
Vegetables	-2.9	-11.3	-3.7	-14.2	-1.4	-5.3	-1.8	-6.8
Wheat	-2.6	-6.9	-4.4	-11.3	-2.8	-6.7	-4.3	-9.3

119. **Cereal yields generally exhibit high vulnerability to climate change and are of particular relevance in Côte d'Ivoire, where they constitute 35per cent of all daily caloric intake and 12per cent of cultivated area.** There are, however, important variations for different cereals (figure 17). Maize and rice are the predominant cereals on farms and plates in Côte d'Ivoire, accounting for about 21per cent and 61per cent of all daily cereal derived caloric intake, and 36per cent and 46per cent of all cereal cultivation, respectively. Maize yield is projected to fall by well over 10 pp below its No-CC baseline trajectory across a wide range of climate change scenarios, while rice yield exhibits relative resilience, falling no more than 2.6 pp below its No-CC baseline in any scenario (tables 18 and 19). The area under maize cultivation is projected to hold close to its No-CC baseline across all scenarios, whereas the areas under rainfed and irrigated rice cultivation are projected to rise by as much as 6 pp



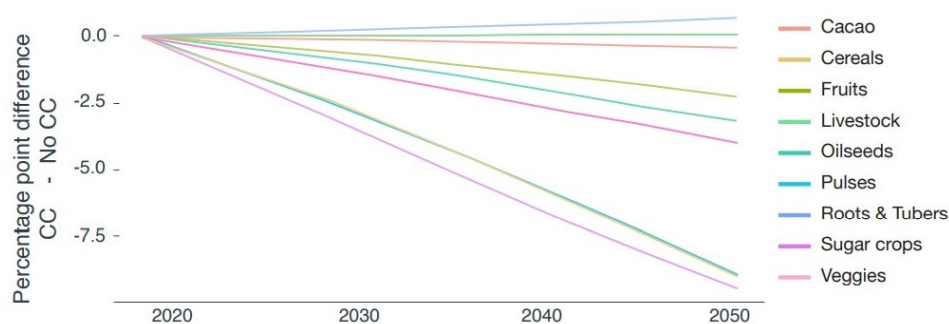
above its No-CC baseline (tables 18 and 19). Currently, about half of all rice calories and all wheat calories (accounting for 14.7 per cent of cereal caloric intake) consumed in the country must be imported. However, rice could serve as a rallying point for cereal adaptation strategies because of its potential as a relatively resilient cereal crop.

120. **Roots and tubers, such as yams and cassava, exhibit resilient yield trajectories out to 2050 (Table 18).** This is good news considering the critical role that these crops play on farms and plates in Côte d'Ivoire, accounting for 35% of all daily caloric intake and 14% of cultivated area. Yams and cassava are especially vital to food security in the country, accounting for 63% and 29% of all daily caloric intake from roots and tubers, and 63% and 36% of all root and tuber cultivation, respectively.

121. **Tropical fruit and plantain and livestock productivity yields exhibit resilience in future climate change scenarios that take account of shifting international market incentives.** For instance, plantain exports in 2050 under climate change are projected at levels that are 38 per cent higher than they would be without climate change (Table 18). This suggests that, with investments, Côte d'Ivoire has the potential to emerge from climate change impacts with a strong comparative advantage in plantain.

122. **Livestock productivity also exhibits resilience to climate change with investment support<sup>101</sup>,** diverging from its No-CC trajectory by less than a percentage point. While lamb shows budding export potential, domestic beef demand, requiring imports, is projected to increase at an alarming rate out to 2050. This is concerning because beef and small-ruminant meat account for 28% of all livestock-derived calories in Côte d'Ivoire. This highlights the importance of interventions targeting beef or the need for consumption to switch to other proteins.

**Figure 20: Percentage point difference between percentage change in yield (aggregate rainfed and irrigated) over 2020 with and without climate change, high emissions (RCP 8.5), high population growth scenario with low to moderate GDP growth (SSP3), major commodity groups**

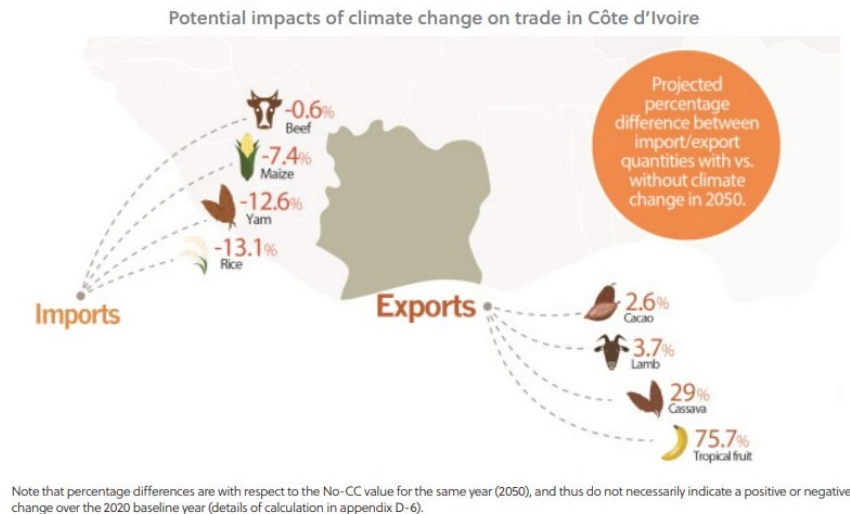


123. **Shifting economic incentives resulting from climate change could play out favorably for Côte d'Ivoire in some key commodities.** From a commercial standpoint, international trade and the modest levels of investment in yield-enhancing technology research assumed in IMPACT could substantially offset the anticipated steep decline in biophysical suitability for cocoa. Cocoa yield and area cultivated are projected to diverge from their No-CC baselines by less than a percentage point across a wide range

<sup>101</sup> focusing on cattle and small ruminants.

of climate change scenarios (table 19). Therefore, a higher investment commitment in yield enhancing technologies could achieve much more.

**Figure 21 Percentage difference between imports and exports in 2050 with and without climate change (RCP 8.5, SSP3).**



#### *b) Financial sector context*

124. **The Central Bank of West African States (BCEAO) serves as Cote d'Ivoire's central bank. As the largest economy of the eight-member UEMOA, it has the highest number of banks amounting 29 active banks as of April 2020 and a regional market share of over 31%. 8 out of the 10 largest banks are foreign institutions, accounting for 80-90% of the market's assets (e.g. France's Société Générale, Morocco's Groupe Banque Centrale Populaire and Attijariwafa Bank, Togo-based pan-African lender Ecobank and Bank Atlantique Côte d'Ivoire). The largest domestic bank in terms of assets are NSIA banque (market share of 11%) and BNI (market share of 6%). Other state-controlled lenders Versus Bank and CNCE rank 20th and 26th, respectively. According to the Association of Banks and Financial Establishments in Côte d'Ivoire<sup>102</sup>, the total assets of the Côte d'Ivoire's banking sector was predominately domestic and increased by 15% in 2018, amounting to CFA12.8 trillion (US\$ 22.4 billion), compared to 14.1% percent growth in 2017<sup>103</sup>. The assets growth was mainly funded by deposits (growth of 12%) from CFA7.5 trillion (US\$ 12.9 billion) to CFA8.4 trillion (US\$ 14.4 billion).**

125. **According to the Banking Commission of UEMOA, assets have been rising faster than loans, which led to the ratio of loans to assets decreasing slightly from 58.8% in December 2018 to 57% in December 2019<sup>104</sup>. However, the total credit allocation increased by 18% over the same period to reach almost CFA7.1 trillion (US\$ 12.2 billion). The distribution of loans in sectors such as the agriculture (including forestry and fisheries) and energy (electricity, water, gas) have been very low, accounting for 4.7% and 9%, respectively in December 2019. According to the UEMOA, deposits in Ivorian microfinance institutions rose by 13.5% in the year to June 2018, reaching nearly CFA300**

<sup>102</sup> Association Professionnelle des Banques et Etablissements Financiers de Côte d'Ivoire, APBEF-CI

<sup>103</sup> According to the Banking Commission of UEMOA

<sup>104</sup> IMF, 2020. Country Report Cote d'Ivoire SEVENTH AND EIGHTH REVIEWS

billion (US\$ 525.3 million). This was the largest increase in the UEMOA. Over the same period, total credit granted jumped by 18.5% to about CFA275 billion (US\$ 581.5 million).

126. According to the IMF, the quality of asset in Cote d'Ivoire has improved steadily in recent years, with gross non-performing loans (NPLs) decreasing from 10.6% of the total gross loans in 2013 to 8.4% in December 2019. As a result, banks' provisioning as a share of NPLs has decreased, from 63% in 2017 to 70.2 in December 2019<sup>105</sup>. Table 20 shows a summary of main financial indicators of the banking sector in Cote d'Ivoire.

**Table 20. Financial Soundness Indicators for the Banking Sector in Côte d'Ivoire, 2015–19 (Percent)**

	2015	2016	2017	2018 June	2018 December	2019 June	2019 December
<b>Capital adequacy</b>							
Regulatory capital to risk-weighted assets (CAR)	8.7	7.9	9.0	8.9	9.5	10.2	10.5
Regulatory tier 1 capital to risk-weighted assets	7.1	6.9	7.9	8.2	8.6	9.2	9.7
General provisions to risk-weighted assets	9.5	7.1	6.6	6.0	5.7	5.6	5.6
Capital to total assets	3.9	4.3	5.1	5.8	6.3	6.5	6.7
<b>Asset quality</b>							
Total loans to total assets	57.1	57.3	57.3	56.6	58.8	56.2	57.0
Concentration: Loans to the 5 biggest borrowers to capital	145.8	129.1	108.9	98.4	87.4	68.4	61.8
Sectoral composition of loans <sup>1/</sup>							
Agriculture, forestry and fisheries	5.9	6.4	8.0	8.2	9.2	6.2	4.7
Extractive industries	2.3	2.2	1.5	1.1	0.5	0.2	0.4
Manufacturing industries	25.1	24.1	23.9	21.7	23.0	22.1	20.5
Electricity, water, gas	6.3	8.4	11.2	12.1	13.2	9.0	9.0
Construction, public works	3.3	5.9	6.0	5.8	5.4	6.9	6.4
Commerce, restaurants, hotels	31.6	27.3	21.9	25.4	25.9	27.4	30.2
Transport, storage and communications	9.3	11.4	13.9	14.1	9.3	12.7	12.9
Insurance, real estate, business services	11.4	8.5	7.9	7.1	9.0	9.3	9.9
Miscellaneous services	4.8	5.8	5.7	4.5	4.5	6.3	6.1
Non-performing loans to total gross loans	10.4	9.1	9.8	8.5	9.3	8.3	8.4
General provisions to non-performing loans	66.6	70.5	63.0	75.8	64.9	72.3	70.2
Non-performing loans net of provisions to total loans	3.7	2.9	3.8	2.2	3.5	2.4	2.7
Non-performing loans net of provisions to capital	54.2	37.6	43.0	21.4	32.5	21.3	22.7
<b>Earnings and profitability <sup>2/</sup></b>							
Average cost of borrowed funds	2.0	2.1	2.1	—	1.9	—	0.4
Average interest rate on loans	9.2	8.9	8.6	—	7.7	—	6.8
Average interest rate margin <sup>3/</sup>	7.2	6.8	6.5	—	5.8	—	6.4
Return on assets (ROA) net of tax	1.4	1.6	1.4	0.8	1.3	0.0	1.7
Return on average equity (ROE) net of tax	24.5	29.2	21.5	9.6	16.5	0.0	20.2
Non-interest expenses to net banking income	59.6	57.5	55.6	53.2	59.3	0.0	56.1
Personnel expenses to net banking income	26.3	25.5	23.8	23.8	25.4	0.0	24.0
<b>Liquidity</b>							
Liquid assets to total assets	35.5	33.7	32.0	31.4	31.7	28.9	29.6
Liquid assets to total deposits	48.6	48.1	46.9	44.2	46.0	43.0	42.7
Total loans to total deposits	84.1	87.2	89.5	85.3	90.7	89.2	87.2
Total deposits to total liabilities	72.95	70.16	68.21	71.00	68.94	67.09	69.40

Source: BCEAO.

1 / Provisional data reported in accordance with Basel II / III prudential norms.

2 / Income statement items at semi-annual frequency.

3 / Excluding tax on banking transactions.

127. The banking industry's exposure to credit risk was extremely elevated as of late 2018 due to the July 2018 liquidation of one of the country's largest cocoa exporter, SAF-Cacao, which accrued an estimated CFA150 billion (US\$ 257.9 million) in debt. Additional risks that are likely to factor into the sector's performance in the near term include the 2020 elections, alongside the risk transmitted by

<sup>105</sup> Based on 2019 figures from the Banking Commission of UEMOA

small and medium-sized enterprises (SMEs) – particularly those that depend on government contracts and may face payment delays. The international operating environment will also be strained by the ongoing Covid-19 pandemic, which is likely to lead to a global slowdown of both the industry and the wider economy. In April 2020 four regional banks – SGBCI, Coris Bank International, National Investment Bank and Banque Sahélo-Saharienne pour l' Investissement et le Commerce – donated a total of CFA200 million (US\$ 343,800) to a fund dedicated to helping the government offset the impact of the COVID-19 virus. Banks operating in the Ivorian market would do well to diversify their loan portfolio in order to reduce the incumbent risks of lending credit: the IMF found, when examining the specifics of risk distribution in Côte d'Ivoire's banking sector in 2018, that the credit loaned to the top-five borrowers across all Ivorian banks accounted for 98.9% of the total capital of the banking system<sup>106</sup>.

128. **In terms of liquidity, the regional central bank (BCEAO) facilitates that reliance by providing liquidity to banks against security in the form of government securities.** In recent years, greater reliance has been put on borrowing in foreign-currency-denominated bonds. Although this option reduces pressure on the local market and on potential crowding out, it raises concerns about exchange rate risk and refinancing costs<sup>107</sup>. The ratio of liquid assets to total assets and liquid assets to total deposits both decreased, from 31.7% to 29.6% and 46% to 42.7%, respectively between December 2018 and December 2019. Due to the slower growth in profits, profitability indicators declined, yet remained strong as at December 2019. Return on Equity (ROE) declined from 16.5% % to 20.2 % whereas Return on Assets (ROA) increased from 1.3% to 1.7% over the same period.
129. **While 2018 saw weaker profitability among some lenders, the sector started the year in a stronger position in terms of capital adequacy.** The capital adequacy ratio (CAR) improved from 9.5% of risk-weighted assets in December 2018 to 10.5% in December 2019. According to the IMF, this demonstrates the “financial soundness” of Côte d'Ivoire's banking sector after banks increased their equity ahead of the mid-2017 implementation of new BCEAO rules that specify a capital requirement of CFA10 billion (US\$ 17.5 million) for banks operating in the UEMOA. As of December 2018, four banks that represent 2.5% of sector assets had yet to comply with the regulation. The BCEAO has announced the gradual introduction of the Basel II and III prudential frameworks in the period 2018 to 2022. Although the revised prudential framework will strengthen banking system resilience, it appears already to be slowing the growth of bank lending as banks adjust to augmented capital requirements and a reformed framework for managing bank liquidity and interest rate risk<sup>108</sup>.

### *c) Energy sector context*

130. **Although the national electricity access rate in Côte d'Ivoire is one of the highest in sub-Saharan Africa, access greatly differs between urban and rural populations: 93.9 percent for urban and only 41.9% for rural in 2019<sup>109</sup>. Rural penetration of the national grid and access to electricity are key issues for the country's electricity sector.** While the official target is 100 percent electrification by 2025, so far, actual electrification rates have lagged.

<sup>106</sup> <https://oxfordbusinessgroup.com/overview/sound-base-new-prudential-rules-are-implemented-banks-attempt-reach-more-customers>

<sup>107</sup> [https://www.fsdafrica.org/wp-content/uploads/2020/02/CIV\\_LTF\\_CountryReport\\_EN\\_20200211\\_WEB.pdf](https://www.fsdafrica.org/wp-content/uploads/2020/02/CIV_LTF_CountryReport_EN_20200211_WEB.pdf)

<sup>108</sup> [https://www.fsdafrica.org/wp-content/uploads/2020/02/CIV\\_LTF\\_CountryReport\\_EN\\_20200211\\_WEB.pdf](https://www.fsdafrica.org/wp-content/uploads/2020/02/CIV_LTF_CountryReport_EN_20200211_WEB.pdf)

<sup>109</sup> WorldBank data, access to electricity

131. **The main provider of electricity is the state-owned energy company, Côte d'Ivoire Energies (CIE). To expand its business in rural areas, CIE created the Rural Electrification Master Plan (Plan Directeur d'Electrification Rurale - PDER) which investment needs are estimated at 575 billion FCFA (EUR 862.5 million) from 2015 through 2030. In addition to CIE masterplan, the National Program for Rural Electrification Program (Programme National d'Electrification Rurale - PRONER), managed directly by the Government of Cote d'Ivoire aims at expanding access to electricity to rural areas. As an outcome of PRONER, approximately 4,600 out of 8,000 villagers gained access to electricity at the end of 2017.**
132. **To date, Ministry of Energy in Cote d'Ivoire has identified about 79,000 sites that are eligible to off-grid rural electrification.** The current regulatory framework however for the provision of mini-grids by the private sector in Cote d'Ivoire is administratively heavy. Mini-grids can be deployed for self-consumption by anyone, and capacities under 13 kW are exempt of authorization requirements. However the sale of electricity to third parties requires Government licensing. Currently, the only private mini-grids operating in Côte d'Ivoire are from development projects supported by donor agencies (i.e. the Akwaba project in the Zanzan district), which resulted in solar mini-grids for seven remote villages and also included back-up diesel generators to resolve the storage requirements for 24-hour connectivity. IFAD conducted consultations with Ministry of Energy in Cote d'Ivoire for the implementation of IGREENFIN. Ministry has shown great interest in the programme and committed to support it given the contribution which IGREENFIN will bring to the Renewable Energy National Plan and the positive impacts for rural populations in Cote d'Ivoire.
133. **The licensing process, access to adequate finance and low levels of consumer awareness of solar solutions have been the main barriers impeding the ability of solar companies to grow in Cote d'Ivoire.** By working with the National Investment Bank of Côte d'Ivoire and providing concessional finance to eligible operators under a PPP framework as would be agreed with Ministry of Energy, IGREENFIN will enable the adoption of Renewable Energy Technologies alongside agricultural value chains in rural areas.
134. **Energy demands for agricultural processing and transformation within IGREENFIN scope of work in Cote d'Ivoire have been estimated at 2680 MWh annually.** These demands are for the following activities:
- Storage of vaccines to address growing livestock diseases due to climate change
  - Powering drip irrigation to address declines in agricultural yields
  - Powering processing techniques to reduce post-harvest losses

**The energy demands will be fully covered by solar + storage solutions. In the absence of the GCF proceeds for renewable energy technologies these energy demands would be covered using diesel generators, which would have resulted in 82,790 tCO<sub>2</sub>eq emissions in Cote d'Ivoire over the lifetime of the programme.**

*d) Overview of existing finance in climate resilient and low emission agriculture*

135. **Commercial banks primarily lend to large businesses and for short-term needs such as the purchase and sale of export crops.** Their business model, network and capabilities prevent them from lending to small manufacturers or trade groups. There is a limited range of options for other services,

such as investment credit, crop insurance and risk capital. In Cote d'Ivoire, the financial sector players involved in agricultural financing include mostly banks, which hold most of the financial sector assets.

136. **A mechanism that may further drive financial inclusion in smallholder in agriculture is Islamic finance.** Afriland FirstBank Côte d'Ivoire became the first Ivorian bank to offer Islamic products when it launched an Islamic window in 2016. The 2019 launch of a mutual fund by Islamic microfinance provider Raouda Finance allowed subscribers to invest in different assets through a sharia-compliant structure – one of the earliest examples of such a fund in the region. Islamic bonds have also become increasingly useful to raise funds at the government level. In late 2015 Côte d'Ivoire issued its first sukuk (Islamic bond), worth CFA150 billion (US\$ 257.9 million) and with a maturity of five years. This was listed on the BRVM the following year, alongside another sukuk, also valued at CFA150 billion (US\$ 257.9 million) but with a seven-year maturity.
137. **A number of projects that foster the development of knowledge and evidence on the effectiveness of climate-smart agriculture in improving food security, mitigating climate change and improving the adaptive capacities of production systems and populations in Côte d'Ivoire have received support from various donors and financing schemes.** For instance, DFID and IDRC through the Climate Change Adaptation in Africa (CCAA) program funded an ecosystem system approach to managing water in the context of climate change in some West African countries including Côte d'Ivoire. This was deemed as a climate-smart drought intervention for communities whose conditions were also aggravated by floods.
138. **In addition, IFAD has since 1984 invested hugely in several aspects of the agricultural sector of Côte d'Ivoire which also includes the development and promotion of CSA innovations.** For instance IFAD provided USD 41.9 million to the Western Extension Support to Agricultural Production and Marketing Project (for implementation between 2014 to 2020) which will deliver on CSA goals - improved food security for 30 000 households by increasing smallholder farmers' access to services, technologies and markets while strengthening the resilience of their production systems to climate change.
139. **On behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ), GIZ is also helping to improve climate change adaptation in Côte d'Ivoire through a number of complementary projects** such as the climate change adaptation and population stabilization program and the support for the improvement and intensification of agricultural production project which mainstream CSA principles in improving food security and enhancing the value chains for cocoa, cashew nuts and cotton.
140. **In terms of access to UNFCCC funding mechanisms, the country has accessed approximately USD37 million worth of funding from the Global Environment Fund (GEF) for 23 national projects focused on areas such as biodiversity and forest management; sustainable production and processing of cassava; and coastal areas management among others.** The country has also been a part of 41 regional or global projects to the value of USD290 million.
141. **At the national level, there are very few institutions financing CSA in Côte d'Ivoire.** National opportunities for funding agriculture in Cote d'Ivoire include the finance support from the government (through the National Development Program and the National Investment Plan) and private sector. This highlights the primary barriers to accessing financial services for agricultural producers in Cote d'Ivoire



which are: a still inadequate rural branch network (59 per cent of the 4,050 access points are in Abidjan...); the reluctance and lack of capacity of banks to deal with credit to agriculture, which is seen as a high risk with no possibility of guarantees; the low credibility and reliability of most cooperatives as credit retailers; and the high real interest rates on loans (MFIs charge up to 30 per cent p.a.), which is incompatible with the financing of most investments. Even though microfinance institutions serve low-income households with short-term loans and operating capital, and they are spreading into rural areas, particularly those with cocoa farms, the majority of the institutions, on the other hand, do not provide loans for productive activities or investments, and many are financially poor and unable to provide good services to their members.

142. **Other initiatives include**, the World Cocoa Foundation's financial growth, which is offering input loan. As part of WCF's USD 40 million Cocoa Livelihoods Programme (CLP) in Ghana and Côte d'Ivoire, the World Cocoa Foundation investing USD 800,000 in a Financial Growth Fund to increase farmers' access to financial services, providing them with the necessary working capital to purchase inputs<sup>110</sup>.

*e) Insights from on-site Interviews*

143. **In Cote d'Ivoire, insights were obtained from three on-site consultations with various stakeholders at the national and local levels during the IFAD baseline project design (AESP) in Abidjan and the three regions of the Bandama Watershed, discussion sessions of the 2020 IFAD-NDA Partnership workshop in Dakar on climate finance for agriculture as well as virtual consultations during the IGREENFIN 1 preparation design (see Annex 7 Stakeholder Engagement Plan for details on list of participants). The findings are presented below.**
144. **Insights from the roundtable discussions with smallholders on the field and interviews with the agricultural bank in Cote d'Ivoire (BNI) revealed that financial inclusion could play a stronger role in supporting economic growth in Cote d'Ivoire.** Even though, the country's banks are increasingly integrating digital and mobile money services into their distribution networks, which is supporting financial inclusion, the banks' preference for short-term lending to enterprises is symptomatic of the limitations in the availability of credit information. Short-term lending provides banks the opportunity to closely monitor their borrowers; currently banks are unable to rely on information shared with the credit bureau because the coverage is incomplete. The smallholders and SMEs financing gap seems moderate, but this understanding may reflect varying assumptions concerning the size of the informal sector. Surveys often extrapolate the funding needs of informal smallholders and SMEs on the basis of the proportion of their funding that is provided by formal suppliers, thus underestimating financing gaps because informal enterprises tend to have little or no access to formal financing except from microfinance institutions. 14-month loans (including a 2-month grace period) are renewed by MFIs in the country. For instance, two-thirds of the financing needs of Ivorian SMEs remain unmet by the formal financial sector because they can only access short-term and often high-cost informal funding to finance their investment needs<sup>111</sup>.
145. **The agricultural bank of Cote d'Ivoire (BNI) mentioned that, while BNI notes that access to finance is the greatest need to smallholders in agriculture, the priority areas in which technical assistance is required include support to financial intermediaries (a) in providing access to products and services more adapted to the needs of smallholders and SMEs, (b) in shortening the time to process loan applications in response to smallholders and SMEs financing needs, and (c)**

<sup>110</sup> [RAFLearning Data](#)

<sup>111</sup> according to the IFC

**in disseminating better information on existing financial offering.** The challenges relating to information asymmetry are also illustrated by the smallholders and SMEs' low level of awareness of initiatives being promoted by the government to increase access to finance. As an example, only 6 percent of SMEs surveyed in the Entrepreneurial Solutions Partners study in Cote d'Ivoire are aware of the reforms in the leasing sector introduced by the government<sup>112</sup>.

146. **Côte d'Ivoire's relative SME financing gap is somewhat lower than in neighboring countries such as Ghana and Nigeria.** The IFC data indicate that the gap in Côte d'Ivoire corresponds to 7 percent of GDP, compared with 13 percent in Ghana<sup>113</sup>. The 2016 World Bank Enterprise Surveys show that urban, medium, and large enterprises in Côte d'Ivoire have better-than average access to bank finance. By contrast, rural enterprises are four times less likely to have access to banking finance than are urban enterprises, and small enterprises (with fewer than 20 employees) are three times less likely to have access to banking services than medium-sized enterprises.

147. **A more diversified set of options for smallholders in agriculture and SME financing is required to support long-term investment and reduce the concentration of risk in the banking sector in Cote d'Ivoire.** Many banks now have specialised departments to service SMEs with new instruments. In mid-2019, SGBCI allocated a CFA350 billion (US\$ 601.7 million) credit line to the Ministry of Commerce and Industry for the financing of SMEs, as part of the lender's broader strategy to loan Ivorian SMEs up to CFA450 billion (US\$773.6 million) over the 2019-23 period. In February 2020, the International Finance Corporation agreed to invest CFA17.5billion (US\$ 30.1 million) in a debt securitisation by NSIA Banque, which will finance loans to SMEs. This marks the first case of a loan security issued by a commercial bank within UEMOA, and is also the first among the member countries to have been issued with a five-year maturity. Boosting smallholders and SME lending will also require efforts to improve smallholders and SMEs' internal and external operating environments, including a reduction in red tape and more robust economic performance. **However, while government policy has increasingly focused on extending credit facilities to smallholders and local SMEs, a lack of information in some cases makes it challenging for lenders to accurately judge the level of risk related to companies.**

✓ Ghana

a) *Agricultural sector and climate change impacts on agricultural economy*

148. **Ghana's population was estimated to be 30.4 million in 2019<sup>114</sup>. The country's economy is growing at a rapid pace, with GDP growth rate increasing markedly from 4.3per cent in 2007 to 14per cent in 2011, driven largely by the advent of oil production from the Jubilee field, but subsequently growth has slowed to 4.5per cent in 2019 as key commodity export prices (cocoa and oil) slumped and inadequate grid power thwarted activity in the industrial sector<sup>115</sup>.**

149. **Agriculture contributes 19.7per cent of Ghana's current GDP, accounts for over 30per cent of export earnings and serves as a major source of inputs to our manufacturing industry<sup>116</sup>.** In

<sup>112</sup> Entrepreneurial Solutions Partners (ESP) "Rapport: L'Enquête 'Données pour la Croissance,'" ESP, Abidjan, 2016, [https://lafinancesengage.com/forum/drive/file/rapport\\_donnees\\_pour\\_croissance\\_edition\\_2016](https://lafinancesengage.com/forum/drive/file/rapport_donnees_pour_croissance_edition_2016). The report, led by ESP with Confédération Générale des Entreprises de Côte d'Ivoire (CGECI) and AfDB, studied 4,212 enterprises across Côte d'Ivoire, covering all economic sectors.

<sup>113</sup> IFC, MSME Finance Gap.

<sup>114</sup> World Bank data, 2019

<sup>115</sup> World Bank data, 2019

<sup>116</sup> Foreign Trade Administration, 2020, available at [Agriculture-Sector-Review.pdf \(itrade.gov.gh\)](https://itrade.gov.gh/Agriculture-Sector-Review.pdf)



2019, 33.5per cent of labor force in Ghana was absorbed by the agriculture sector. Agriculture is the second largest employer in the economy but the smallest sector in comparison to services and industry. The agriculture sector grew from 2.9per cent in 2016 to 6.1per cent in 2017, recorded a growth of 4.8 in 2018 and it is projected to grow at 6.9per cent in 2019. The agriculture value added that is the net output of the sector from 2018 is 11.98 billion USD. As so, agriculture is viewed by many as a key factor in Ghana's economic growth and development process.

150. **Ghana has a total land area of 238,539 km<sup>2</sup> of which 57per cent (about 136,000 km<sup>2</sup>) is classified as "agricultural land area".** Of this total arable land, 58,000 km<sup>2</sup> (24.4per cent) is under cultivation and 11,000 hectares under irrigation (iTrade, 2020). Ghana's agriculture is predominately smallholder (80per cent), traditional and rainfed. Larger farms and plantations primarily cultivate cocoa, oil-palm, rubber and coconut, and to a lesser extent, cereals and pineapples<sup>117</sup>. The agriculture sector is usually divided into 4 subsectors, which are crops (including cocoa), livestock, forestry and logging, and fishing.

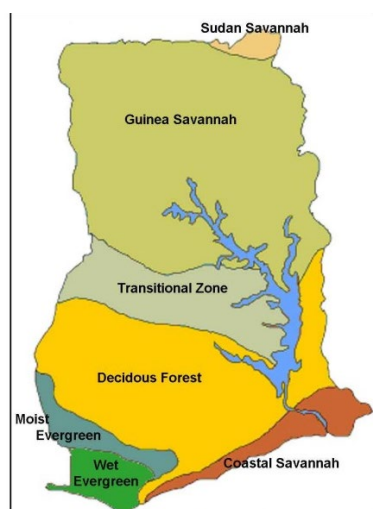
151. **The major crops in Ghana are grown within the six agro-ecological zones (Figure 22 and Table 21) distinguished by natural vegetation and influenced by climate and soil characteristics.** The evergreen rain forest, deciduous rain forest, transition and coastal savannah zones make up the southern half of the country. These agro-ecological zones have a bimodal equatorial rainfall pattern, allowing for two annual growing seasons (major and minor growing seasons). The Guinea and Sudan Savannah make up the northern half of Ghana. These agro-ecological zones have a unimodel tropical monsoon, allowing for only one growing season (major season). The single growing season in the north is bound by the harmattan period, which begins in December and ends in March. Tropical tree crops are generally restricted to the southern agro-ecological zones, with the exception of sheanut and cashew, which occur in the northern savannah. Maize and rice are grown in all regions, while sorghum and millet are grown primarily in the transition and northern savannah zones. Starchy crops and vegetables are grown in all regions. Legumes production occurs in all regions except for the high rainforest, and tree crop production is common in all regions except for the Sudan Savannah<sup>118</sup>.

**Figure 22: Agro-ecological zones in Ghana**

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<sup>117</sup> MOFA 2011

<sup>118</sup> FAO 2005, Appiah 2008



Source: Germer and Sauerborn 2008 (<https://www.uni-hohenheim.de/respta/climate.php>)

## Principal crops grown in agro-ecological zones

Zone	Cereals	Starchy crops	Legumes	Vegetables	Tree crops
High Rain Forest	Maize, rice	Cassava, cocoyam, plantain		Pepper, okra, eggplant	Citrus, coconut, oil-palm, rubber
Deciduous Rain Forest	Maize, rice	Cassava, cocoyam, plantain	Cowpea	Pepper, okra, eggplant, tomato	Citrus, oil-palm, coffee, cocoa
Transition	Maize, rice, sorghum	Cassava, cocoyam, plantain, yam	Cowpea, groundnut	Pepper, okra, eggplant	Citrus, coffee, cashew
Coastal Savannah	Maize, rice	Cassava	Cowpea	Tomato, shallot	Coconut, pineapple
Guinea Savannah	Maize, rice, sorghum, millet	Cassava, yam	Cowpea, soybean, groundnut, bambara	Tomato, pepper	Sheanuts, cashew
Sudan Savannah	Maize, rice, sorghum, millet	Sweet potato	Cowpea, soybean, groundnut, bambara	Tomato, onion	

Source: MOFA 2011, and FAO 2005

<sup>119</sup>. Smallholder productivity has increased in recent years and has been a significant source of national poverty reduction, yet smallholder agriculture has low productivity with substantial yield gaps<sup>120</sup>. The country's primary staple crops, including cassava, yam, plantain, maize, and rice, are crucial to food security (Table 22). Industrial crops (e.g., cocoa and oil-palm) are important cash crops for export revenue<sup>121</sup>.

**Table 22: Principal crops produced in Ghana**

<sup>119</sup> 5 Bernard Darfour and Kurt Rosentrater, "Agriculture and Food Security in Ghana" (2016 ASABE International Meeting, Orlando FL: Iowa State University, 2016), <https://doi.org/10.13031/aim.20162460507>.

<sup>120</sup> Darfour and Rosentrater; United States Department of Agriculture, "Ghana Exporter Guide," 2012.. 48 Potsdam Institute for Climate Impact Research, "Climate Risk Profile: Ghana."

<sup>121</sup> Nutsukpo et al., "Chapter 6 – Ghana"; The World Bank Group, "Ghana"; Healthline, "Nutrition Facts," 2019, <https://www.healthline.com/nutrition/cassava>; FAOSTAT, "Ghana."

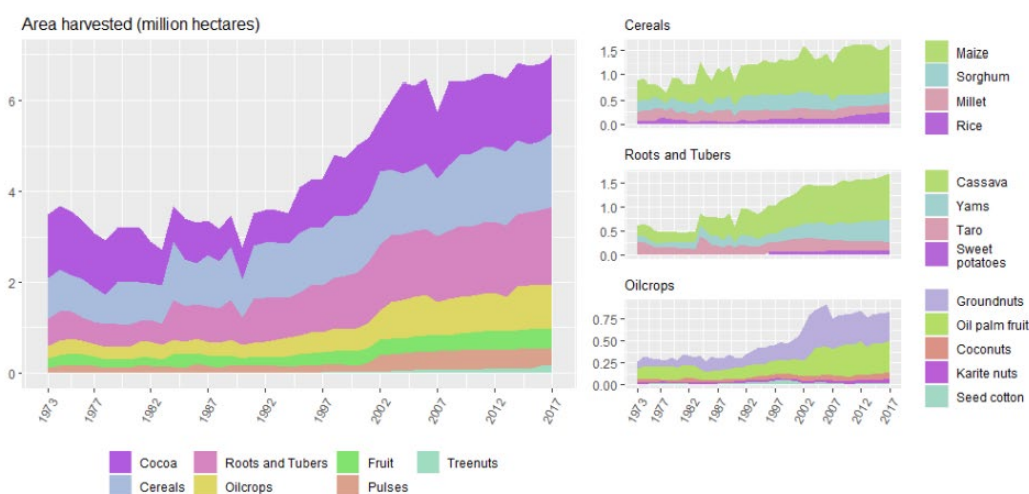
	% of Cultivated Land	Yield (tons/ha)	Production (tons, thousands)	Food Consumption (kg/capita/day)	Kcal/capita/day
Cassava	12.6	19.1	18471	0.58	654
Yam	4.70	17.1	7953	0.31	363
Plantain	4.80	11.0	4051	0.29	351
Maize	12.10	2.0	1965	0.12	111
Rice	5.09	2.8	721	0.07	132
Fish	n.a.	n.a.	380	0.05	58
Wheat	0.02	510.0	510	0.04	145
Coconut	1.52	53,860.0	384	—	—
Cowpea	3.50	1.2	201	—	63.8*
Millet	3.55	9,996.0	167	—	55.1*
Sorghum	4.70	10,422.0	316.3*	—	95.8*
Soybean	0.50	1.6	900*	—	46.5*
Cashew	3.1	6,097.0	9	n.a.	n.a.
Cocoa	10.6	5,228.0	879.4*	n.a.	n.a.
Cotton	—	—	5	n.a.	n.a.
Oil Palm	7.02	7.0	2529.5*	n.a.	n.a.
TOTAL	74	86,174.77	38,382.50	1.47	1815

Note: Darker colors show higher values for each indicator. Data resources vary from 2014 to 2018. A dash (—) indicates no data found; n.a. is not applicable.

Source: Nutsukpo et al., 2019<sup>122</sup>

**Cereals and starchy roots constitute a large and increasing share of Ghana's daily caloric intake and cultivated area.** Among the cereals, maize is predominant on most farms while cassava is the most prevalent of the root and tuber crops (Figure 23). Despite domestic production, Ghana is dependent on imports to meet its internal cereal demand.

**Figure 23: Harvested Area in Ghana, 1973–2017**



Source: FAO database, 2017

<sup>122</sup> Nutsukpo et al., "Chapter 6 – Ghana"; The World Bank Group, "Ghana"; Healthline, "Nutrition Facts," 2019, <https://www.healthline.com/nutrition/cassava>; FAOSTAT, "Ghana."

154. Primary agricultural commodities include cassava, yam, banana, maize, cereal, fruits, cocoa, and coconut<sup>123</sup>. The main exports are cocoa, oil palm, and yam as shown in Table 4. While yams are exported, they are also important domestically, and are an important source of calories in the Ghanaian diet.

**Table 23: Import, Export, Production, and Total Demand for Key Commodities in Ghana**

	Export (tons, thousands)	Imports (tons, thousands)	Production (tons, thousands)	Total demand (mt, thousands)
Cassava	—	0	20845.90*	3673
Cashew	350.00*	—	110*	—
Cocoa	526	0	900*	837
Groundnuts	0.02*	0.27	521.00*	342.76
Maize	0.19*	81.71*	2,306.38*	1,429.25
Millet	0.03*	1.26*	181.56*	158.01
Oil palm	127.12	163.97	2,529.51	286.27
Plantains	0	0	4,050.63	2,422.14
Sorghum	0	0.03*	316.24*	168.18
Yam	17.28*	17.83	7,788.87*	3,570.38

Note: Darker colors show higher values for each indicator. Data resources vary from 2013 (oil palm) and 2015–17. A dash (—) indicates no data found; n.a. is not applicable

Source: Bangmarigu and Artan Qineti, 2018<sup>124</sup>

155. **In terms of the impacts of climate change on main commodities in Ghana, Ghana is not well prepared to adapt to current and future climate change impacts. The country ranks 103 out of 182 in climate vulnerability<sup>125</sup>, which implies that food security and agriculture will be challenged by climate change. Indeed, about 5 per cent of the population of Ghana are food insecure and about 2 million people are vulnerable to become food insecure<sup>126</sup>. For example, the growing agricultural sector, diverse agro-climatic zones, and significant geographic variation in crop production offer strong options for building resiliency.**

156. **In Ghana, the IMPACT modeling from the Climate-Smart Agriculture Investment Plan (CSAIP) for the country<sup>127</sup> shows it will negatively affect the yield of all staple crop groups, in both the medium and long term, under a variety of socioeconomic and representative carbon**

<sup>123</sup> Nutsukpo et al., “Chapter 6 – Ghana.”

<sup>124</sup> Bangmarigu Emmanuel and Artan Qineti, “Cocoa Production and Export in Ghana” (Nitra, Slovakia: Faculty of Economics and Management, Slovak University of Agriculture, 2018); S. Adjei-Nsiah and Owuraku Sakyi-Dawson, “Promoting Cassava as an Industrial Crop in Ghana: Effects on Soil Fertility and Farming System Sustainability,” Research article, Applied and Environmental Soil Science, 2012, <https://doi.org/10.1155/2012/940954>; FAOSTAT, “Ghana”; Statistics, Research, and Information Directorate, “Agriculture in Ghana,” Facts and Figures (Ministry of Food and Agriculture, October 2016), [https://www.agrofood-westafrica.com/fileadmin/user\\_upload/messen/agrofoodWestafrica/Brochure/AGRICULTURE-IN-GHANA-Facts-and-Figures-2015.pdf](https://www.agrofood-westafrica.com/fileadmin/user_upload/messen/agrofoodWestafrica/Brochure/AGRICULTURE-IN-GHANA-Facts-and-Figures-2015.pdf); Index Mundi, “Ghana - Agricultural Land” Oil palm export figures includes all products and uses. .

<sup>125</sup> Asante and Amuakwa-Mensah, “Climate Change and Variability in Ghana.”

<sup>126</sup> [Darfour and Rosentrater. 2016. Agriculture and Food Security in Ghana.](#)

<sup>127</sup> IMPACT is a model of the global agricultural sector that takes account of climate change as well as economic agency. See Robinson et al. (2015) for model documentation.

**concentration scenarios.** Projected yields are shown for two scenarios and for two time periods in Table 24. Most cereals, especially maize, exhibit high vulnerability to climate change no matter what scenario is picked, from losses of 8–11 percent in 2030 to over 16–21 percent in 2050 compared to a no-climate change baseline. For other cereals, millet and sorghum show relatively smaller declines in the short term, but both have losses of around 4–6 percent by 2050. Rice, also a cereal, shows the lowest declines across all scenarios and time periods, remaining under 3 percent yield reductions from the baseline (Table 24).

157. **Cocoa, vital to Ghana’s economy, also exhibits considerable vulnerability, with losses around 3 percent in the short term (2030) but up to 5–7 percent by 2050. Oil palm and its fruit, also a tree crop, shows impacts that are quite similar to cocoa.** Plantains also fare poorly, although they do better than cocoa or oil palm. Groundnuts also show relatively steep losses in both the short and long term, from 3–4 percent in 2030 to 6–7 percent in 2050 based on IMPACT modeling. Note that the results from IMPACT may vary from other models, since IMPACT includes economic, demographic, and trade (among other factors) along with climate factors and crop responses. On a positive note, roots and tubers, such as cassava and yams, exhibit relative resilience under climate change modeling.

**Table 24: IMPACT Analysis: Percentage Difference in Ghana Rainfed Yield**

Percent Difference from No Climate Change Scenario	Yield			
	Low emissions		High emissions	
	2030	2050	2030	2050
Crop				
CER-Maize	-7.99	-15.55	-10.82	-20.73
CER-Millet	-1.91	-3.87	-3.04	-6.04
CER-Rice	-1.25	-2.60	-0.80	-1.71
CER-Sorghum	-1.88	-3.78	-3.13	-6.19
COT-Cacao	-3.33	-6.59	-2.80	-5.49
COT-Other	-1.85	-3.75	-1.29	-2.64
F&V-Plantain	-2.73	-5.43	-2.00	-4.00
F&V-Vegetables	-3.84	-7.84	-3.18	-6.51
OLS-Groundnut	-3.70	-7.34	-2.99	-5.87
OLS-Other Oilseeds	-2.87	-5.44	-3.60	-6.44
OLS-Palm Fruit	-3.66	-7.23	-3.17	-6.19
PUL-Other Pulses	-3.25	-6.43	-2.79	-5.41
R&T-Cassava	-1.25	-2.42	-0.70	-0.99
R&T-Other Roots	-1.63	-3.25	-1.05	-2.07
R&T-Yams	-1.06	-2.07	-0.50	-0.93

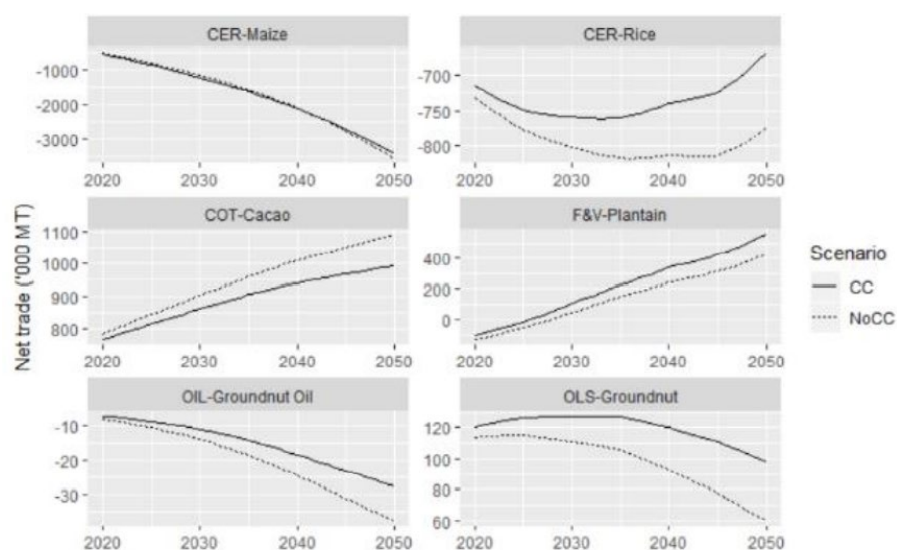
*Note:* Table shows differences in relation to a no-climate change reference scenario for 2030 and 2050, under high and low carbon emission scenarios (different representative carbon concentration scenarios), with BAU demographic and economic growth trajectories (SSP2).

**Table 25: IMPACT analysis: percentage difference in Ghana rainfed crop area**

Percent Difference from No Climate Change Scenario	Area harvested			
	Low emissions		High emissions	
	2030	2050	2030	2050
Crop				
CER-Maize	0.12	-0.36	0.60	0.25
CER-Millet	0.60	0.93	1.29	2.30
CER-Rice	1.19	2.29	1.81	3.63
CER-Sorghum	0.82	1.53	0.66	1.23
COT-Cacao	-0.05	-0.06	-0.03	-0.03
COT-Other	-0.74	-1.73	-0.55	-1.38
F&V-Plantain	0.93	1.91	1.31	2.56
F&V-Vegetables	-1.90	-4.03	-1.62	-3.49
OLS-Groundnut	3.26	7.06	4.28	9.35
OLS-Other Oilseeds	0.58	1.76	-0.13	0.33
OLS-Palm Fruit	2.15	4.20	2.16	4.18
PUL-Other Pulses	-8.19	-16.19	-8.91	-17.19
R&T-Cassava	0.35	0.79	0.27	0.72
R&T-Other Roots	0.20	0.50	0.35	0.80
R&T-Yams	0.38	0.90	0.38	0.92

Note: Table shows difference over a no-climate change reference scenario for 2030 and 2050, under high and low carbon emission scenarios (different representative carbon concentration scenarios), with BAU demographic and economic growth trajectories (SSP2).

Figure 24: IMPACT Analysis: Net Trade Projections to 2050. SSP2 RCP 8.5



160. Ghana has 23 commercial banks (CB), 144 rural and community banks (RCB), 25 savings and loan companies (SLC), 132 microfinance companies (MC), 31 microcredit companies (MCC), 12 financial NGOs (FNGO) and numerous money lenders and susu collectors. Village Savings and Loan Associations (VSLAs) are widespread. The total assets of the banking sector increased by

18.5 percent year-on-year to GH¢162.9 billion (about US\$ 26.7 billion) as at end-February 2021, compared to 23.2 percent growth in the same period of 2020. The assets growth was predominately domestic (18.7%) and was funded mainly by deposits (growth of 25.1% to GH¢104 billion (about US\$17 billion) as at end-June 2021, compared to 15.6% growth the previous year) whereas foreign assets grew by 8.2%. In terms of borrowings, it decreased by 23.4 % to GH¢14.3 billion (about US\$2.3 billion) in end-February 2021, compared with 20.7 % growth in the previous year. This reflects a higher increase in long-term borrowings while short-term borrowings decreased during the year, coupled with relatively cheaper sources of funding from deposits and shareholders' funds to fund assets' growth. The major component of the total assets of the banking sector is investments, with a share of 44.7 percent in end-February 2021 (BOG,2021)<sup>128</sup>. Table 24 shows a summary of the assets and liability structure of the banking sector in Ghana.

**Table 26. Asset and Liability Structure of the Banking Sector in Ghana**

	<b>Feb-18</b>	<b>Feb-19</b>	<b>Feb-20</b>	<b>Dec-20</b>	<b>Feb-21</b>
<b>Components of Assets (% of Total)</b>					
Cash and Due from Banks	24.9	23.5	24.2	21.2	19.9
Investments	34.3	39.9	36.3	43.1	44.7
Net Advances	31.9	29.2	31.5	28.0	27.2
Others	8.7	7.4	8.0	7.7	8.2
<b>Components of Liabilities and Shareholders' Funds (% of Total)</b>					
Total Deposits	63.0	66.0	64.8	69.5	68.4
Total Borrowings	16.0	13.1	14.5	9.7	9.4
Shareholders' Funds	6.8	6.3	6.5	6.5	7.7
Other Liabilities	14.2	14.6	14.2	14.2	14.6

**Source: BOG,2021**

161. **The banking industry's exposure to credit risk was slightly elevated in end-February 2021 relative to the same period in 2020, due to the impact of COVID-19 on borrowers' abilities to repay their loans as well as the impairment of some facilities by some banks during the period.** Total credit growth (excluding the loans under receivership) increased to GH¢47.6 billion at end-February 2021, representing a 3.6 % annual growth, lower than the 26 % growth in February 2020. The share of total credit is dominated by the private sector by GH¢43.2 billion (about US\$ 7 billion) but its growth declined from 21.6 percent in February 2020 to 7.4 percent in February 2021. Similarly, the share of public sector credit decreased from 12.3 % to 9.1 % over the same period. The sectoral breakdown of loans indicated that the agriculture, forest and fishing sector remained the second lowest recipient of industry credit with a share of 3.6 % at end-February 2021.
162. **In terms of liquidity,** the ratio of core liquid assets (mainly cash and due from banks) and core liquid assets to total deposits both went down partly due to the 2-percentage point reduction in the primary reserve requirement by the Bank of Ghana to help support credit extension during this COVID-19 pandemic period, as well as the strong growth in the industry's deposits.

<sup>128</sup> Bank of Ghana, 2021. Monetary Policy Report - Banking Sector Developments. Vol. 6 No.2/2021. Available at: <https://www.bog.gov.gh/wp-content/uploads/2021/04/Banking-Sector-Developments-March-2021-1.pdf>



163. **The banking sector remains solvent, with sufficient capital buffers to absorb potential losses from increased lending and/or from the current challenging operating environment.** The Capital Adequacy Ratio (CAR) of 20.2 % as at February 2021 was well above the current minimum regulatory threshold of 11.5 % under Basel II/III requirements and is supportive of increased lending to the real sector to facilitate economic recovery. Due to the slower growth in profits, profitability indicators declined, yet remained strong as at February 2021. Return on Equity (ROE) declined from 25.1 % to 22.1 %. Similarly, Return on Assets (ROA) decreased from 4.9 percent to 4.4 percent over the same period.

*c) Energy sector context*

164. **In 2019, 84 % of the population in Ghana had access to electricity. This figure falls to 70 % of the population in rural areas .** To tackle the electrification challenge, Government of Ghana has set two major plans, The Renewable Energy Master Plan (REMP) and the National Electrification Master Plan (NEMP).

165. **The REMP of Ghana has a rural off-grid electrification component.** The REMP largely relies on government entities to deploy, own, and operate energy systems. In the REMP, Government financed mini-grids are under the responsibility of the Volta River Authority, Power Distribution Service Ghana Ltd, and the Northern Electricity Distribution Company.

166. **Under the NEMP however, communities may work through local leadership by applying to the Self-Help Electrification Programme (SHEP) to receive government support via the district assembly in realizing grid access.** Communities applying for the SHEP must procure and erect all of the required distribution poles themselves and demonstrate that at least one-third of households are wired and prepared to be connected. In addition, two industry associations are relevant to off-grid solar: (i) the Association of Ghana Solar Industries (AGSI), which focuses exclusively on solar, and (ii) the Renewable Energy Association of Ghana, which covers a range of renewable technologies.

167. **As of date, nearly all mini-grids built are donor-funded and government-owned** such as the African Development Bank's (AfDB) Ghana Scaling up Renewable Energy Program. Given Ghana's high electrification rate (84%) and national policies that prioritize government-led development, private-sector mini-grid development has been limited. Yet the regulation enables the Energy Commission in Ghana to provide licenses for power generation, transmission and distribution. To date, the country's only private operator of multiple mini-grids is Black Star Energy, which operates 17 mini-grids serving approximately 6,000 customers in the Ashanti and Brong-Ahafo Regions. Black Star Energy has been successful in raising impact equity investments, crowdfunding debt, and grants, such as the EDF Pulse Africa award . Although Black Star Energy has been successful in operating its mini-grids, from an official standpoint, the company is only an installer, and its retail operations have merely been tolerated by the government.

168. **In terms of financing the mini grid sector, Ghana's commercial banking sector does not actively lend to off-grid energy companies and the banks involved in the country's renewable energy sector have high interest rates loans with short tenors.** Ghana has 144 licensed rural banks, several of which offer consumer credit for products but not specifically to off-grid systems . Several donors have developed local credit facilities that are, in theory, applicable to off-grid energy companies. These facilities include a US\$ 10 million clean energy guarantee facility through the USAID



Development Credit Authority (DCA) and Ecobank and the previously mentioned Rural Development Fund . These facilities, however, are not explicitly designed for off-grid energy companies and have not been accessed by the off-grid sector. In fact, a DCA guarantee has never been used for a loan transaction in Ghana's energy sector. Investments in the off-grid sector are from international sources, predominately donor and impact funds (e.g.: PEG and ZOLA Electric, which are the main international SHS companies). Many local SHS distributors, such as Wilkins Engineering Ltd. or NorthLite Solar Ltd., are traditional suppliers of renewable energy equipment and are not set up to offer consumer credit. Furthermore, the energy companies that have considered entering the market in Ghana had often pursue lower risk opportunities such as captive power. The lack of local financing options has led to the emergence of crowd-funding as an important fundraising source for off-grid companies.

169. **The main barriers impeding the uptake of mini grids in Ghana are financial and regulatory. Financial barriers include unavailability of concessional finance in the market that matches the investment cycle for mini-grids.** Regulatory barriers are mainly the lack of a licensing framework regarding private mini grid development. Yet Government of Ghana recognizes that an estimated 3 million out of the 5.8 unelectrified people in Ghana reside in remote Islands or are lakeside communities that are difficult to reach with main grid extension.

170. **IGREENFIN will work with the ARB Apex Bank Limited of Ghana to provide concessional finance to both private sector and small farmer cooperatives for owning solar mini-grids that will support agricultural value chains.** A dedicated framework to underserved and far to reach areas will be set in partnership with Government of Ghana to provide solar energy for the following activities:

- Storage of vaccines to address growing livestock diseases due to climate change
- Powering drip irrigation to address declines in agricultural yields
- Powering processing techniques to reduce post-harvest losses

171. **Energy demands for agricultural processing and transformation within IGREENFIN scope of work in Ghana have been estimated at 2680 MWh annually. These demands will be fully covered by solar and storage solutions. In the absence of the GCF proceeds for renewable energy technologies these energy demands would be covered using diesel generators, which would have resulted in 82,790 tCO<sub>2</sub>eq emissions in Ghana over the lifetime of the programme.**

*d) Overview of existing finance in climate resilient and low emission agriculture*

172. **In Ghana, the financial sector players involved in agricultural financing include banks, rural banks, savings and loans companies and microfinance institutions.** In terms of climate financing, Ghana Investment Plan for the Forest Investment Program (FIP) financing of over \$75 million is supporting projects that unite public and private sectors with indigenous peoples and local communities in restoring degraded forest landscapes, improving forest management, and reducing pressure on forests. Efforts include promoting sustainable cocoa and agriculture practices, securing tree tenure, and facilitating institutional capacity building and policy reforms<sup>129</sup>. Another \$40 million from the Scaling up Renewable Energy Program in Ghana (SREP) is helping to create an enabling environment for renewable energy scale-up, focusing on renewable energy mini-grids and stand-alone solar photovoltaic (PV) systems, solar PV-based net metering with storage, and utility-scale solar PV and wind power

<sup>129</sup> [fip\\_5\\_ghana.pdf \(climateinvestmentfunds.org\)](#)

generation. The SREP endorsed an investment plan as a basis for the further development of the projects and programs foreseen in the plan<sup>130</sup>.

173. **The private business sector is the major source of investment for climate change mitigation in Ghana.** Private sector partners include industry/technology companies, commercial banks and private funds (thematic green, venture capital, pension, social, etc.), whether local, regional or global. At the local level, banks such as ECOBANK Ghana Limited, Agricultural Development Bank and Standard Chartered Bank are already active in lending support for mitigation activities. For example, the Forestry Commission is in partnership with ECOBANK to fund afforestation projects on concessionary terms<sup>131</sup>. Ghana Country Private Sector Diagnostics (CPSD) identifies that the private sector could notably support: (i) agribusinesses in high-value export markets; (ii) the upscaling of financing for promising SMEs in the ‘missing middle’; and (iii) the provision of goods and services for smallholders (seeds, fertilizers, storage, transport, machineries, extension etc.).
174. **Public sector partners include international development banks, public agencies and bilateral/ multilateral institutions and their programmes.** Examples include the Swedish International Development Agency, Canadian International Development Agency, United States Agency for International Development, World Bank, African Development Bank, European Investment Bank, European Investment Fund, European Bank for Reconstruction and Development, United Nations Development Programme, United Nations Environment Programme and IFC. Funding opportunities include Climate Investment Funds, CDM, Bio Carbon Fund, the Green Climate Fund and Prototype Carbon Fund, among others. In addition, EPA and the Energy Commission have established funds and MESTI is in the process of establishing an Ecological Fund. Resources from all these funds can be explored for climate change financing<sup>132</sup>.
175. **New opportunities to strengthen agricultural marketing and increase agricultural lending include:** (i) the Ghana Incentive-based Risk Sharing System for Agricultural Lending (GIRSAL) which started as a USD 72 million credit guarantee facility to secure up to 80 per cent of agrarian sector loans; (ii) the Ghana Commodities Exchange (GCX) which provides commodity storage and trading services to farmers through a network of certified warehouses directly or indirectly (through brokers) linked to producer CIs, and (iii) the Ghana Agricultural Insurance Pool (GAIP) which offers crop insurance products to farmers and intends to increase its smallholder outreach.
176. **The Government also intervened in an agriculture modernization program aimed at improving production efficiency, achieving food security and profitability for farmers, and significantly increasing agricultural productivity as the basis for industrialization, job creation and export.** Government has increased subsidies on retail prices of seeds, fertilizers and other agrochemicals, and it is focusing on developing irrigation schemes, facilitating the provision of community owned and managed small-scale irrigation facilities across the country, especially in northern Ghana, through the “One Village, One Dam Policy”, and improving the extension officer to farmer ratio. Planting for Food and Jobs (PFJ) works through the following modules; Food Crop Production; Planting for Export and Rural Development (PERD); Rearing for Food and Jobs (RFJ); Greenhouse Technology Development as well as Mechanization for Food and Jobs. Ghana has led by example through creating a conducive environment for private and public sector engagement in the planning and implementation of climate actions. For instance, Ghana developed a Nationally

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<sup>130</sup> [srep\\_13\\_4\\_srep\\_investment\\_plan\\_for\\_ghana\\_0.pdf \(climateinvestmentfunds.org\)](#)

<sup>131</sup> UNDP, 2014

<sup>132</sup> UNDP, 2014

Appropriate Mitigation Actions (NAMAs) investor guide to attract the private sector for low carbon development<sup>133</sup>.

177. **Other initiatives financing climate resilient and low emission agriculture for smallholders in Ghana are the following**<sup>134</sup>:

- **The input financing from the Success for People institution**, which is a pre-harvest loan through direct supply of input in terms of maize, rice and soya's seed, fertilizers and other agriculture inputs to smallholder farmers. The same institution also offers a warehouse receipt financing which is a commodity-backed collateral loan for farmers to store their produce (maize, rice and soya) after harvest in a Ghana Commodity Exchange (GCX) approved warehouse to borrow up to 50per cent of the face value of stored produce. When produce is sold, payments are made directly to SFP/Financial Institution directly before produce are released to buyer by warehouse manage;
- **An agricultural loan from Bonzali Rural Bank**, which is an agricultural loan with interest rate of 32%. The loan's duration is 8 months, enabling a two-time repayment system with group solidarity, landed property or salary guarantors as security;
- **VisionFund Ghana Microcredit Limited** also offers an agricultural loan to farmers for cultivation of food crops, animals husbandry, purchase seeds and farming inputs.
- **A micro enterprise loans from the Global Impact Foundation FNGO**, which are loans given to clients in farming and farm services such as, Maize, Yam, Beans, Vegetables and other farm value chain products like chemicals and implements sale;
- **An horticultural loan** (including a maize loan) and cocoa loan from the Opportunity savings and Loans Ghana, which are an in-kind input supply loan, supporting horticultural production and supporting cocoa value chain, respectively. In some cases the institution may have cash component to assist with cost of farm support labor;
- **A smallholder farmers production loan scheme from SeedFingo**, which is a small amount of loans (US\$ 60) that are disbursed to small holder farmers to cultivate maize, soya beans, cassava, yam millet, rice and cowpea. SeedFingo also provides a women solidarity loan scheme, which are small loans that are disbursed to women who are into agricultural processing such as rice, groundnuts, sheanuts and soya beans as a group. Repayments are done weekly at group meeting grounds for a period of sixteen weeks thus a cycle. There is a grace period of one week.
- **A cash agroproduction loan and an in-kind agroproduction loan from Grameen Ghana**, which is a cash loan for agricultural production.

*e) Insights from on-site Interviews*

178. **In Ghana, insights were obtained from on-site consultations with various stakeholders at the national and local levels during the IFAD baseline project design (AAFORD) in Ghana and the Northern and Middle Zones, discussion sessions of the 2020 IFAD-NDA Partnership workshop in Dakar on climate finance for agriculture as well as virtual consultations during the IGREENFIN 1 preparation design (see Annex 7 Stakeholder Engagement Plan for details on list of participants). The findings are presented below.**

179. **The banking system provides only five per cent of the total loans and advances to the agricultural sector** due to a dysfunctional financial intermediation system where government treasury securities with high rates competes with the private sector for the limited capital available and challenges of commercial banks providing medium to long-term credit. This is despite the various agri-

<sup>133</sup> [https://www.pef.org.gh/documents/Ghana%20NAMA%20Investor%20Guide\\_final\\_web.pdf](https://www.pef.org.gh/documents/Ghana%20NAMA%20Investor%20Guide_final_web.pdf)

<sup>134</sup> Source: MIX & One Acre Fund Smallholder Finance Product Explorer Dataset. Available at: <https://sfpdata.oneacrefund.org/resource/visionfund-ghana-micro-credit-limited/>

financing mechanisms implemented in the country<sup>135</sup>. Smallholders, particularly youth and women, are reluctant to borrow due to the high interest rates (30-36 per cent flat offered by RCBs due to high monetary policy rates, inflation and lack of effective regulation in Ghana), lengthy procedures for borrowing and the fear of default due to crop losses accompanied by lost revenue. FIs are averse to agricultural lending because of the high risks and limited awareness of available “de-risking” instruments such as insurance, guarantees and warehousing. Indeed, despite the banking sector in Ghana being the second largest in the West African Monetary Zone, only 37 per cent of the rural population has access to accounts in formal financial institutions (FI).

180. **Smallholders revealed that the productivity for their crops is often less than 50 per cent of potential due to outdated technologies, mechanization shortage and limited extension outreach.** Post-harvest aggregation and transport is poorly organized, capacity for value addition is inconsistent, market linkages are poorly developed and access to rural financial services is very limited. Community Institutions (CI) comprising Farmer-based Organisations (FBO), cooperatives, women/youth savings and enterprise groups are often weak, dominated by larger farmers and have feeble market linkages. Smallholders also suffer due to inadequate marketing infrastructure (e.g., rural roads, processing and storage facilities), little post-harvest support and even more importantly lack of access to sustainable/profitable output markets.

✓ Mali

a) *Agricultural sector and climate change impacts on agricultural economy*

181. **An estimated 43.1per cent of Mali’s population of 18.54 million lives below the poverty line<sup>136</sup>. Poverty is concentrated in rural areas, in 2017, 58.6per cent of people lived in rural areas, and over 90per cent of them were poor<sup>137</sup>. Poverty densities and rates are highest in southern Mali<sup>138</sup>. In 2015, Mali’s per capita gross national income was USD 760<sup>139</sup>. Mali had a remarkable drop in poverty from 60per cent to 51per cent from 2000–2012, but drought and conflict in 2012 worsened poverty. While a presidential election was held in 2013, and peace accords were signed in 2016, conflict and instability continue due to coups d’etat, a separatist insurrection, and ongoing terrorist threats. By virtually all measures of welfare, poverty and human development, Mali is one of the world’s poorest countries<sup>140</sup>.**
182. **Agriculture is Mali’s most important sector and serves as the foundation of the national economy, contributing over 38% of Mali’s gross domestic product (GDP) and employing over 80% of its economically active population<sup>141</sup>.** This is striking because although more than two-thirds of Mali’s land is desert or semi-desert, and only 5.3% of the land is arable, over one-third of the land is used for agriculture. Over half of the population (58%) lives in rural areas, and nearly 90% of the

<sup>135</sup> The Bank of Ghana has announced a reduction in the policy rate from 15.5 per cent to 14.0 per cent and has lowered the reserve requirements from 10 per cent to 8 per cent to increase credit availability and affordability amongst other monetary measures to reduce the impact of coronavirus; PWC. (2017). Bank of Ghana: Design and set-up of GIRSAL - Revised status report. Accra: PricewaterhouseCoopers Ghana.

<sup>136</sup> World Bank, April 2018, Mali Poverty and Equity Brief

<sup>137</sup> World Development Indicators

<sup>138</sup> Mali has registered high (4.4%) urbanization rate

<sup>139</sup> World Bank, WDI, 2018

<sup>140</sup> World Bank 2018 Mali Drylands Development Project

<sup>141</sup> 2017 World Development Indicator

rural population is poor<sup>142</sup>. The majority (68%) of Mali's farmers grow basic subsistence crops on small farms, and over 85% of the agricultural households produce livestock, which provides a source of income to nearly one-third of the population.

183. **Low productivity, post-harvest crop losses, under-developed markets, and vulnerability to climate change are some of the major challenges which need to be addressed for Mali to become food secure and benefit from more broad-based economic growth.** Mali is highly vulnerable to food insecurity, ranking 173rd out of 181 countries for food vulnerability by the ND-GAIN Index for 2017<sup>143</sup>. Findings for 2018 indicate that a quarter of Malians, or 4.6 million people, will be food insecure, even though Mali achieved both the Millennium Development Goal (MDG 1.C) and the World Food Summit (WFS) targets of, respectively, halving the proportion and the number of hungry people by 2015<sup>144</sup>. These gains resulted from an improved policy environment and legal framework for food security and nutrition, improved water management, and support to vulnerable groups. Yet bad weather, conflict and insecurity in northern Mali, as well as increasing food prices, have worsened 2018 food security. One analysis suggests that by the end of the 2018 lean season, 4.6 million people will require food assistance, and that severe food insecurity is 55per cent higher than in 2017, with nearly a million people considered as “severely insecure”<sup>145</sup>.

184. **Mali has only 5.3per cent of its total land that is arable, with over 66per cent classified as desert or semi-desert.** While the arable area is small, 34per cent of the land is used for agriculture, yet less than 0.1per cent is in permanent cropland<sup>146</sup>. Mali is divided into four broad: Sahara, Sahel, Sudanian and Sudan-Guinean (Figure 25)<sup>146</sup>. The drier northern region, largely desert, has some livestock production of cattle, sheep and goat under pastoral systems (extensive production for cattle and small ruminants). The southern region, which receives relatively higher rainfall, has greater crop production, mostly millet, sorghum and rice, often mixed with livestock. In the center of Mali is an inland delta of the Niger River, a unique ecological area with important wetlands for wildlife that also are critical for food security. In the dry season, the inland delta is the largest pasture area in West Africa, and is also Mali's main fishery.

**Figure 25: Agroclimatic Zones in Mali**

<sup>142</sup> World Bank Group. 2019. Mali Climate-Smart Agriculture Investment Plan. World Bank, Washington, DC. © World Bank. <https://openknowledge.worldbank.org/handle/10986/32741> License: CC BY 3.0 IGO

<sup>143</sup> FAO 2016

<sup>144</sup> Assistant Secretary-General for Humanitarian Affairs Ursula Mueller Statement to the Press Bamako, Mali, 31 August 2018; FAO 2016.

<sup>145</sup> WFP Mali Country Brief, June 2018; Assistant Secretary-General for Humanitarian Affairs Ursula Mueller Statement to the Press Bamako, Mali, 31 August 2018

<sup>146</sup> Mali NAPA 2007, page 9



Zones	% Of area	Agroclimatic Zone Characteristics
Saharan	51%	Desert with caravan trade, nomadic herding and gathering.
Sahelian	26%	Dry northern and more agricultural, southern area growing rice and sorghum, with nomadic and transhumant raising of camels, cattle, goats and sheep.
Sudanese	17%	Subsistence farmers growing millet, sorghum, maize and cowpea, as well as livestock and groundnut and sesame as cash crops. Important fodder resources for northern transhumant herders during drought years and lean seasons.
Suda-no-Guinean	6%	Subsistence farmers growing sorghum, cowpea, fruits, tubers and vegetables (cabbages, okra, tomato, onion), with groundnut and maize for food and cash. Wild fruit gathering (shea <sup>22</sup> , tamarind, nere <sup>23</sup> ) and livestock raising (cattle, sheep, goats) are common with dry-season use by northern, transhumant herders.

Source: World Bank Group, 2019<sup>147</sup>

185. **Mali's smallholder farmers produce food for subsistence on farms less than 5 ha, and they dominate the sector (68per cent), with 90per cent producing millet, sorghum, maize and/or rice<sup>148</sup>.** Food crop production represents 45per cent of total agricultural production, and paddy rice, maize, millet and sorghum are all produced for local consumption, providing around 35per cent of daily caloric intake<sup>149</sup>. Millet occupies the greatest amount of land (29per cent), providing the third-highest production despite low yields per hectare and the highest food availability per person daily. Sorghum has the second-biggest footprint, also with low yields, but ranks fourth in overall production food availability and third for daily caloric intake (Figure D.4.1). Millet and sorghum have had much smaller increases in production levels over time. Maize has had the highest change in production over nearly 60 years, increasing by over 2000per cent, and occupies the third-greatest land area and has the second-highest production levels, but is not in the top four for food availability of calories. Paddy rice has both the highest production and represents the second-greatest change (over 1,200per cent) after maize, although it occupies the least land of the four major food security crops. Cereals constitute 64per cent (1,812 kcal per person per day) of food supply. As shown in Figure 16, the key crops produced in Mali that matter for food security are rice, millet, sorghum, maize and vegetables.

186. **The livestock subsector is of great importance to Mali, both at household and macro scales. Over 85per cent of the agricultural households produce livestock, and the World Bank estimates that there are more than 15 million cattle, 32 million small ruminants (sheep and goats), 37**

<sup>147</sup> World Bank Group.2019.Mali Climate-Smart Agriculture Investment Plan. World Bank, Washington, DC. © World Bank.

<sup>148</sup> MAFAP, 2020

<sup>149</sup> FAO 2013



**million poultry and nearly 1 million camels**<sup>150</sup>. These animals are a major source of income to nearly one-third of the population, and important to food security. The livestock subsector ranks third after cotton and gold in wealth creation and accounts for 19per cent of the national GDP, with almost 4.2per cent coming from the growing aquaculture and fisheries sectors<sup>151</sup>.

187. **The agricultural sector grew by more than 10per cent in the period 2010–2016, but overall productivity remains low**<sup>152</sup>. Major cereals have yield gaps of over 60per cent; maize (63per cent), millet (72per cent) and sorghum (67per cent). Crop yields have remained unchanged for the past 50 years (except for rice), and agricultural interventions have failed to meet increasing demand for food crops despite attempts<sup>153</sup>. Few farmers have access to mechanization, although the government has promoted a program for tractor purchase by farmers groups, and even fewer (20per cent) use improved seeds<sup>154</sup>. Fertilizer use is at 11 kg/ha compared to the target of 50kg/ha. Farmers lack both the money to buy inputs (because of poverty and low purchasing power) and physical access to inputs (only 24.5per cent of Mali's roads are paved). Mali's farmers also have high postharvest losses (over 35per cent) for legumes and cereals. Only 3per cent of the crop area is irrigated (approximately 14per cent of the irrigation potential) and is limited to rice production along the Niger River<sup>155</sup>. Off-season farming is common among one-third of households and includes market gardening (26per cent of households), cultivation of flood recession crops (9per cent) and irrigated cereal agriculture (9per cent)<sup>156</sup>.
188. **Agricultural exports account for 26.6per cent of total exports, mainly cotton, cattle and sheep products, pepper, sesame and fruits.** Cotton, the major cash crop, accounts for 33per cent of agricultural export earnings and is a source of livelihood to more than 25per cent of the population, while livestock supported 28per cent in 2016<sup>157</sup>. The government gives policy and price incentives to cotton farmers, yet production and export has dropped due to declining fertility and fluctuations in yields and market prices. Less than 1per cent of the cereals produced are exported, and Mali imports significant quantities of rice, wheat, sugar, milk and oils<sup>158</sup> (Table 27).

	EXPORT (1000 tons)	IMPORTS (1000 tons)	PRODUCTION (1000 tons)	TOTAL DEMAND (1000 mt)
Rice	0.0	174.6	2,266.6	1,021.3
Maize	1.0	6.2	1,977.2	788.3
Millet	0.0	0.0	1,784.1	1,430.8
Vegetables	1.6	4.2	302.8	930.2
Sorghum	0.4	1.8	1,396.7	975.5
Wheat	1.4	198.6	37.8	133.5
Sesame	15.2	0.0	32.5	N/A
Groundnut	4.2	3.6	479.9	248.1
Legumes*	0.0	0.2	0.4	N/A
Livestock**	0.0	0.2	165.3	154.2

\*Pulses used as proxy for legumes

\*\*Bovine meat used as proxy for livestock

<sup>150</sup> World Bank Mali Livestock Padel-M, page 2

<sup>151</sup> World Bank, 2018; Mali Livestock

<sup>152</sup> World Bank Mali Drylands Development Project

<sup>153</sup> NCEA, 2015 and Esipisu 2017

<sup>154</sup> FAO, 2010 page 30

<sup>155</sup> Irrigation potential is estimated at 2.2 million hectares

<sup>156</sup> WFP 2015

<sup>157</sup> World Bank Drylands page 5

<sup>158</sup> FAO 2016



Source: World Bank Group, 2019<sup>159</sup>

189. **Climate change negatively affects every commodity group, both in the short term (2030) and over the longer term (2050) (Tables 28 and 29) for both rainfed and irrigated commodities.** In Mali, IMPACT modeling shows that the shifting economic landscape induced by climate change could exacerbate biophysical damages for key commercial and food security crops. Most notably from a commercial standpoint, cotton yield is projected to fall 7 percentage points below its No-CC baseline in 2050, and cotton exports are projected to be 8.4 per cent lower in 2050 than they would be without climate change.

**Table 28: Percentage point difference in yield and area of production with different levels of climate change for rainfed crops in Mali (shown as percentage point differences over the baseline No-CC).**

	Difference in yield (SSP3)				Difference in area of production (SSP3)			
	RCP 4.5		RCP 8.0		RCP 4.5		RCP 8.5	
	2030	2050	2030	2050	2030	2050	2030	2050
Rainfed crops								
Banana	-1.7	-4.5	-1.0	-2.7	0.3	1.0	0.8	2.8
Cassava	-1.2	-3.3	-1.2	-3.2	0.1	0.5	0.1	0.7
Cotton	-2.5	-7.7	-2.7	-7.2	-0.8	-2.1	-0.3	-0.8
Cowpeas	-1.6	-5.5	-1.7	-5.6	0.1	0.4	0.5	1.4
Groundnut	-3.4	-9.3	-4.6	-12.4	1.2	3.6	2.0	6.1
Maize	-5.9	-17.2	-7.6	-21.7	-0.1	-0.5	0.2	-0.3
Millet	-1.7	-8.5	-2.4	-9.2	0.1	0.2	0.4	1.1
Potato	-1.5	-4.7	-1.0	-3.7	1.1	1.1	2.2	2.8
Rice	-1.7	-5.9	-2.3	-7.6	0.4	0.9	0.8	1.9
Sorghum	-1.4	-5.4	-2.3	-9.0	0.4	1.2	0.3	0.8
Soybean	-2.3	-5.1	-3.7	-7.8	0.0	-0.1	-0.2	-0.4
Tea	-2	-5.5	-1.3	-3.6	-0.1	-0.1	0.4	1.3
Tropical fruit	-2.7	-7.1	-2.8	-7.0	-0.3	-0.8	0.0	0.0
Yams	-0.9	-2.3	-1.0	-2.4	0.2	0.5	0.1	0.4

**Table 29: Percentage point difference in yield and area of production with different levels of climate change for irrigated crops in Mali (shown as percentage point differences over the baseline No-CC).**

	Difference in yield (SSP3)				Difference in area of production (SSP3)			
	RCP 4.5		RCP 8.0		RCP 4.5		RCP 8.5	
	2030	2050	2030	2050	2030	2050	2030	2050
Rainfed crops								
Cowpeas	-1.9	-7.9	-1.9	-8.2	0.7	2.4	1.1	3.7
Groundnut	-3.6	-11.5	-4.5	-14.2	1.6	7.9	2.7	13.3
Maize	-6.3	-21.2	-8.0	-26.7	0.0	-1.0	0.4	-0.6
Millet	-1.4	-5.3	-2.2	-8.2	0.7	2.1	0.9	2.9
Rice	-1.7	-6.0	-2.2	-8.1	1.0	3.2	1.4	4.8
Sorghum	-1.3	-5.0	-2.2	-8.3	1.0	3.4	0.6	1.9
Sugarcane	-2.8	-7.3	-3.6	-9.5	1.7	4.3	2.5	5.9
Sweet Potato	-1.3	-3.7	-1.5	-4.3	-0.1	0.1	-0.2	0.0
Vegetables	-2.9	-11.3	-3.7	-14.2	-1.4	-5.3	-1.8	-6.8
Wheat	-2.6	-6.9	-4.4	-11.3	-2.8	-6.7	-4.3	-9.3

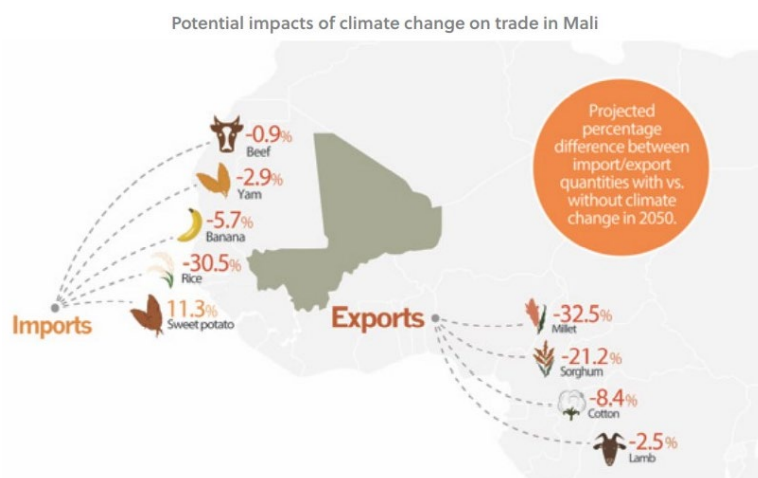
190. **Cereals, Mali's most important crops for food security, have yield trajectories exhibiting vulnerability to climate change out to 2050, although there is important variation within the group (Tables 28 and 29).** Climate change impacts on cereals are of particular relevance in Mali,

<sup>159</sup> World Bank Group. 2019. Mali Climate-Smart Agriculture Investment Plan. World Bank, Washington, DC. © World Bank.

where they constitute 68per cent of all daily caloric intake and 70per cent of cultivated area. Rice, millet, sorghum and maize are especially predominant on farms and plates, accounting for 14per cent, 45per cent, 29per cent and 11per cent of all cereal cultivation, and 31per cent, 29per cent, 20per cent and 15per cent of all cereal calorie intake, respectively. Mali is moderately dependent upon imports to meet its internal cereal demand, especially for maize. Maize is projected to be hardest hit by climate change, with rainfed and irrigated yields falling by as much as 22 and 27 percentage points, respectively, below their No-CC baselines in 2050. Rice, millet and sorghum yields are also hard hit, but considerably less so, exhibiting resilience relative to maize. Climate change impacts on area under cereal cultivation are slight for rainfed systems (Table 28), but there is a marked increase in area under irrigated cereal cultivation relative to the No-CC baseline (Table 29).

191. **Modeling suggests that reliance on maize imports may increase at an alarming rate with or without climate change, such that half of the domestic demand may have to be imported by 2050.** Meanwhile, current dependence upon rice imports is projected to diminish to less than 10per cent of domestic rice demand over the same period; and import quantities are projected to be 30.5per cent less with climate change than without it. Mali could develop a comparative advantage in sorghum and millet by 2050, with export quantities that are 15per cent and 10per cent of internal demand, respectively. Moreover, these export quantities are 21.2per cent and 32.5per cent lower, respectively, than what they would be without climate change (Figure 26), suggesting that CC adaptive measures could substantially increase these trade benefits<sup>66</sup>. IMPACT projects that in 2050, under climate change, the area under rainfed potato cultivation could rise as much as 2.8 percentage points above its No-CC baseline (SSP3, Table 28).
192. **In a high climate change scenarios (RCP 8.5, SSP3), vegetable and pulse yields also exhibit vulnerability, falling by 14 and 6 percentage points below their No-CC baselines.** IMPACT projects that in 2050, under climate change, area under vegetable cultivation could fall by as much as 6.8 percentage points below the No-CC baseline and wheat could fall -9.3 percentage points—the largest negative area differential of any crop (SSP3, Table 29). Although currently consumed in relatively lower quantities, vegetables and pulses are a fundamental source of nutrients and proteins that will likely see increasing promotion in Mali as incomes rise over the next thirty years. However, campaigns to promote the complementary role of pulses and vegetables in the country's starch-heavy diets will not be successful unless they can address this vulnerability.

**Figure 26: Percentage difference between imports/exports in 2050 with and without climate change (RCP 8.5, SSP 3).** Note that percentage differences are with respect to the No-CC value for the same year (2050), and thus do not necessarily indicate a positive or negative change over the 2020 baseline year



*b) Financial sector*

193. The structure of the banking system is oligopolistic with 14 commercial banks, of which the Central Bank of West African States (BCEAO) serves as Mali's central bank and the Banque Nationale de Développement Agricole (BNDA) is the lead financier of agriculture and rural development in Mali<sup>160</sup>. The top three banks control 48 % of deposits and 40 % of loans in the country. Only one of the banks is a specialized bank, with majority government ownership, the troubled housing bank (Banque de l'Habitat du Mali, or BHM), The commercial banks are open to business and have developed partnerships with multinational banks, including from Morocco, France, and the United States. While the Government of Mali is a shareholder in most commercial banks, it has minimal interference in their management, which is more influenced by international investors.
194. In addition, there are 03 small non-bank credit institutions, a leasing company and two guarantee funds, one for mortgages and the other for the private sector, notably for SMEs. The Private Sector Guarantee Fund started operations in late 2014 only. These 17 financial institutions are subject to WAMU regional regulations and supervised by the WAMU Banking Commission. Mali also has an extensive network of micro-finance institutions or SFD. However, of the 126 SFDs registered in the country, only 35 are operational. The vast majority of this sector's resources are concentrated in the four largest institutions – Kafo Jiginew, Soro Yiriwaso, RMCR and Nyesigiso – which distribute 77 per cent of credit<sup>161</sup>.
195. Banks in Mali appear to be adequately capitalized with the overall capital adequacy ratio (Risk-weighted assets/Regulatory Capital) standing at 13.6 % as of June 2020, comfortably above the regulatory minimum of 8% (Basle I), and above the average for WAEMU of 9%<sup>162</sup> (Table D.1). Assets for the banking sector in Mali have been rising faster than loans, which led to the ratio of loans to assets decreasing slightly from 54.9% in December 2019 to 52.2% in June 2020. The distribution of loans in sectors such as the agriculture (including forestry and fisheries) and energy (electricity, water, gas) have been very low, accounting for 4% and 2.2%, respectively in December 2020.
196. The quality of assets has improved steadily in recent years, with gross non-performing loans (NPLs) decreasing from 15.6% of the total gross loans in 2016 to 10.7% in December 2020 and while

<sup>160</sup>160 BNDA, 2019

<sup>161</sup> WFP, 2017

<sup>162</sup> IMF Country report, March 2021. Mali's Second and Third Reviews Under the Extended Credit Facility Arrangement

net NPLs to total loans stood at 4.8 %, below the WAEMU average of 15.3 percent and 6.6 percent, respectively. However, conflict and political instability in the country might increase the level of gross NPLs because banks typically leave NPLs on their books for many years, even if fully provisioned, awaiting final resolution of lengthy legal proceedings before writing off loans. The level of gross NPLs is therefore inflated, sometimes by legacy bad loans of banks that were restructured and privatized years ago. These legacy NPLs, which are concentrated in 3 banks, represent roughly 30 percent of the bad loans of the system. Banks currently do not have to classify a loan until it is 180 days past due.

197. **In terms of liquidity**, the regional central bank (BCEAO) facilitates that reliance by providing liquidity to banks in Mali against security in the form of government securities. In recent years, greater reliance has been put on borrowing in foreign-currency-denominated bonds. Although this option reduces pressure on the local market and on potential crowding out, it raises concerns about exchange rate risk and refinancing costs. The ratio of liquid assets to total assets and liquid assets to total deposits both decreased, from 32.8% to 30.8% and 53.6% to 49.8%, respectively between December 2019 and June 2020.

198. **Due to the slower growth in profits, profitability indicators indicated that the Return on Equity (ROE) declined from 15.2% % to 11% between December 2018 and December 2019.** Similarly, Return on Assets (ROA) decreased from 1.4% to 1.1% over the same period. Table 30 shows Mali's available financial soundness indicators (FSI) based on BCEAO data estimates.

**Table 30. Financial Soundness Indicators for the Banking Sector in Mali, 2016–20 (Percent)**

	2016	2017	2018 <sup>1</sup>		2019		2020	
			June	Dec.	June	Dec.	June	Sept.
<b>Solvency ratios</b>								
Regulatory capital to risk weighted assets	15.9	15.4	12.7	13.2	13.5	13.9	13.6	...
Tier I capital to risk-weighted assets	14.4	13.5	11.1	12.1	12.6	13.0	12.8	...
Provisions to risk-weighted assets	9.7	11.0	10.2	5.8	4.8	5.1	5.1	...
Capital to total assets	8.2	8.0	7.6	9.0	9.0	8.9	8.6	...
<b>Composition and quality of assets</b>								
Total loans to total assets	51.5	53.3	55.0	53.8	55.8	54.9	52.2	...
Concentration: loans to 5 largest borrowers to capital <sup>2</sup>	78.7	74.3	86.9	67.7	82.3	91.2	91.0	...
Sectoral distribution of loans								
Agriculture	3.7	3.6	3.4	4.1	3.0	3.2	4.0	...
Extractive industries	2.2	2.1	2.1	3.3	2.5	2.3	2.5	...
Manufacturing	13.1	13.6	15.0	14.5	14.8	15.4	13.0	...
Electricity, water and gas	7.5	6.8	6.0	5.2	6.7	5.2	2.2	...
Construction	6.8	6.9	6.9	6.6	7.4	7.0	8.7	...
Retail and wholesale trade, restaurants and hotels	43.2	41.6	42.1	42.6	39.8	39.8	43.5	...
Transportation and communication	9.6	11.9	11.9	11.8	12.3	11.5	11.8	...
Insurance, real estate and services	7.8	7.7	7.3	6.4	8.3	9.2	9.7	...
Other services	6.1	5.7	5.5	5.6	5.1	6.4	4.5	...
Gross NPLs to total loans	15.6	16.7	16.8	13.5	11.8	10.4	10.2	10.7
Provisioning rate	56.4	57.8	59.8	50.5	46.7	53.5	57.5	58.5
Net NPLs to total loans	7.5	7.8	7.5	7.2	6.6	5.1	4.6	4.8
Net NPLs to capital	47.1	51.9	54.0	42.9	41.0	31.7	27.9	...
<b>Earnings and profitability</b>								
Average cost of borrowed funds	2.4	2.5	...	2.4	...	0.3	...	...
Average interest rate on loans	9.4	8.9	...	7.8	...	7.1	...	...
Average interest margin <sup>3</sup>	7.0	6.5	...	5.4	...	6.8	...	...
After-tax return on average assets (ROA)	1.4	1.2	...	1.4	...	1.1	...	...
After-tax return on average equity (ROE)	17.0	14.4	...	15.2	...	11.0	...	...
Noninterest expenses/net banking income	56.6	58.7	...	63.3	...	60.5	...	...
Salaries and wages/net banking income	25.3	25.3	...	29.9	...	27.0	...	...
<b>Liquidity</b>								
Liquid assets to total assets	31.1	31.5	33.5	32.3	33.4	32.8	30.8	...
Liquid assets to total deposits	52.9	52.7	54.7	53.7	54.9	53.6	49.8	...
Total loans to total deposits	96.2	98.8	99.8	96.0	97.1	95.0	89.9	...
Total deposits to total liabilities	58.7	59.8	61.2	60.1	60.8	61.2	61.8	...
Sight deposits to total liabilities <sup>4</sup>	34.1	35.0	35.6	34.9	35.4	36.0	36.5	...
Term deposits to total liabilities	24.6	24.8	25.7	25.1	25.4	25.2	25.2	...

Source: BCEAO.

<sup>1</sup> First year of data reporting in accordance with Basel II/III prudential standards and the new banking chart of account.

<sup>2</sup> Indicators do not account for the additional provisions required by the WAEMU Banking Commission.

<sup>3</sup> Excluding tax on bank operations.

<sup>4</sup> Including saving accounts.

### c) Energy context

199. **Mali has limited domestic energy supply to address its growing demands. Electricity demands alone increased by 7.8% per year from 2005 to 2015<sup>163</sup> while climate variability is heavily affecting the energy supply which depends at 45% on hydroelectricity.** Energy access is an additional challenge, with 48% of population in 2019 having access to electricity and only 15.3% in rural areas<sup>164</sup>. The government of Mali is aiming for 70% access rate to electricity by 2036. To date, approximately 10% of rural energy services are provided using Renewable Energy Systems, including mainly small-scale applications such as Solar Home Systems (SHS)<sup>165</sup>.

<sup>163</sup> [Access to electricity, rural \(% of rural population\) - Mali, Burkina Faso, Cote d'Ivoire, Ghana | Data \(worldbank.org\); gmg\\_mali\\_final.pdf \(afdb.org\)](#)

<sup>164</sup> Mainly through the deployment of diesel-backed mini-grids operated by private local players (Climatescope, 2018).

<sup>165</sup> [gmg\\_mali\\_final.pdf \(afdb.org\)](#)

200. **The actors in the energy sector in Mali are both public and private.** AER-Mali, the agency for renewable energy is one of the actors which has executed programmes funded by GEF – UNDP to promote a community-based model on mini-grids. Public efforts are also carried by the Agency for Domestic Energy and Rural Electrification (AMADER). AMADER which currently also serves as the energy regulatory authority outside of urban centers<sup>166</sup>, has provided financial and technical support to communities and private companies for mini-grid projects since 2005. Both AER-Mali and AMADER are involved in developing rural electrification projects, an overlap which creates sometimes confusion with regards to the development of donor-funded mini-grids in the country. The private sector has also been active, investing and operating mini-grids in rural areas under the regulatory supervision of AMADER. Under this regulatory supervision, rural electrification concessions are granted to private operators. Local communities, farmers associations or SMEs can also apply for grants to supply isolated communities using mini-grids.
201. **To date, much of the rural electrification has been achieved by donor-funded programmes through AMADER,** which has implemented mainly diesel powered mini-grids in rural environments (96% of the total off-grid electricity generation corresponding to 100 mini-grid projects). Government of Mali however intends to decarbonize its electricity sector with the support of its partners. As part of this journey, a 2014 GEF-UNDP pilot programme executed by AER-Mali established a framework for community based mini-grid operations in Mali with the use of multi-functional platforms. The programme paved the way for scaling-up renewable energy based mini-grids in Mali with a community ownership model and electrified 8 localities using solar hybrid mini-grids and multi-functional platforms for productive use.
202. **IGREENFIN will work with the National Agricultural Bank of Mali to provide concessional finance to small farmer cooperatives for owning mini-grids which will enable the adoption of Renewable Energy Technologies alongside agricultural value chains.** Energy demands for agricultural processing and transformation within IGREENFIN scope of work in Mali have been estimated at 3580 MWh annually. These demands are for the following activities:
- Storage of vaccines to address growing livestock diseases due to climate change
  - Powering drip irrigation to address declines in agricultural yields
  - Powering processing techniques to reduce post-harvest losses
203. **The energy demands will be fully covered by solar and storage solutions. In the absence of the GCF proceeds for renewable energy technologies these energy demands would be covered using diesel generators which would have led to an estimated 110,367 tCO<sub>2</sub> eq emissions in Mali over the project's lifetime.**

*d) Overview of existing finance in climate resilient and low emission agriculture*

204. **Financing for agriculture, particularly smallholder farmers, is extremely limited in Mali.** In 2014, only 5.5 per cent of private sector loans were for agricultural production, most of which went to cotton production. When commercial banks offer credit to the sector, it is typically for large agro-industries, input suppliers and agrofood processing companies and rarely finance producer organizations (POs) or farmers directly.

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<sup>166</sup> e.g. verifying proposed tariffs for mini-grids, issuing permits for mini-grids, supplying electricity to rural areas through public-private partnerships (PPPs) etc



205. **In both 2018 and 2019, the BNDA, the main supplier of farm credit, dedicated 53 per cent of its credit portfolio to loans to the rural sector (including input suppliers, agro-industrial enterprises and farmers)**<sup>167</sup>. While BNDA makes direct loans to agricultural borrowers, these accounted for an average of only 3.6 per cent of all credit extended to the sector between 2013 and 2017. Much more commonly, BNDA extends working capital facilities of various structures to large agribusinesses, input suppliers and agro-processing companies, which accounted for the remaining 96.4 per cent of agricultural exposures on average over this period<sup>168</sup>. The majority of its loans are short-term, and interests hover around 10-12 per cent per annum. It offers cooperatives and SMEs short-term loans (maximum of two years) for agricultural inputs, advances on harvest and paddy stocks, grain storage marketing and medium (1-5 years) and long-term loans for equipment, production materials and infrastructure. It also has a special line of credit that offers women's groups short and medium-term credit<sup>169</sup>. While the BNDA has a corporate social policy with guidelines to ensure clients are following environmental and social standards, it does not yet offer specific lines of credit for climate-resilient agriculture.
206. **Mali's extensive network of microfinance institutions play an important role in providing financial services to microenterprises and farmers.** They generally offer loans for small equipment, inventory credit, leasing products and short-term production and marketing needs. Numerous smaller MFIs exist, but have little resources and are generally unable to respond to farmers' demand for credit for longer-term credit. The existing main microfinance institutions are<sup>170</sup>:
- **The Faso Jigi:** cooperative finance which is of the largest producer cooperatives in Mali with 18 years of experience. It is active in the Ségou region and has 5,900 members. The cooperative offers its members several services for collective actions: inputs purchase, storage and marketing. Linked with financial institutions (MFIs and one bank), Faso-Jigi provides to its members agricultural loans for crop and post-harvest needs as well as equipment loans (for production and processing). The cooperative has set up a security fund for default from farmers due to natural disaster. The total funding from financial institutions that go through the cooperative per year is approximately USD 4.4 million;
  - **The Kafo Jiginew** which is a financial cooperative, the largest MFI in Mali with 27 years of experience. Kafo has offered financial services to smallholder farmers but in 2007, Kafo completely revised its business model (internal organization, and loan policy) for serving smallholder farmers in order to better meet their needs. The range of products was diversified. One of very few successful movements of savings and credit cooperatives of small farmers, built on principles of self-help and self-reliance, comprising some 180 coops with 224,000 members (30per cent female).
207. **At national level,** costs for implementing the National Climate Change Strategy (SNCC) over the period 2012-2017 amount to USD 250 million, while adaptation and mitigation activities in the agricultural sector - as outlined in the country's INDC - expected to cost another USD 20.6 billion by 2030, indicating a need to tap into new public and private financing opportunities to help achieve the desired targets<sup>171</sup>.

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<sup>167</sup> BNDA, 2019

<sup>168</sup> USAID, 2018

<sup>169</sup> BNDA, 2019

<sup>170</sup> Rural & Agricultural Finance Smallholder Financial Solutions. Available at [https://data.rafllearning.org/#/dataset?dataset\\_id=%2321:4](https://data.rafllearning.org/#/dataset?dataset_id=%2321:4)

<sup>171</sup> République du Mali (RdM). 2015. Contribution Prévue Déterminée au niveau National. UNFCCC. Available at: <http://www4.unfccc.int>; UNDP. 2013. Mali Climate Fund factsheet. UNDP. Available at: <http://mptf.undp.org/document/download/12430>.



208. **Major funders of CSA related work in Mali include IFAD's Inclusive Finance in Agricultural Value Chains (INCLUSIF)** will build on the experience of the Rural Microfinance Programme (PMR) to improve the financial inclusion of rural communities by promoting financing for smallholder adoption of climate resilient agriculture practices and techniques. INCLUSIF uses the Refinancing mechanism (MEREF-SFD) that has currently two counters to meet the financing needs of the different categories of beneficiaries of the project: in particular a refinancing window for microfinance institutions (SFDs) as indirect beneficiaries of the project, and a financial facility for the establishment of grants to direct beneficiaries. As of September 30, 2020, the plans of 13 FOs had obtained subsidies for a total amount of 294.22 Million FCFA through the window of financial facilities. Regarding the refinancing window, as of September 30, 2020, a cumulative amount of FCFA 1,834 million had been made available in the form of DAT refinancing for the benefit of 09 partner SFDs<sup>172</sup>.
209. **The GEF is another funder of CSA in the country for projects related to improved hydrometeorological information and integration of climate change adaptation into the agricultural sector (USD 2.2 million project implemented by FAO).** There is also reversing deforestation through reforestation (The GGWI for the Sahara and The Sahel project, also supported by the World Bank and the European Union), supporting agroforestry and sustainable land management among others. Mali's first project to the GCF focuses on putting in place a hydro-meteorological (hydromet) system to improve food security, protect livelihoods and inform infrastructure development. The project has a budget of USD 27.3 million with the GCF providing USD 22.8 million of this and the World Bank and the Government of Mali providing USD 2.5 million and USD 2 million respectively. Key challenges noted for scaling up the implementation of activities indicated in Mali's NDC include the availability of long-term large-scale finance as well as availability of technologies.
210. **Bilateral donors such as the United States Agency for International Development (USAID), have also contributed to various food security and resilience related projects.** Climate finance is channeled through the Mali Climate Fund (MCF), a mechanism set up in 2012 to mobilize and anchor bilateral, multilateral, public and private financing and align these to the SNCC. The MCF is expected to improve coordination of budgets and technical interventions on the field, incentivizing innovative partnerships and investments in key areas: improved research capacity to assess vulnerability to climate change, improved water supply for multiple uses, enhanced food production and promotion of CSA practices, livelihoods diversification and promotion of renewable energy. UNDP acts as the administrator and distributor of the funds, while the secretariat is ensured by AEDD. A Steering Committee formed of representatives of the stakeholder groups (government, donors, civil society) takes decisions over resource allocation and re-distribution<sup>173</sup>. Up to 2015, the MCF had mobilized USD 7.29 million from the Governments of Norway and Sweden, targeted towards agriculture, livestock and fisheries (USD 1.6 million, with a 39 percent execution rate) and water management. Political instability, heavy bureaucracy and insufficient human resources for managing fund-related processes have stalled significantly the functioning of the MCF<sup>174</sup>.

172 c0b708b4-b247-f061-5fda-be5a291bcfaf (ifad.org)

<sup>173</sup> UNDP. 2013. Mali Climate Fund factsheet. UNDP. Available at: <http://mptf.undp.org/document/download/12430>.

174 MEA. 2017. Deuxième rapport annuel consolidé des activités du Fonds D'Affectation Spéciale du Mali pour le Climat (Fonds Climat Mali). Multi-Partner Trust Fund Office, Programme des Nations Unies pour le Développement (PNUD). Available at: <http://mpmf.undp.org>

*e) Insights from on-site Interviews*

211. **In Mali, insights were obtained from on-site consultations with various stakeholders at the national and local levels during the IFAD baseline project design (INCLUSIF) in Bamako and the Sikasso and Koulikoro regions, discussion sessions of the 2020 IFAD-NDA Partnership workshop in Dakar on climate finance for agriculture as well as virtual consultations during the IGREENFIN 1 preparation design (see Annex 7 Stakeholder Engagement Plan for details on list of participants). The findings are presented below.**
212. **While most financial institutions interviewed do not have credit markets, several do promote farmers' organizations and agricultural SMEs' financial inclusion and economic empowerment in various ways.** Classification of lending institutions into the banking sector is somewhat broad and may include guarantee funds and leasing companies as well as MFIs, but nearly all lending in Mali is done by traditional depository banks. In 2016, depository banks had USD3.17 billion of private sector exposures on their balance sheets. Banks tend to have highly concentrated portfolios of assets on their balance sheets favouring medium and large enterprises, with small businesses and individual entrepreneurs receiving a relatively small proportion of credit. In 2016, the three largest banks in the country held 50.7 per cent market share by assets.
213. **Mobile banking has helped increase access to financial services.** Poor access to financial services is therefore a major hindrance to the uptake of climate resilient, low emission agricultural practices by smallholders in Mali. For example, according to Mali's National Institute for Statistics (INSTAT), the banking services penetration rate is 17%. Risk factors beyond their control - such as erratic weather, irregular seasons, unclear land tenure and lack of on-farm collateral systems - result in the rejection of 70 per cent of Malian farmers' loan applications (CSAIP).
214. **In consultations with the agricultural bank of Mali (BNA), it was mentioned that the MFI sector in the country is struggling to fully recover from the major crisis that began in 2009 and led to the closure of numerous MFIs (both large and small), the loss of millions of FCFA in people's savings and as a result, generalized mistrust towards the sector.** Significant effort has been made by the government and its development partners, including the IFAD Rural Microfinance Programme (FMR), to restructure and resolve the issues in the sector, such as the adoption of stricter regulations, a national microfinance development policy and action plan (2016-2020) and support for refinancing, among others. While progress has been made, the situation of dozens of MFI still needs to be regularized. An important source of financing for SMEs, MFIs account for only 4.4 per cent of all bank loans in the country.
215. **The main supply-side constraints are:**
- Financial institutions' limited knowledge and understanding of the farming sector and the lack of quality data on the sector make it difficult for banks to accurately analyse risks, contributing to the perception of smallholder farming as a high-risk investment.
  - Clientele in rural areas is highly dispersed and as a result, establishing branches in such areas is often too costly. Mobile phone banking apps and services are emerging as an alternative to overcome this obstacle.
  - Banks do not have long-term deposits or other funding liabilities to finance larger term loan portfolios. The financing gap for equipment is estimated at around CFA Franc 2 to 3 billion.
  - Risk management tools such as micro and macro-insurance schemes are still scarce in Mali. In 2014, Assurance Allianz through Planet Guarantee insured 20,000 smallholder producers in maize sector and has expanded since. OKO Finance offers weather-indexed insurance products to farmers. The recently approved GCF IFAD Africa Integrated Climate Risk Management Programme will work with existing stakeholders in Mali's insurance market to scale up micro agricultural insurance

schemes for smallholder farmers and FOs while promoting the adoption of best climate resilient agricultural practices.

**216. The consultation process has involved meetings with smallholder farmers which revealed that the main demand-side constraints are:**

- Farmers lack the necessary capacity to prepare sound, bankable business proposals and often do not own assets that could be offered as collateral. Land titles in rural areas are rare and are not attractive collateral due to the lack of liquidity of the land title market<sup>175</sup>. These factors affect women farmers more: less than only five per cent had access to seasonal loans in 2015<sup>176</sup>.
- Interest rates charged by banks and MFIs on loans are prohibitive for most smallholder farmers. They are often higher than the average rate of return on agricultural businesses.
- Farmers have limited access to long-term funding, which prevents them from investing in infrastructure and equipment.
- Banks are mostly concentrated in urban areas.

✓ **Senegal**

*a) Agricultural sector and climate change impacts on agricultural economy*

**217. The total population of Senegal, which is very young, was estimated at 16.3 million inhabitants in 2019<sup>177</sup>, of which 50.19per cent are women and 77.13per cent are under 35 years old.** Urbanization, which is experiencing significant growth driven by the exodus of young people to large cities, accelerated between 1960 and 2002, a period during which its rate increased from 25per cent to 41per cent of the national workforce, then to 47.2per cent of total population in 2018. The population is marked by very strong regional disparities, with a density of 5,735 inhabitants per km2 in the regions of Dakar and Thiès against only nine inhabitants per km2 in Kédougou<sup>178</sup>. According to the UNDP, Senegal's human development index for 2019 was 0.512.

**218. According to the World Bank, the agriculture and livestock sector is Senegal's main economic activity, representing approximately 17per cent of the gross domestic product (GDP) and employing 70per cent of the population in 2016<sup>179</sup>.** However, the country's poor soil and weather conditions, lack of infrastructure and access to quality seeds and fertilizer have left the sector underdeveloped and unable to meet the food requirements of the growing population<sup>180</sup>. This has resulted in a heavy reliance on food imports amounting to USD 1262 million, especially rice (33per cent), which is the population's main staple crop with imports accounting for 65per cent of the national consumption<sup>181</sup>, followed by wheat (12per cent) and milk, soybean and sugar accounts for less than 7per cent. Food exports amount to USD 193 million, especially cotton (11per cent)<sup>182</sup>.

<sup>175</sup> WFP, 2017

<sup>176</sup> FAO, 2018

<sup>177</sup> WB, 2019, Available at [https://datacommons.org/place/country/SEN?utm\\_medium=explore&mprop=count&popt=Person&hl=en](https://datacommons.org/place/country/SEN?utm_medium=explore&mprop=count&popt=Person&hl=en)

<sup>178</sup> PNIASAN Sénégal 2018-2022

<sup>179</sup> World Bank. 2016. World Development Indicators. Available at: <http://bit.ly/1SzNV17>; FAO. 2016. FAOSTAT Senegal. Available at: <http://faostat3.fao.org/home/E>

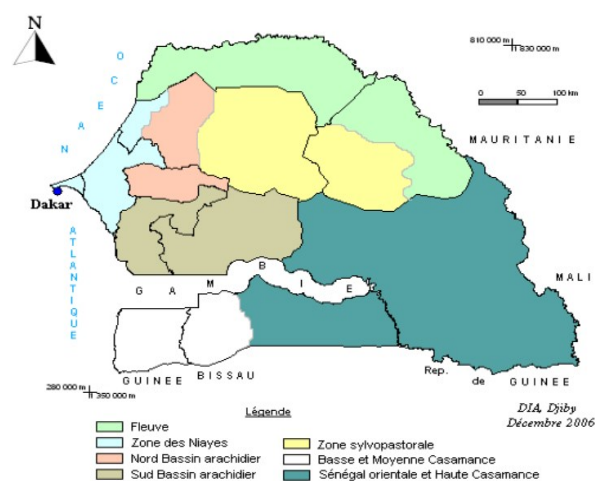
<sup>180</sup> CIAT, BFS/USAID. 2016. Climate-Smart Agriculture in Senegal. CSA Country Profiles for Africa Series. Washington, D.C.: International Center for Tropical Agriculture (CIAT), Bureau for Food Security, United States Agency for International Development (BFS/USAID).

<sup>181</sup> Colen L; Demont M; Swinnen J. 2013. Smallholder participation in value chains: The case of domestic rice in Senegal. In: Rebuilding West Africa's Food Potential, Elbehri A. (ed.), FAO/ IFAD.

<sup>182</sup> <https://www.trade.gov/country-commercial-guides/senegal-agricultural-sector>

219. **Agricultural land in Senegal constitutes approximately 46 per cent of the country's total land area**<sup>183</sup>. During the last four decades, the area of land under production has remained relatively stable at approximately 2.5 million hectares or 13 per cent of the country's surface area cultivated annually (of the 3.8 million hectares classified as arable)<sup>184</sup>. A growing population and land intensification have caused overexploitation of natural resources and land degradation, impairing both agriculture productivity and ecosystem services<sup>185</sup>. The country's forests are declining at a rate of approximately 45,000 ha per year<sup>186</sup>.
220. **The country is divided into six agro-ecological zones based on biophysical and socio-economic characteristics (Figure 27).** The north Sahelian systems with dominant pastoralism (200-400 mm of rain) correspond in the River zone (upper and middle valley) and in the sylvo-pastoral zone of Senegal. They are characterized by a transhumant pastoralism. Sahelian agro-pastoral systems (between 400-800 mm) subdivided into Sahelian agro-pastoral systems with dry agriculture (Niayes and north center groundnut basin) and Sahelian agro-pastoral systems with wet agriculture (south peanut basin). Production systems vary through (i) pastoralism strict ; (ii) predominantly cereal systems (millet especially in association with cowpea); (iii) agriculture-livestock association with predominance of legumes (peanuts) and (iv) agriculture / livestock integration with diversification of cereals associated with legumes. Sudanese agro-pastoral systems (between 800-1200 mm) where trees and shrubs mark their presence at the same time as the tall grasses (eastern Senegal, high Casamance and low and middle Casamance)..

**Figure 27: Agro-ecological zones based on biophysical and socio-economic characteristics in Senegal**



221. **The production systems are** (i) to cotton dominance; (ii) agriculture-livestock association with cotton; (iii) association cotton-free agriculture-breeding; (iv) forestry and agroforestry. Fisheries systems corresponding to Senegal to the maritime zone. This typology of systems is completed by two

<sup>183</sup> FAO. 2016. FAOSTAT Senegal. Available at: <http://faostat3.fao.org/home/E>

<sup>184</sup> CSE. 2010. Annuaire sur l'Environnement et les Ressources Naturelles du Sénégal. Centre de Suivi Ecologique (CSE)

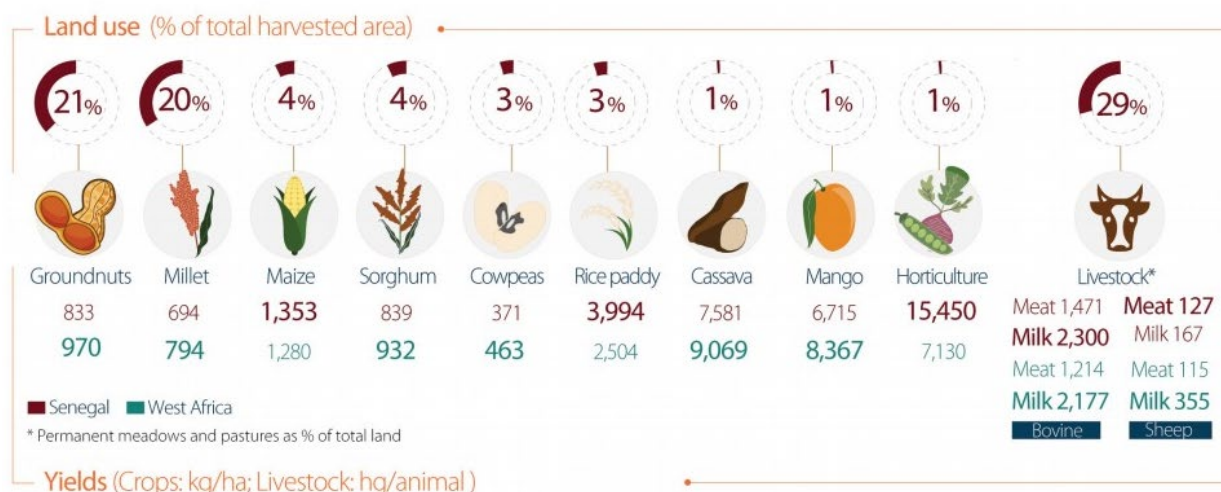
<sup>185</sup> Sonneveld BGJS; Keyzer MA; Zikhali P; Merbis MD. 2010. National Land Degradation Assessment Senegal and Review of global socio-economic parameters in the LADA data base. Land Degradation Assessment (LADA) project. SOW-VU, Amsterdam. Report for the Food and Agriculture Organization of the United Nations, Rome. Available at: <http://bit.ly/1RA97iG>

<sup>186</sup> CSE. 2010. Rapport sur l'État de l'Environnement (REE) du Sénégal. Centre de Suivi Ecologique (CSE).

other systems characterized by the availability of water at any time of the year: irrigated systems (development of large alluvial valleys) and peri-urban systems (surface and groundwater little deep, proximity to cities for their supply). The practice of techniques intensive production by inputs and labor is one of the characteristics of these two types of systems. Irrigated systems (River zone, low and Casamance) are characterized by formal production systems (i) (case of SAED in Senegal) and total water control; (ii) private initiative (group of farmers or operators with farms of 50 to 200 ha); (iii) from private initiative to industrial and commercial character on 1000 ha and more. Peri-urban systems (Niayes) are characterized by the diversity of crop production (maize and peanuts, crops market gardening, fruit and flowers) and animal production (cattle and sheep fattening, goat breeding, milk production, avian breeding).

222. The following infographic by FAO et al. (2016) shows a selection of agriculture production systems key for Senegal's food security<sup>187</sup>. The importance is based on the system's contribution to economic, productivity and nutrition quality indicators. Rainfall is the key factor that determines agriculture production as less than 5 per cent of land cultivated is under irrigation. The agriculture economy is characterized by the dominance of smallholder farmers cultivating millet, sorghum, maize and rice for subsistence purposes. The country's main cash crops include groundnut and cotton.

**Figure 28: Production systems key for food security in Senegal**



Source: FAO, ICRISAT, CIAT, CCAFS. 2016<sup>188</sup>.

223. The groundnut–millet rotation has traditionally been the dominant practice with more area devoted to groundnuts. However, in recent years, as groundnut yields have begun to decrease due to poor soil conditions and climatic factors, millet has increased in area. As a risk management strategy, farmers in the Groundnut Basin are adopting alternative crops, such as cowpea and cassava, as these are more tolerant of poor soil conditions and drought<sup>189</sup>. In the Southern part of the zone, farmers are also diversifying their production to include watermelon and sesame.

<sup>187</sup> FAO, ICRISAT, CIAT, CCAFS. 2016. Climate Smart Agriculture in Senegal. Roma: The Food and Agriculture Organisation of the United Nations

<sup>188</sup> [https://climateknowledgeportal.worldbank.org/sites/default/files/2019-06/SENEGAL\\_CSA\\_Profile.pdf](https://climateknowledgeportal.worldbank.org/sites/default/files/2019-06/SENEGAL_CSA_Profile.pdf)

<sup>189</sup> CSE. 2015. Actualisation du Découpage et de la Caractérisation des zones Eco-Géographiques du Sénégal. Dakar, Sénégal. Centre de Suivi Ecologique (CSE).



224. **Rice production has increased steadily since the 1990s as the area under cultivation has expanded significantly due to investments in irrigation infrastructure in the River Valley, which produces 70per cent of the domestic rice production<sup>190</sup>.** Although maraîchage (vegetable gardening) represents a small percentage of the overall agriculture production, its importance to food security and as a livelihood activity for women cannot be overlooked. It is the most promising agribusiness subsector due to its competitive advantage in land availability, climate and water conditions, low labor costs and proximity and capacity to supply European markets. Post-harvest losses and limited capacity to transform products for added value are key challenges limiting the development of the industry<sup>191</sup>. Livestock production also plays an important role in the country, contributing 4.2per cent of the sector's GDP, which has grown by 38per cent since 1997. It is practiced extensively in the northern River Valley and silvopastoral zones<sup>192</sup>.
225. **Climate change is already an undeniable reality for Senegal. In a report published on the State of the Environment by the Ecological Monitoring Centre (CSE), indicated that agriculture sector is sensitive to changes in temperature and precipitation and is likely to have adverse impacts on crop yields and livestock (Figure 29)<sup>193</sup>.** Crop models show that groundnut yields may decrease by 5–25per cent, and maize and rainfed rice yields may gain by 5–25per cent in areas where they are currently grown<sup>194</sup>. Crops such as cowpeas and cassava have a strong resistance to drought and high temperatures and can be cultivated on poor soils, which represent an adaptation opportunity for farmers located in the Groundnut Basin<sup>195</sup>. Millet and sorghum are also more resilient to and have a higher tolerance level of drought, and crop models also indicate an increase in production for these crops. In the silvopastoral zone and northern River Valley, livestock producers are also at risk. Although livestock breeds in Senegal are well adapted to high temperatures, the impact of climate change on the production of biomass and water resources may affect the health of the animals and the traditional movement patterns of pastoralists and aggravate conflicts over limited resources<sup>196</sup>. Livestock-dependent households may be the most vulnerable to climate change as a reduction in precipitation may affect the quantity of pasture available, leading to competition over the limited resources. These farmers also tend to have fewer resources than “mixed”-system farmers<sup>197</sup>.

**Figure 29: Projected change in suitable area in Senegal (2040-2069)**

<sup>190</sup> WFP. 2013. Climate risk and food security in Senegal: Analysis of climate impacts on food security and livelihoods. World Food Programme (WFP). Available at: <http://bit.ly/1R76QuH>

<sup>191</sup> Brethenous J; Dioh S; Drago N; Giddings S; Olafsen E; Thaller J. 2011. The Agribusiness Innovation Center of Senegal Scaling a competitive horticulture sector through value adding post-harvest processing. InfoDev, Finance and Private Sector Development Department. Washington, DC: World Bank.

<sup>192</sup> CSE. 2015. Actualisation du Découpage et de la Caractérisation des zones Eco-Géographiques du Sénégal. Dakar, Sénégal. Centre de Suivi Ecologique (CSE).

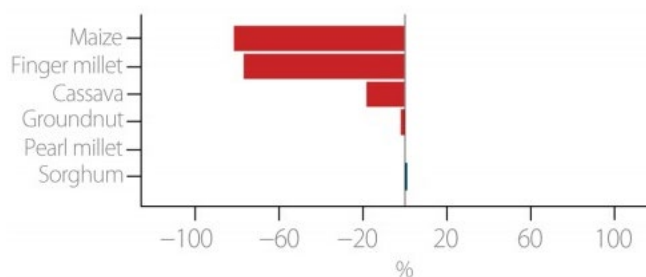
<sup>193</sup> CSE. 2010. Annuaire sur l'Environnement et les Ressources Naturelles du Sénégal. Centre de Suivi Ecologique (CSE).

<sup>194</sup> Jalloh A; Nelson GC; Thomas TS; Zougmore R; RoyMacaulay H. (Eds.) 2013. West African agriculture and climate change: A comprehensive analysis. IFPRI books and research monographs. 408p. DOI: 10.2499/9780896292048

<sup>195</sup> CSE, 2010

<sup>196</sup> Tetra Tech ARD; CSE; ISRA. 2014. Senegal Climate Change Vulnerability Assessment and Options Analysis. African and Latin American Resilience to Climate Change.

<sup>197</sup> Tetra Tech ARD; CSE; ISRA. 2014.



Source: CSE

*b) Financial sector context*

226. **Senegal has one of the most developed financial sectors in the Economic Community of West African States (ECOWAS) region in terms of number of financial institutions and market share of credit institutions.** The Central Bank of West African States (BCEAO) serves as Senegal's central bank. The Senegalese financial sector consists of 28 credit institutions, including 24 commercial banks and 4 financial institutions, 19 insurance companies (including 10 life insurance branches), and 208 Microfinance Institutions (MFIs). The financial sector is dominated by banks, which manage more than 88% of the financial sector assets, compared to 7% for MFIs and 4% for insurance companies<sup>198</sup>. These financial institutions are organized around several regional bodies, the most important being the BCEAO, the Banking Commission of the West African Economic and Monetary Union (WAEMU), the Regional Council for Public Savings and Financial Markets (CREPMF) and the Inter-African Conference on Insurance Markets (CIMA). The total banking income accounts for one-fifth of all banks' income in the West African sub-region under BCEAO supervision. Bank credit has steadily increased in recent years, mainly driven by the increase in credit to the private sector. In March 2018, it amounted to CFAF 3,915.7 billion (USD 7.1 billion), compared to CFAF 1,755.3 billion (USD 2.9 billion) in 2009, more than double the 2009 level. The majority of banks' assets are held by international and regional banks.
227. **Banks in Senegal appear to be adequately capitalized with the overall capital adequacy ratio (Risk-weighted assets/Regulatory Capital) standing at 13.9 % as of June 2020, which increased slightly from December 2019 (13.1%)** (Table 31). Assets for the banking sector in Senegal have been rising faster than loans, which led to the ratio of loans to assets decreasing from 62.6% in December 2019 to 59.1% in June 2020. The distribution of loans in sectors such as the agriculture (including forestry and fisheries) and energy (electricity, water, gas) have been very low, accounting for 2.3% and 3%, respectively in June 2020.
228. **The quality of assets has improved steadily in recent years, with gross non-performing loans (NPLs) slightly decreasing from 13.9% of the total gross loans in December 2019 to 13.4% in June 2020 while net NPLs to total loans stood at 4.7% below the WAEMU average of 6.6 %.** High levels of NPLs weaken the sector and pose significant risks to the country's economy. In March 2018, the parliament passed a law on credit information bureaus. Other reforms undertaken to establish a commercial court are likely to improve banks' risk management activities and promote credit growth.

<sup>198</sup> IMF, 2016. CÔTE D'IVOIRE SELECTED ISSUES



229. **In terms of liquidity, the regional central bank (BCEAO) facilitates that reliance by providing liquidity to banks in Mali against security in the form of government securities.** In recent years, greater reliance has been put on borrowing in foreign-currency-denominated bonds. Although this option reduces pressure on the local market and on potential crowding out, it raises concerns about exchange rate risk and refinancing costs. The ratio of liquid assets to total assets and liquid assets to total deposits both decreased, from 27% to 24.5% and 38.5% to 36.3%, respectively between December 2019 and June 2020. According to the latest WAEMU Banking Commission report, the liquidity deficits of the banking system observed in all WAEMU countries have further increased, especially with a significant variation for Senegal (more than CFAF 311 billion or US\$ 369.5 billion).
230. **The banking sector in Senegal is profitable indicating that the Return on Equity (ROE) increased from 7.2% % to 12.6% between December 2018 and December 2019.** Similarly, Return on Assets (ROA) increased from 0.7% to 1.2% over the same period. Table 33 shows Mali's available financial soundness indicators (FSI) based on BCEAO data estimates.

**Table 31. Financial Soundness Indicators for the Banking Sector in Senegal, 2015–20 (Percent)**

	2015	2016	2017	2018 <sup>1</sup>	2019	2020
	Dec	Dec	Dec	Dec	Dec	June
<b>Solvency ratios</b>						
Regulatory capital to risk weighted assets	19.1	14.5	13.6	11.8	13.1	13.9
Tier I capital to risk-weighted assets	16.3	13.8	13.2	11.4	12.4	13.4
Provisions to risk-weighted assets	16.0	13.6	11.6	8.9	10.7	10.2
Capital to total assets	8.3	7.2	7.6	7.9	7.1	8.1
<b>Composition and quality of assets</b>						
Total loans to total assets	55.5	53.6	60.5	61.3	62.6	59.1
Concentration: loans to 5 largest borrowers to capital	46.4	63.7	71.6	69.2	87.4	71.5
Sectoral distribution of loans <sup>2</sup>						
Agriculture	2.6	2.2	2.4	2.4	2.3	2.3
Extractive industries	0.8	0.8	0.8	1.2	1.4	1.1
Manufacturing	21.1	18.7	17.2	15.3	16.0	16.8
Electricity, water and gas	1.8	1.7	2.1	2.1	3.0	3.0
Construction	3.9	4.9	5.7	4.5	6.9	6.8
Retail and wholesale trade, restaurants and hotels	25.4	25.3	23.1	26.0	23.2	24.0
Transportation and communication	10.0	12.0	12.9	12.8	11.6	12.3
Insurance, real estate and services	7.0	7.1	8.6	7.5	7.5	6.7
Other services	27.5	27.2	27.2	28.2	28.2	27.0
Gross NPLs to total loans	19.3	18.0	16.2	13.1	13.9	13.4
Provisioning rate	57.7	62.5	59.7	68.1	61.5	68.2
Net NPLs to total loans	9.2	7.6	7.2	4.6	5.9	4.7
Net NPLs to capital	61.4	56.4	57.7	38.7	51.5	34.2
<b>Earnings and profitability<sup>3</sup></b>						
Average cost of borrowed funds	2.2	2.3	2.4	2.2	0.5	...
Average interest rate on loans	8.2	8.4	8.6	7.6	7.9	...
Average interest margin <sup>4</sup>	6.0	6.1	6.2	5.4	7.4	...
After-tax return on average assets (ROA)	0.8	1.0	1.7	0.7	1.2	...
After-tax return on average equity (ROE)	9.0	13.0	19.9	7.2	12.6	...
Noninterest expenses/net banking income	61.0	57.7	58.0	57.3	60.2	...
Salaries and wages/net banking income	26.1	25.0	24.9	26.8	25.3	...
<b>Liquidity</b>						
Liquid assets to total assets	27.4	26.8	28.3	31.8	27.0	24.5
Liquid assets to total deposits	39.7	40.6	41.8	47.9	38.5	36.3
Total loans to total deposits	90.6	91.5	99.1	101.6	97.4	96.2
Total deposits to total liabilities	69.0	66.0	67.6	66.3	70.3	67.6
Sight deposits to total liabilities <sup>5</sup>	38.3	37.8	37.5	37.1	40.3	40.0
Term deposits to total liabilities	30.6	28.2	30.1	29.2	30.0	27.7

Source: BCEAO.

<sup>1</sup> First year of data reporting in accordance with Basel II/III prudential standards and the new

<sup>2</sup> Declared to central risk registry.

<sup>3</sup> Based on semi-annual income statements.

<sup>4</sup> Excluding tax on bank operations.

<sup>5</sup> Including saving accounts.

*c) Energy sector context*

231. **In 2019, 52.2 % of the population in rural Senegal did not have access to electricity yet the country largely depends on its rural population to generate livelihood.** Government of Senegal goal is to achieve 90% electrification rate in the rural areas by 2025 with a commitment to universal access by 2030. To achieve this, the country has developed and adopted a Renewable Energy and Energy Efficiency Action Plan and has promulgated a set of policy and regulatory texts to assist efforts on rural electrification. **With regards to mini-grids and small scale rural electrification operations, Government of Senegal policy framework** is translated into the following two major undertakings:

- (i) The PPER (Programme Prioritaire de l'Electrification Rurale – Priority Programme for Rural Electrification) which divided Senegal in 11 electrical territories, 1 belonging to the main utility

Senelec and 10 belonging to private sector operators who have the right to install power generation, transmission and distribution assets on their awarded territories.

(ii) The ERIL framework (Electrification Rurale d'initiative Locale – Rural Electrification by Local Initiatives) which recognizes the gaps of the 11 concessions awarded by PPER in small communities and provides legal ground for local mini-grid development and Solar Home Systems distributions to supplement grid extension efforts by operators in areas that would not be economically viable through PPER interventions.

232. **Local SMES and community cooperatives are permitted to become ERILs in Senegal and thus to establish small scale mini-grid operations.** The licensing process is under the administrative authority of ASER, the Senegalese Rural Electrification Agency, and the requirements are the signature of an agreement with ASER upon submission of a business plan and a technical offer.

233. **The ERIL framework provides for both standalone solar and mini-grid interventions though the majority of mini-grids to date are government-owned or predominately funded by international organizations and donors.** For instance, in partnership with PERACOD and INENSUS West Africa<sup>199</sup>, ASER implemented a rural electrification pilot project in Sine Moussa Abdou financed by the German Federal Ministry of Economics and Technology and organized by the German development agency GIZ. The government is granting Senegalese companies' concessions under the terms of which they make a commitment to supply a given territory with electricity for a period of 15 years. In return, the concessionaires are permitted to levy a charge determined by the Senegalese regulatory authority<sup>200</sup>.

234. **Despite these policy and regulatory efforts, a few barriers are still impeding the uptake of mini grids in rural Senegal.** Those are (i) long processing time for obtaining a license as an operator, which induces some risks on sites that have been claimed by the private sector in the event of grid arrival; and (ii) lack of government tariff subsidy that would lead to a uniform electricity pricing. These barriers are limiting private companies' appetite for owning and operating mini grids in Senegal. By working with the Agricultural Bank of Senegal and providing concessional finance to small farmer cooperatives in Senegal for owning mini-grids, IGREENFIN will reduce the needs for tariff subsidies by small holder farmers and enable the adoption of Renewable Energy Technologies alongside agricultural value chains. **Energy demands for agricultural processing and transformation within IGREENFIN scope of work in Senegal have been estimated at 3580 MWh annually.** These demands are to support the following activities:

- Storage of vaccines to address growing livestock diseases due to climate change
- Powering drip irrigation to address declines in agricultural yields
- Powering processing techniques to reduce post-harvest losses

235. **The energy demands will be fully covered by solar and storage solutions. In the absence of the GCF proceeds for renewable energy technologies these energy demands would be covered using diesel generators which would have led to an estimated 110,367 tCO<sub>2</sub> eq emissions in Senegal over the project's lifetime.**

<sup>199</sup> [Rural Electrification wind Solar Senegal INENSUS-PERACOD Project Factsheet.pdf \(energypedia.info\)](#)

<sup>200</sup> [Complete issue.pdf \(giz.de\)](#)

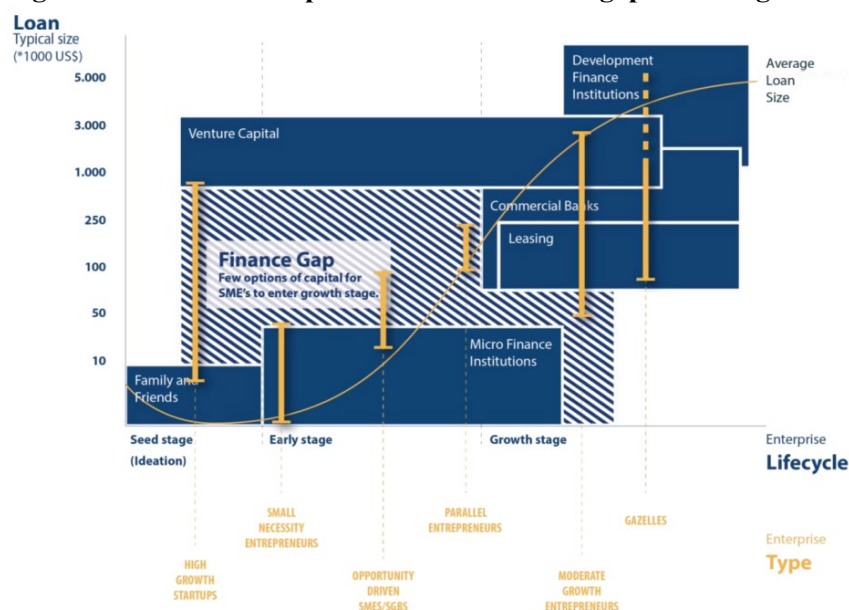
*d) Overview of existing finance in climate resilient and low emission agriculture*

236. National opportunities for funding agriculture in Senegal include support from the government (MAER, MEPA), local private financial institutions such as CNCAS, National Bank for Economic Development (BNDE) and Locafrique, cooperatives, NGOs and, to some extent, the private sector<sup>201</sup>.

237. The main governmental funding mechanisms available include FNRAA and FNDASP, which are primarily accessed by the country's research institutions (i.e., ISRA). Through the FNRAA, a number of projects have been funded that have climate resilient and low emission agriculture characteristics including: the improvement of agriculture production through the application of bio-products and promotion of the use of vetiver – a perennial bunchgrass to combat erosion and improve soil fertility in the Niayes zone. The government executed a program for seed reconstitution from 2013 to 2015, and ISRA was responsible for producing first-level seeds of groundnut, cowpea and cereals to meet the national needs. Through MEPA, support comes from FONSTAB, which is a mechanism to implement the LOASP and linked to the FNDASP. It promotes the commercialization of the livestock sector through investments in machinery, processing, packaging and marketing.

238. The Senegalese government has also recently created institutions to stimulate funding to SMEs, providing guarantees through Fonds de Garantie des Investissements Prioritaires (FONGIP) and subsidies through Bureau de Mise à Niveau (BMN).

**Figure 30: Schematic representation of finance gap for Senegalese SMEs**



Source: Dutch Good Growth Fund (DGGF), 2017<sup>202</sup>

239. The Compagnie Nationale d'Assurance Agricole du Sénégal (CNCAS) is the main credit provider to smallholder farmers across the country accounting for 50–60 per cent of microfinance

<sup>201</sup> FAO, ICRISAT, CIAT, CCAFS. 2016.

<sup>202</sup> [KEY CHALLENGES FOR THE 'MISSING MIDDLE' \(dggf.nl\)](https://dggf.nl/)

**products**<sup>203</sup>. They support individual farmers and farmers associations in obtaining credit to finance agricultural inputs and post-harvest activities. The credit union works through certified seed distributors to ensure that farmers taking out credit obtain high-quality seeds (to reduce risk of lending). The organization is also working to strengthen the value chain, particularly in rice cultivation and harvesting by promoting the establishment of warehouses for farmers to stockpile their rice to protect its quality until the sale. Very few other financial institutions provide farmers with loans for planting activities and tend to focus more towards developing the agribusiness sector, which includes mainly post-harvest activities.

240. **Alleviating the issue of access to finance in Senegal and closing the financing gap will require three kinds of solutions:** fostering greater competition, improving financial sector infrastructure; and improving public interventions designed to address market failures and crowd in the private sector<sup>204</sup>.
241. **The productivity of many Senegalese agriculture producers is still limited by two major constraints: they cannot obtain credit to invest in more productive operations or purchase crop insurance to manage risk and protect their investments.** While 46 per cent of rural adults borrowed money in 2017, only 5.7 per cent borrowed from a formal financial institution. The key constraints to lending for agricultural activities are well-known: it is costly and risky to lend to farmers involved in rainfed agriculture, financial institutions lack knowledge of agriculture finance, microfinance institutions have exhibited weak performance and governance issues, and public interventions have been inefficient (involving crowding out effects). The Government subsidizes loans issued to smallholders (with little evidence on efficient targeting), administered by state-owned Banque Agricole, by covering the difference between market interest rates (about 13 per cent) and the capped interest rate for farmers (7.5 per cent). The government also supports access to agricultural insurance through the CNAAS under a 50 percent subsidy on premiums. Despite these efforts, wide access to suitable agricultural insurance products remains constrained<sup>205</sup>.
242. **International technical and financial support for climate initiatives comes from several sources.** Senegal was one of the first countries in 2010 to access the UNFCCC Adaptation Fund to finance a project on coastal protection by the name of “Adaptation to Coastal Erosion in Vulnerable Areas,” which was developed based on the PANA. They will also be one of the first countries to receive funding through the Green Climate Fund for a project to restore salinized lands and to increase the climate resilience of the coastal region’s population.
243. **With support from the World Bank and the Global Environmental Facility (GEF), the Government of Senegal created the Project for Inclusive Development and Sustainable Agribusiness in Senegal (PDIDAS), which provides smallholder farmers with access to funds to make investments necessary to improve agriculture productivity.** Some of the eligible investments include training, inputs (seeds, fertilizer), agroforestry, transformation and commercialization of products. While there are many bilateral and multilateral institutions supporting the implementation of projects related to agriculture development and food security, there are a limited number that are explicitly addressing climate change adaptation. Nonetheless, these resources have been used to make

<sup>203</sup> CSE. 2010. Rapport sur l'état de l'environnement. Centre de Suivi Ecologique (CSE). Available at: <http://bit.ly/1SzO98i>

<sup>204</sup> IFC, 2020

<sup>205</sup> WB, 2020

progress in strengthening farmers' access to high-quality inputs, financial mechanisms and training and investments in reinforcing the various components of the value chain for key crops in the country.

*e) Insights from on-site interviews*

244. **In Senegal, insights were obtained from field visits with various stakeholders at the national and local levels including the agricultural bank of Senegal, and its MFIs partners during the IFAD baseline project design in Dakar (AGRI-JEUNES Tekki Ndawi), discussion sessions of the 2020 IFAD-NDA Partnership workshop in Dakar on climate finance for agriculture as well as virtual consultations during the IGREENFIN 1 preparation design (see Annex 7 Stakeholder Engagement Plan for details on list of participants). The findings are presented below.**
245. **Comments from the the agricultural bank of Senegal (LBA), and its MFIs partners revealed that Senegal's financial infrastructure still faces significant limits in key areas**, including credit information limited in coverage but is improving, insolvency regime remaining constrained, capital markets remaining small and dominated by government issuances with corporate bond markets absent and the uncertainty on secured transactions, preventing a proper functioning of the country's credit markets. For example, in 2017, the proportion of adults (aged 15 and above) with an account at a financial institution was 20.4% in Senegal, while the average in sub-Saharan Africa was 32.8%. Less than one of four companies, or about 22.6 percent, have a bank loan or line of credit. That number is close to the average in the sub-Saharan Africa region, even though real interest rates are not high, at 3.4 per cent to 4 per cent over the period from 2015 to 2017. When they do manage to get a loan or line of credit, firms must still pledge significant assets to secure their loans. For example, three of four firms, or 78.9 percent, were asked for some form of guarantee when applying for a loan<sup>206</sup>. However, significant progress has been made in facilitating access to financial services via mobile phones. According to the latest World Bank's Global Findex survey (2018), about 31.8% of adults aged 15 and above in Senegal own a mobile money account compared to the sub-Saharan average (20.9%).
246. **The value of the guarantee required is very high on average, at 271.7 per cent of the value of the loan; extreme for small firms, at 428.7 percent, but much smaller for large firms, at 160.7 percent.** This wide range of guarantees across firm size, coupled with a collateral-based lending culture, reflects the increased risk perceived by banks to lend to smaller clients. Lending conditions are also difficult because of the type of guarantees required by banks, with land and real estate being the preferred forms of guarantee in about half, or 53.1 percent, of the time. This is an additional hurdle, as securing this type of collateral is extremely difficult for smaller firms and may be nearly impossible for young firms and start-ups<sup>207</sup>.
247. **Smallholders and MSMEs are among the most credit constrained.** They represent about 99.8 per cent of the total number of "economic entities" and about 70 per cent of the labor force, according to the latest census by the Agence Nationale de Statistique et de la Démographie (National Agency of Statistics and Demography of Senegal). Yet, evidence shows that they only get about 8 per cent of the total financing from financial institutions. These restrictions are echoed by survey results that show that MSMEs are more constrained than large firms. An estimated 43 per cent of medium firms and 59 per cent of small firms claim that access to finance is their biggest issue, generating a large financing gap of about USD0.9 billion<sup>208</sup>. Among MSMEs, those led by women or based in rural areas have even

<sup>206</sup> World Bank, 2017. An Investment Climate Assessment for Senegal, Rapport N° AUS7348, Washington, D.C. : World Bank.

<sup>207</sup> World Bank, 2017

<sup>208</sup> IFC, 2020



lower access. **Constraints to improved access to finance to smallholders and MSMEs include limited competition among financial services providers, weak financial infrastructure, weak financial sector policies as well as inherent weaknesses among MSMEs.** The lack of capacity for smallholders and MSMEs remains a major constraint to access to funding:

- **Existing data show that MSMEs have more difficulty obtaining financing than larger companies.** Thus, many companies with financing needs avoid applying either because they are unable to provide the guarantees required for a loan (28.2 per cent of all companies did not request a loan but were in need of funds), they perceived a heavy and complex screening process (27.6 percent) and they considered interest rates high (15.8 percent)<sup>209</sup>.
- **Furthermore, the capacity limitations of Senegalese MSMEs and lack of financial education of their leaders is a challenge.** The absence of reliable financial statements, procedures for results and performance monitoring and the inability to provide the required documentation and/or prepare an appropriate business plan are factors that disqualify many MSMEs from traditional finance.

248. **On the other end of the credit value chain, the Senegalese microfinance sector has been very active, with 208 decentralized financial systems,** more than 2.5 million customers/members, outstanding savings above CFAF 285 billion (USD 504 million), loans volume greater than CFAF 306 billion (USD 541.6 million) and a penetration rate of microfinance services at 18.4% of total population, **Senegal is the leader in the WAEMU region in terms of financial services targeting the most vulnerable populations**<sup>210</sup>. Unlike in most countries, microfinance institutions in Senegal can collect deposits for a total of USD 456.4 million, which creates some competition with the banking sector. However, despite past expansion, microfinance remains rather small and its capacity to satisfy the needs of even the smallest firms is limited<sup>211</sup>. In 2017, the sector contributed 10.4% to financing the national economy and 3.7% to the GDP. Outstanding loans in decentralized financial systems (DFS) totalled CFAF 359.7 billion (about USD 539.5 million) in the first quarter of 2018. A recent report by United Nations Capital Development Fund revealed that microfinance institutions in Senegal have a greater presence in areas with high poverty rates compared to commercial banks. According to the report, these institutions provide services and products better aligned with the needs of people in rural areas. The Senegalese government has drafted a financial inclusion strategy running until 2020, aimed at increasing the sector's performance through targeted actions and addressing constraints or weaknesses hindering the sector's development. These actions include: establishing a national microfinance fund; operationalizing the programme to promote Islamic microfinance; and, promoting digital finance through a renewed mobile banking project.

## V. Proposed programme logframe

### A. IGREENFIN Theory of Change (TOC)

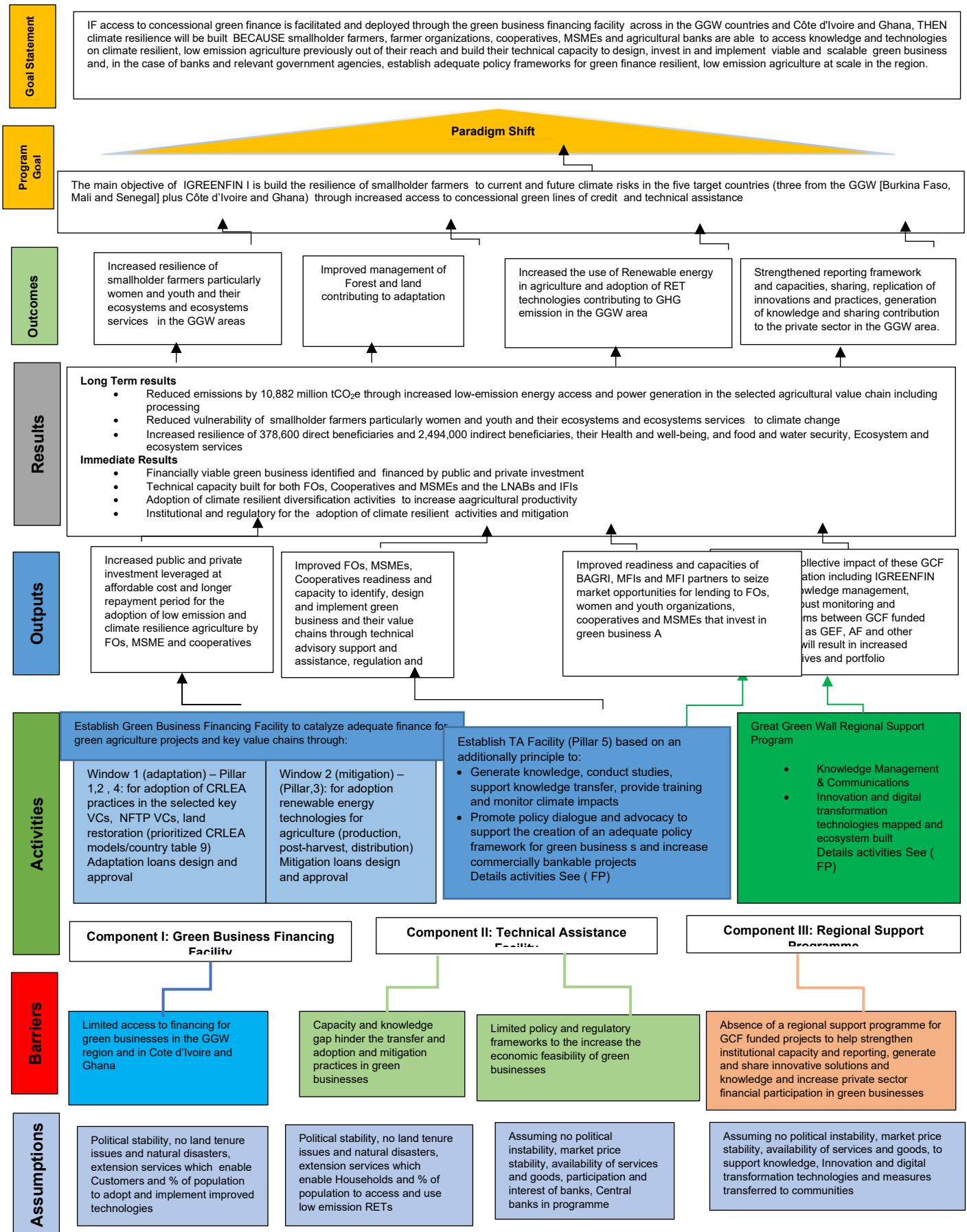
<sup>209</sup> WB, 2017

<sup>210</sup> [Senegal | MFW4A - Making Finance Work for Africa](#)

<sup>211</sup> IFC, 2020



## Theory of Change of the IGREENFIN 1 I and the Regional Support Programme



## B. Risk analysis

249. The programme may face risks and their proposed mitigation measures are presented below:

- **Focus may be too broad as financial needs of smallholders, MSMEs, FOs and cooperatives are diverse and require different instruments.** Smallholders, MSMEs, FOs and cooperatives are a broad and diverse group, including people with different levels of education, with businesses of different sizes, and above all with different financial needs. A sound understanding of the specific target group and their issues is vital to properly assess the market environment and design effective solutions to promote greater smallholders, MSMEs, FOs and cooperatives' financial inclusion.
- **Financial institutions may not change their perception about smallholders in agriculture, MSMEs, FOs and cooperatives.** IGREENFIN 1 has to craft an effective value proposition, which would motivate FIs to fundamentally alter their current business model and invest in smallholders in agriculture. If they instead continue to see smallholders, MSMEs, FOs and cooperatives businesses as riskier, higher cost, and/or lower return, they will be reluctant to extend credit to them.
- **A universal approach may fail to adequately address specific country circumstances.** Applying the same approach to different West African and GGW countries in IGREENFIN 1's implementation can prove inadequate in addressing the specific financial access challenges smallholders, MSMEs, FOs and cooperatives in agriculture face. The identified approach to programme implementation thus needs to be defined on a country-by-country basis, taking into account the typology of smallholders, MSMEs, FOs and cooperatives in agriculture, the development of the financial market and the enabling environment.
- **A country's enabling environment,** if weak (comprised of interruptions in power, weak governance, red tape and crime), can reduce the ability to implement IGREENFIN 1 in some West African and GGW countries and ensure its sustainability. In this environment, even if the financial institutions are willing and capable of launching and scaling financial services targeting smallholders in agriculture, the full impact of IGREENFIN in countries with weak governance could potentially be diminished. Thus, IFAD may wish to partner with countries that have shown commitment to private sector development and financial inclusion as well as the capacity to undertake the type of policy reforms required to enable IGREENFIN to have maximum sustainable impact.

## VI. Proposed actions for programme design

250. As is already clear in this study, the substantial financing gap in smallholders, MSMEs, FOs and cooperatives in the agriculture sector can only widen given the additional capital needed to help West African and GGW countries tackle the challenges that climate change poses to the agricultural sector. It is therefore essential to increase the flow of finance to farmers so they can better adapt to climate change and reduce the emissions intensity of agricultural production. Climate finance is critical to addressing this financing gap by providing new and better-targeted sources of finance and directing them (either directly or through intermediaries or aggregation structures and vehicles) to those smallholder farmers, MSMEs, FOs and cooperatives that can achieve positive climate outcomes.

251. To facilitate the rapid advancement and scale-up of such innovations, concrete action must be taken to enhance the multiplier effect that climate finance can have in supporting the transformation to low-

emissions and climate-resilient agricultural systems. The following four actions could facilitate this process:

252. **Action 1: Facilitating and Accelerating Financial Investment.** It will be necessary to design innovative financial mechanisms, investment vehicles, and financial instruments that can provide more tailored and comprehensive solutions to the specific challenges of climate change and emissions intensity of agricultural production that now confront agriculture such as:

- **Model 1:** (i) Climate-smart Investment Facilitators: Charging a fee for the service of matching investors with those FIs that have a portfolio of investments of appropriate size that are categorized as climate smart; and (ii) Climate-smart Incubators: Charging a fee for the service of matching FIs with both certified CSA portfolios and CSA projects (i.e. directly with smallholder farmers, MSMEs, FOs and cooperatives, through facilitating and development agencies, etc.)
- **Model 2:** (i) Climate-smart Investment Facilitators: Becoming an intermediary that matches investors with investments of appropriate size that are categorized as climate-smart and also design adequate layered capital structures to subsequently manage and invest the assets accordingly. This model has the advantage of significantly reducing transaction costs and risk for investors as well as carefully selecting those interventions that will achieve positive climate outcomes; and (ii) Climate-smart Incubators: Acting as an intermediary that offers FIs a portfolio of CSA projects, raises capital with the appropriate risk and impact appetite, and manages and invests the capital accordingly. This model has the advantage of significantly reducing transaction costs and risk for FIs as well as careful selection of projects that have the potential to achieve significant positive climate outcomes.

253. **For instance, IGREENFIN 1 intervention could channel the allocated fund through a market facilitator (e.g. a guarantee fund, a credit bureau, or any financial institution service provider) to use this to leverage additional capital from financial institutions sources and direct it to smallholder farmers, MSMEs, FOs and cooperatives in the agriculture sector.** It is recommended that the credit guarantee fund under this scheme be institutionalized by providing a partial guarantee and covering a percentage of potential losses banks face when lending to smallholder farmers, MSMEs, FOs and cooperatives and take a proactive approach in identifying clients, performing credit appraisals, and in building the skills of partner FIs. By doing so, the credit guarantee fund will strive to achieve credit enhancement for smallholders in agriculture and thus facilitate access to growth capital with lower interest rates and longer maturities. Banks will have added incentive to provide financing to smallholders in agriculture as the losses will be covered up to the agreed amount in full by the fund.

254. **Action 2: Agricultural value chain finance approach.** Traditionally, financiers have been reluctant to lend to smallholder farmers, MSMEs, FOs and cooperatives due to the high risk and transaction costs involved. However, some of the risks can be managed effectively **by using a value chain finance approach consists of providing financial products and services based on business relationships between actors within the same value chain.** This approach specifically targets smallholders, MSMEs, FOs, and cooperatives at the bottom of the pyramid, those that are engaged in small-scale farming, in which FIs are the main source of financial products and services. The value chain finance approach encompasses a comprehensive assessment and understanding of the entire value chain, rather than a simple credit risk assessment of the borrower, thereby enhancing smallholder farmers, MSMEs, FOs and cooperatives' capacity to diversify, transfer agriculture-specific risks, and create economies of scale in market transactions, all of which heighten the negotiating power and

profitability of farmers. This approach reduces risks and costs of delivery and monitoring while enhancing lending and access to a broader range of services. This approach also allows banks to take in more deposits, increase and diversify their portfolios, and develop a long-term growth strategy.

255. For selected value chain commodities or sub-sector, IGREENFIN 1 could do it on the basis of superficial observation bearing the risk of choosing a sector with little potential for achieving financial inclusion objectives. Comparing a number of value chains based on growth potential, adaptation, mitigation and financial criteria could be a good starting point. Enforcement of sustainable practices, including responsible finance principles, is key to long-term growth and positive development outcomes such as awareness and financial education programmes.

256. **Action 3: Improve and disseminate financial knowledge.** If the suggested innovative financial instruments and models are to function effectively, **it is imperative that IGREENFIN 1 provides technical assistance through a technical assistance provider partner to both financiers and smallholder farmers, MSMEs, FOs and cooperatives so that both parties can build the capacities they need to use the resources available effectively** (e.g., low-interest lines of credit, loan tenor and/or technical assistance grants aligned with the smallholder farmers, MSMEs, FOs and cooperatives lending targets, weather events, effective agricultural practices and technologies, markets, and pricing etc.). It is therefore essential to effectively and consistently promote interaction between all stakeholders so that all can better understand each other's characteristics, expertise, strengths, and objectives. This will be vital so that all parties can harmonize their languages and approaches and identify their commonalities and complementarities and the market niches and opportunities for collaboration these may represent. This will also help stakeholders to find more effective ways to create synergies so they can maximize their own capacities and resources.

257. **Action 3: Promote spaces to foster dialogue and collaboration.** To leverage the capacities, knowledge, expertise, and resources of all the actors involved in the agriculture, climate, and financial sectors, it will be crucial to create spaces (national and regional) to convene all stakeholders and promote dialogue. To that end, spaces like the Conference of Parties to the UNFCCC can act as a catalyst to bring all parties together, bridge knowledge and information gaps, and foster mutual understanding, dialogue, and collaboration.

## Annex I. List of meetings and contact information per country

See Annex 7 - STAKEHOLDER CONSULTATIONS AND ENGAGEMENT PLAN

## Annex II. Questionnaires

### A. Questionnaire for Banks

- ✓ In terms of loan portfolio size, can you rank the types of clients in agriculture you have in your portfolio (from large to individual clients in agriculture)?

- ✓ Do you have smallholder farmers clients? If yes, briefly describes the methods you use to serve these specific clients (e.g., Integrated into the ordinary banking structure, small-scale farming banking specialists at branches etc.)?
- ✓ What is (if available) the percentage and size is the total smallholders loan portfolio to total loan portfolio?
- ✓ Does your bank currently have separate products targeted at smallholders in agriculture? If yes, please provide the names of the products and the most popular loan financing products you provide.
- ✓ What is the average term of your loan products to smallholders in agriculture? (e.g.: 0 to 90 days; 90 – 347; 60 days; 1 yr – 5 yrs; 5 yrs and above)
- ✓ Do you have a separate business/strategic plan for smallholder farmers?
- ✓ What are the obstacles to your exposure to smallholders in agriculture?
- ✓ What assistance would your Bank need to enable you to achieve your objectives as far as serving smallholder farmers?
- ✓ Are you interested in IGREEFIN 1's types of financing programme windows?
- ✓ What would be the total funding needs for financing smallholders in agriculture over the next five years from short-term to long-term and based on the following category (individual, MSMEs, rural, FOs and cooperatives)?
- ✓ What would you prefer among these financial instruments (line of credit, guaranty fund, equity, other?)

#### B. Questionnaire for smallholders in agriculture (MSMEs, FOs, cooperatives, women and youth organizations)

- ✓ How long have you been in existence?
- ✓ Are you registered?
- ✓ How many employees do you have? (% of women, men and youth)
- ✓ What activities do you do in agriculture?
- ✓ Have you ever taken a loan out from a financial institution (bank or micro-lender or cash loans)? If so, please specify why and which institution and loan conditions (term, interest, fees, collateral, etc.)
- ✓ What amount of loan did you want to apply for and did you obtain the exact amount you applied for?
- ✓ What documents and security were you asked to provide? (conditions)
- ✓ If you have not used any loan so far, are you planning to? Or, do you need financing?
- ✓ How much financial need do you have?
- ✓ What are the alternatives to accessing credit or savings if not from banks or micro lenders?
- ✓ What are the main challenges for smallholders who need financial services?
- ✓ How do you make decisions about a loan to take? Who makes decisions about how to use the loan?
- ✓ Whom do you consult if you think you might need a loan or you would like to open a savings account?
- ✓ Are you interested in IGREEFIN 1's types of financing programme windows?
- ✓ What type of financial products would be more useful for you? And why?
- ✓ What other support do you need to grow sustainably your farm? (capacity building; technical assistance; guarantee etc.)