



# Examining the Climate Finance Gap for Small-Scale Agriculture

November 2020



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## ACKNOWLEDGMENTS

The authors wish to thank the following people for their contributions as members of the review group, in alphabetical order by affiliated organization: Ammad Bahalim, Jenny Frankel-Reed, Stanley Wood, and Emily Zuberi (Bill & Melinda Gates Foundation); Alberto Millan Arredondo (CGIAR Research Program on Climate Change, Agriculture and Food Security); Tom Carroll (Council on Smallholder Agricultural Finance, Global Development Incubator); Jesse Baver and Kusi Hornberger (Dalberg); Liza Leclerc, Margarita Astralaga, Alashiya Gordes, Luna Montozzi, Ricci Symons, Brian Thomson, Thouraya Triki, Oliver Page, Romina Cavatassi, Rikke Olivera (IFAD), Matthew Shakhovskoy (Initiative for Smallholder Finance); Inge Jacobs (Mars Wrigley); Mikael Clason Hook (Mastercard Foundation Rural and Agricultural Finance Learning Lab); Elizabeth Teague (Root Capital); Marcia Cardelli de Souza.

Finally, the authors would like to thank and acknowledge contributions from Tatiana Alves, Barbara Buchner, Sarah Conway, Elysha Davila, Caroline Dreyer, Angela Falconer for advice, internal review, and editing; Alke Haesra for support on data review and analysis; and Josh Wheeling for graphic design. And photo credit: Daniela Chiriac.

## ABOUT CPI

CPI is an analysis and advisory organization with deep expertise in finance and policy. Our mission is to help governments, businesses, and financial institutions drive economic growth while addressing climate change. CPI has six offices around the world in Brazil, India, Indonesia, Kenya, the United Kingdom, and the United States.

## ABOUT IFAD

IFAD invests in rural people, empowering them to reduce poverty, increase food security, improve nutrition and strengthen resilience. Since 1978, we have provided US\$22.4 billion in grants and low-interest loans to projects that have reached an estimated 512 million people. IFAD is an international financial institution and a United Nations specialized agency based in Rome – the United Nations food and agriculture hub.



## **SECTOR**

Agriculture, climate finance

## **REGION**

Global

## **KEYWORDS**

Small-scale producers, sustainable agriculture, rural poor, climate finance tracking

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## FOREWORD

In a rapidly changing world, agriculture is at the heart of sustainable development. The risks that the world faces in the final decade to achieve the UN's Sustainable Development Goals will be many, but the opportunities are equally numerous.

Small-scale agricultural producers can only seize these opportunities, however, if they have adequate access to land, markets, capacity support and finance.

The small-scale producers IFAD works with remain underserved by global climate finance. Finding themselves on the frontline of a changing climate, they are already suffering the devastating impacts of an anthropogenic phenomenon to which their own actions have contributed the least.

This report shows that only a small percentage of the money invested in climate finance globally is targeted at small-scale producers. IFAD remains committed to ensuring that small-producers receive the support they desperately need to adapt to a changing climate.

The Rural Resilience Programme (2RP) is a new umbrella Programme from IFAD that will focus on alleviating climate change drivers of food insecurity, irregular migration and land degradation. The programme will equip small-scale producers, landless poor and their communities with the resources needed to implement locally appropriate, proactive resilience strategies.

Through this new programme, IFAD aims to direct the global flows of climate finance to make sure it reaches those who need it most.



A handwritten signature in black ink, appearing to read 'G. Hougbo', written over a horizontal line.

**GILBERT F. HOUNGBO**

*President of IFAD*

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## EXECUTIVE SUMMARY

**The objective** of this report is twofold.

First, we propose a theoretical framework and methodology that can be used to measure and categorize climate finance flows to small-scale agriculture in developing countries. Second, we provide a snapshot of the current state of climate finance to small-scale agriculture based on the latest data available representing international financial commitments in 2017 and 2018.

**Small-scale farmers** operating on less than 5 hectares of land represent around 95% of world's farms and a cumulated area equivalent to 20% of the global farmland. In Asia and Sub-Saharan Africa, small-scale farmers are estimated to provide up to 80% of the food produced. Most of the world's small-scale farmers live in these regions, where the agricultural sector contributes around 15% of the GDP and provides over 40% of all the jobs.

**Climate vulnerability.** Small-scale farmers in developing countries are disproportionately experiencing the effects of climate change and variability and are at risk of external shocks such as the COVID-19 pandemic.

**Barriers.** Small-scale agriculture actors encounter a number of challenges in accessing the funds they need. Climate finance is subject to barriers that have traditionally affected agricultural development finance in addition to barriers that are typical to climate finance. They include technical, political, and commercial barriers (detailed in Section 1.2 and in Annex I).

**Total financial needs of small-scale farmers and agri-enterprises are in the order of hundreds of billions annually.** However, the exact level of funding needed for small-scale

### Small-scale agriculture definition

In the context of this study, small-scale agriculture is defined as the complex ecosystem of actors operating around small-scale producers.

Small-scale producers are considered widely to include individual farmers and farmer households, including both those that hold land titles and those that do not.

Additional actors such as cooperatives or farmer associations and value chain actors including agri-entrepreneurs and registered businesses support agricultural production through provision of services, product aggregation and market linkages, therefore becoming an integral part of the small-scale agriculture.

For the purpose of climate finance tracking, all the actors involved in small-scale agriculture as previously defined are considered to be final beneficiaries of financial flows.

### Definition of small-scale farming

Definitions vary depending on geography and parameters considered (size of land worked, amount of capital invested, location, number of workers, purpose of the production). Based on land size, which is the criterion most commonly employed, average small-scale farms vary from less than 0.5 to over 2 hectares in some Asian and African countries, while in Latin America they range from over 2 hectares to over 5 ha (FAO, 2015) and even up to 15 ha (Interviews, 2020).

In the absence of a universally accepted definition of small-scale farming, our analysis of financial data relies on the approach adopted by the various funders and donors recorded in our data set, i.e. their own project definition of smallholder farmer, small-scale producer, family farming, etc.

agriculture climate finance is hard to determine. Nevertheless, estimates of the general needs in this sector give an indication of the magnitude of the climate investments required. Third party research places the agricultural and household-related financial needs<sup>1</sup> of small-scale farmers at approximately USD 240 billion per year globally. Agri-enterprises require additional financing to grow their businesses and to invest in technology or transport to reach remote farmers. In Sub-Saharan Africa alone those needs amount to USD 132 billion per year.

**Climate finance for agriculture.** Despite the scale of these needs, the cumulative climate finance tracked for agriculture, forestry, and land use was only USD 20 billion per year in 2017/2018, which represents 3% of the total tracked global climate finance for the period.

**Climate finance for small-scale agriculture reached USD 10 billion per year in 2017/2018.** Out of the total tracked climate finance of USD 20 billion for agriculture, forestry, and land use, only USD 8.1 billion targets small-scale farmers, agri-entrepreneurs and value chain actors serving them. This is equivalent to approximately 40% of the total climate funds committed to the agriculture, forestry, and land use sectors. An additional USD 1.72 billion of climate finance benefits small-scale agriculture actors through renewable energy generation, sustainable transport in rural areas and water management. The total climate finance targeting small-scale agriculture is therefore close to USD 10 billion. It represents 1.7% of the total climate finance tracked and it covers only a small fraction of the general needs of small-scale agriculture actors.

**Sources.** Largely represented by international finance flows, climate finance for small-scale agriculture is sourced 95% from the public sector, including governmental donors, multilateral development finance institutions and bilateral development financial institutions each contributing 39%, 32% and 16% respectively. The large proportion of funding coming from public sources may be explained by the lack of data on investments from the private sector, as well as the scarcity of investment by the private sector due to a lack of attractive and robust pipelines of investable projects in small-scale agriculture.

#### ***Climate finance: What is it?***

The working definition adopted by CPI for this study is based on the recommended operational definition of the UNFCCC Standing Committee on Finance (UNFCCC SCF, 2018) which reads: "Climate finance aims at reducing emissions, and enhancing sinks of greenhouse gasses and aims at reducing vulnerability, and maintaining and increasing the resilience of human and ecological systems to negative to negative climate change impacts."

Inspired by CPI's Global Landscape of Climate Finance (Buchner et al, 2019), this study focuses on primary investment (i.e. excluding secondary transactions that involve money changing hands) from public and private, mostly international sources directed toward low-greenhouse gas emission and climate-resilient agricultural development interventions that have direct or indirect greenhouse gas mitigation or adaptation benefits for the actors involved in small-scale agriculture. It aims to capture both international and domestic climate finance flows.

<sup>1</sup> Such as healthcare, school, house improvements etc.

**Instruments.** Grants are the predominant financial instrument used for 50% of finance committed, followed by concessional debt (33%), and non-concessional debt (16%). Such a prevalence of grants is to be expected as financial access in the agricultural sector in developing countries is still limited compared to other sectors. Further, small-scale producers encounter major barriers to access loans due to lack of collaterals and limited land tenure rights.

**Climate use.** Nearly half (49%) of the tracked small-scale agriculture climate finance was for climate adaptation projects, while projects tackling both mitigation and adaptation objectives received 29% of the total. Mitigation only projects were targeted by 21% of the finance. The high percentage directed towards adaptation is aligned with the increased vulnerability of small-scale agricultural actors to climate change. In comparison, 93% of the total climate finance is targeting mitigation activities.

**Type of activities.** Low GHG emission and climate resilient infrastructure received the largest share of funds (36%), followed by investments to improve agricultural production at farm level (14%), and improvement of livelihoods of rural communities in general (also 14%). The lack of and poor state of transport infrastructure is indeed a major barrier for finance to agriculture, thus justifying a large share of investments. Technical assistance to governments and capacity building for target groups received similar shares, around 10% of the total each. These types of activities have the potential to tackle many of the technical and political barriers identified, therefore funding towards them needs to be raised in order to achieve transformational impacts.

**Recipients and beneficiaries.** 41% of funds were targeting rural communities in general. This seems to be aligned with the fact that many projects might adopt a holistic approach to rural development whereby they target general wellbeing of rural communities. Finance benefitting individual small-scale producers and cooperatives constitute 31% of the total for small-scale agriculture. It indicates the strong focus of climate finance on agricultural production at farm level, which should address the knowledge barriers limiting the adoption by farmers of climate-smart agricultural practices. Only 10% of the funds were found to target value chain actors and formal financial institutions. As many of the barriers identified are of commercial nature, climate finance is insufficiently benefitting businesses and financial institutions which are essential for small-scale producers to improve yields and to access markets and finance.

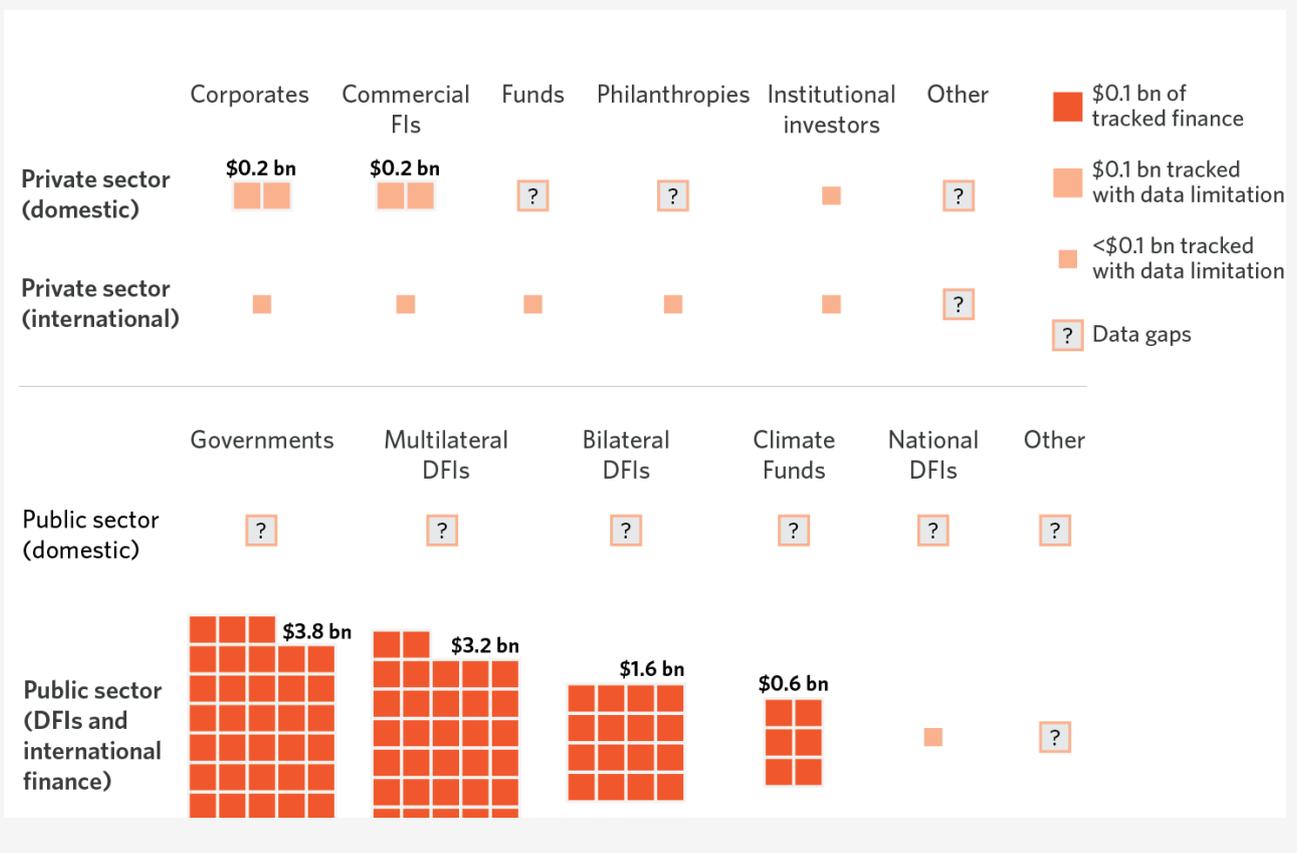
**Geographic destination.** Sub-Saharan Africa (36%), East Asia and Pacific (20%), and South Asia (16%) were the largest recipients of climate finance for small-scale agriculture. It is worth noting these are also the regions where most smallholders are located. Approximately USD 1.2 billion was committed to transregional programs, equivalent to 12% of the total dedicated to small-scale agriculture.

## Climate finance: What is missing?

This analysis relies on the datasets collected from various sources which capture mainly international public finance flows. These sources include the Organisation of Economic Co-operation and Development's Development Assistance Committee (OECD-DAC), Bloomberg New Energy Finance (BNEF), Climate Bonds Initiative, Convergence Blended Finance, Climate Funds Update (CFU), International Energy Agency (IEA), IJ Global, and biannual surveys of development finance institutions conducted by CPI.

However, based on the qualitative research conducted, significant gaps concern public domestic financial flows as well as domestic and international finance flows from private sector actors, including corporates and commercial financial institutions. Domestic actors (both public and private) are by far the highest investors in agriculture in low- and middle-income countries, overtaking both official development assistance and foreign direct investment, thus showing that domestic finance offers the greatest opportunity for greening financial flows to agriculture. Based on 2012 estimates, the majority of private domestic investments were originating from farmers themselves, four times exceeding public investments (FAO, 2012).

The lack of domestic level data of both public and private finance prevents us from determining the scale of climate finance flows originating from farmer households and governments, which could be of considerable size.



## CONCLUSIONS

Climate finance to small-scale agriculture is disproportionately low when compared with the importance of agriculture for developing countries' GDP combined with the prevalence of small-scale producers in Sub-Saharan Africa and South and South East Asia.

Climate finance covers only a small fraction of the total needs of small-scale farmers and agri-businesses. Therefore, finance directed to small-scale agriculture has a major opportunity to mainstream climate, and particularly to bridge the immediate need for increased climate resilience of small-scale producers and their communities.

Public resources have the potential to de-risk investment in agricultural development and, therefore, to catalyze funding from the private sector.

When increasing climate finance for small-scale agriculture, one must take into account current needs. Those can only be estimated if data collection is improved to cover the major information gaps regarding financial flows from public domestic sources and from international and domestic private actors.

## RECOMMENDATIONS

We propose the following recommendations for public and private actors to channel climate finance to small-scale agriculture at scale and to promote better information on measuring progress. These recommendations also represent an opportunity to step up the support for small-scale agriculture and build back rural economies sustainably amidst the current economic recession.

### **Channel climate finance to small-scale agriculture at large**

1. Enhance collaboration between the public and private sectors to mitigate the risk associated with investments in the agricultural sector and leverage additional financial resources.
  - 1.1 Blended finance mechanisms, including guarantees and first-loss tranches, can improve the risk-return profile of small-scale agriculture investments.
  - 1.2 Weather indexed insurance has the potential to de-risk loan products, thus private and public funders should invest in development of low-cost insurance products using technology to decrease complexity and costs.
2. Governments should make more effective use of public resources and policies targeting risk management and capacity building for climate-related finance and incentivizing conservation efforts at local level.
  - 2.1 Subsidized loans to small-scale producers and agri-businesses should be made conditional on the implementation of climate-smart agricultural practices and technologies and should be coupled with technical assistance adapted to each specific agro-ecological zone.
  - 2.2 National governments could stimulate finance service providers' penetration with small-scale agriculture by providing subsidies for weather insurance bundled with loans.
  - 2.3 Innovative fiscal transfer instruments should be put in place by national governments to incentivize the implementation at regional, district, or village level of sustainable agriculture, forestry, and other natural resource management efforts.
  - 2.4 International and domestic climate flows should stimulate the transition of agri-businesses and finance service providers towards low emission supply chains.
3. In order to maximize the impact of climate finance directed at producers and infrastructure, more investments bundled with capacity building should be targeting agri-businesses and financial institutions to help them mainstream climate conditionalities

and principles in their supply chains.

**Promote better information on measuring progress towards climate adaptation and mitigation for small-scale agriculture**

4. Build consistent tools to report and track international climate finance towards small-scale agriculture.
  - 4.1 Governmental donors, multilateral and bilateral development banks, and climate funds should work together to further enhance their reporting of climate finance for small-scale agriculture under a common definition and set methodology.
  - 4.2 Public donors and funders should initiate a similar dialogue with private sector actors, including foundations, private finance institutions, and corporate entities. Reporting mechanisms should be designed with the needs and priorities of private sector entities in mind, in order to enable future consistent reporting across both private and public sectors.
  - 4.3 To address information asymmetries, private sector actors, including networks of practitioners in agriculture finance and investment action groups, should step up in collecting and sharing primary data on investment opportunities in order to accurately assess and mitigate their risk.
  - 4.4 Annual surveys of private sector key players including major foundations, multinational corporates and agricultural banks collecting data on investments in mitigation and adaptation relevant investments would enhance the comprehensive picture on the state climate finance flows to small-scale agriculture worldwide.
5. Recipient governments should track progress through domestic climate finance tracking in small-scale agriculture to support their policy making processes.
  - 5.1 Ministries of finance and national treasuries in developing countries should increasingly require all government ministries and agencies to regularly report on their climate-related investments in agriculture and small-scale agriculture. In order to ensure this data is high quality there may be a need for increased capacity building across the Ministries on climate finance definitions, standards, and tools.
  - 5.2 Since delivery channels for financing small-scale agriculture involve actors at multiple levels, data collection should not be limited to project level data and should also include broader primary and secondary information sources.

# 1. INTRODUCTION

Around 95% of world's farms are of small size operating on less than five hectares of land. Together they represent a cumulated area equivalent to 20% of the global farmland. Small-scale farmers are estimated to provide up to 80% of the food produced in Asia and Sub-Saharan Africa (Lowder et al, 2014; Fan & Rue, 2020). The agricultural sector's contribution to Gross Domestic Product (GDP) is around 15% in South Asia and Sub-Saharan Africa (World Bank), which are regions with the highest prevalence of small and medium-size farms in the world. Also, 52% of the jobs in low-income countries of Sub-Saharan Africa and 40% of employment in South Asia are in agriculture (World Bank). Despite that, farmers in developing countries are often the world's poorest and most vulnerable people. They are disproportionately experiencing the effects of climate change and are at risk of external shocks such as the one produced by the COVID-19 pandemic.

Annual tracked climate finance in 2017 and 2018 crossed the USD half-trillion mark globally for the first time according to CPI's Global Landscape of Climate Finance (2019). From the total global climate finance, agriculture, forestry, and land use received an annual public finance flow of USD 20 billion showing an especially large increase of USD 7 billion from 2015/2016 levels. Agriculture and land use ranked second in terms of share of public adaptation finance, representing 24% of the total committed for climate adaptation use. However, exactly how much financing is reaching those in need and specifically targeting small-scale producers, their associated value chains, and their communities?

International climate finance providers have been working towards making finance more accessible to the poorest people and communities. However, specific research related to climate finance for small-scale agriculture is scarce. Few studies focus on climate finance for agriculture, and only some of them touch on small-scale agriculture. In addition, compared to other sectors, agriculture involves a wider spectrum of actors and often overlaps with other sectors such as forestry or natural resources management.

## **The objective of this report is twofold.**

First, we propose a theoretical framework and methodological tools that can be used to measure and categorize climate finance flows to small-scale agriculture in developing countries. The framework follows funds from their source, identifies the types of financial instruments used, the geographical destination, climate use, first recipients, and final beneficiaries of the funds.

Second, we provide a snapshot of the current state of climate finance to small-scale agriculture based on the latest data available representing international financial commitments in 2017 and 2018.

- After providing an analysis of current literature on financial needs and flows to small-scale agriculture, Section 2 examines the main barriers to financing the agricultural sector. The remainder of this report includes:

- Framework, definitions and typologies for tracking climate finance flows to small-scale agriculture (Section 3); and
- Analysis of our findings on the climate finance flows channeled to small-scale agriculture in 2017 and 2018 based on CPI's data compiled for the Global Landscape of Climate Finance 2019 (Section 4). We also discuss the existing data gaps. Following the analysis, we provide conclusions and recommendations in Section 5 targeted at public and private sector actors on the way forward to increase climate finance commitments towards small-scale agriculture climate finance and to better capture data the relevant data on these flows.

## 1.1 OVERVIEW OF CURRENT FINANCIAL NEEDS IN SMALL-SCALE AGRICULTURE

There is no appraisal of the exact level of climate finance needed for small-scale agriculture. Nevertheless, various estimates of the general needs in this sector are in the order of hundreds of billions annually and can be used as an indication of the magnitude of the climate investments required.

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**The overall financial needs of small-scale producers in developing countries are estimated at about USD 240 billion annually (Shakhovskoy et al, 2019), providing an indication of the magnitude of the climate investments required in small-scale agriculture.**

Out of this amount, 270 million smallholders across different regions<sup>2</sup> require **USD 188 billion to cover their agricultural needs**, such as agricultural inputs or investments in mechanization and **USD 50 billion to cover non-agricultural household related expenses**, including healthcare, school fees, home improvements, live events. (Shakhovskoy et al, 2019). Importantly, these estimates may not take into account the climate-specific capital required.

The United Nations Food and Agriculture Organization estimated that a minimum of USD 105 billion is needed annually for global adaptation to climate change with a substantial part being needed in agriculture and food security (FAO, 2017). At the same time, annual investments between **USD 300 - 350 billion are required for the transition towards sustainable food systems and land use** while addressing climate change issues (The Food and Land Use Coalition, 2019). Although the latter figures take into consideration the needs for entire supply chains by 2030 in order to reach the Sustainable Development Goals and the Paris Agreement targets, they do not operate a split between small- and large-scale agriculture.

Agri-enterprises operating in small-scale agriculture require further financing to grow their businesses, invest in technology or transport to reach remote farmers. Although there is no global approximation of the agri-SMEs' funding demand, the example of Sub-Saharan Africa

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2 Including Latin America (11m), Sub-Saharan Africa (70m), and South and Southeast Asia (191m)

placed at USD 132 billion per year (Dalberg and KfW, 2018), gives an indication of the total size.

Independently of the perspective adopted and the exact financial estimations, all analyses concur that financial flows to small-scale agriculture are hampered by a number of barriers, some of them are typical to climate finance and some have been traditionally reported in the agricultural finance sector.

## 1.2 BARRIERS TO SMALL-SCALE AGRICULTURE FINANCE

Mapping out the most prevalent barriers to finance in small-scale agriculture (detailed list in Annex I) provides essential elements for the interpretation of the current flows of climate finance. This overview also feeds into the development of the framework used for the quantitative analysis, particularly in terms of actors involved.

At the national and international levels, political and technical barriers are predominant. Those that have primary relevance for agricultural development finance fall into the jurisdiction of national governments and range from poor contractual legislative frameworks and enforcement (relevant for contractual farming), to limited land tenure and underdeveloped transport infrastructure. A larger number of barriers at national and international level are primarily relevant for climate finance and limit the access of national governments to international sources of finance, including:

- The limited technical capacity of national governments to ensure compliance with international climate funds' procedures and standards
- National governments' capacity to develop climate adaptation and mitigation programs
- The low absorptive capacity of the public financial systems
- The lengthy financing approval and disbursement processes of international climate finance funders
- The lack of coordination between ministries and institutions to define coherent national climate policies

At the subnational level, a vast majority of the barriers identified are of commercial nature:

Financial markets are not providing services adapted to farmers' needs, as financial providers have low financial returns due to the high transaction costs associated with small-scale customers being geographically dispersed

As the agriculture sector is seen as risky, especially in the context of additional risks induced by climate change, there is limited capital available for rural clients involved in small-scale agriculture

- The low investment readiness of agri-businesses
- The difficulty to aggregate such assets to make them attractive to large scale investors
- The limited access to risk mitigation instruments such as insurance and guarantees

- At the farmer level, climate finance needs to be associated with technical assistance in order to address the risks of transitioning to new climate-friendly practices.

## 2. TRACKING CLIMATE FINANCE FOR SMALL-SCALE AGRICULTURE: METHODOLOGY

Through the review of literature focused on agricultural development finance and climate finance (detailed literature review is included in Annex II), we develop a framework to track climate finance to small-scale agriculture by identifying:

- The most relevant actors involved in climate finance for small-scale agriculture
- The climate mitigation and adaptation activities involving small-scale agriculture actors (also explained in section 2.2.3)
- Estimates of financial needs and finance flows directed to small-scale agriculture (a summary is provided in section 1.1 Background)
- Additional sources of data to complement the datasets used for CPI's Global Landscape of Climate Finance.

### 2.1 DEFINITIONS AND FRAMEWORK

We propose the framework in Figure 1 as a tool to map climate finance to small-scale agriculture. This is built on CPI's methodology for the Global Landscape of Climate Finance (Buchner et al, 2019)<sup>3</sup> with additional elements (in green) that are specific to small-scale agriculture in emerging markets. We acknowledge that this is a theoretical tool, hence some of the fields proposed are subject to data gaps.

Overall, the suggested approach focuses on tracking primary finance flows directed toward low-greenhouse gas (GHG) and climate-resilient activities in small-scale agriculture with direct or indirect GHG mitigation or adaptation benefits (Buchner et al, 2019). The data collection primarily focuses on deep dive of climate finance under agriculture, land use, and forestry sector. In addition, to cover the maximum of activities identified, the amount tracked for small-scale agriculture also includes commitments tagged for other sectors like renewable energy, energy efficiency, water and wastewater management, and sustainable transport that were found to benefit small-scale agriculture actors as final beneficiaries.

The framework suggests tracking finance flows from sources and intermediaries to types of financial instruments, regional destination, types of activities, recipients, and beneficiaries.

<sup>3</sup> For the full Global Landscape of Climate Finance methodology, please visit <https://www.climatepolicyinitiative.org/publication/global-landscape-of-climate-finance-2019/>

The climate finance analysis uses data collected under the Global Landscape of Climate Finance 2019 (Buchner et al, 2019). The study draws information from a range of sources, such as the Organization of Economic Co-operation and Development’s Development Assistance Committee (OECD-DAC), Bloomberg New Energy Finance (BNEF), Climate Bonds Initiative, Convergence Blended Finance, Climate Funds Update, International Energy Agency (IEA), IJ Global, and biannual surveys of multilateral development banks (MDBs), and development finance institutions (DFIs) conducted by CPI.

The figures reported in the current study represent financial commitments made in 2017 and 2018, as stipulated by financing contracts or Board decisions and they do not account for the time needed for the completion of the disbursement. This methodological approach is determined by data availability, and consistent data on disbursements by various actors are often lacking. CPI uses project level information which allow to determine whether the projects are relevant for small-scale agriculture (as opposed to large scale agriculture), determine the type of activity, recipients, and final beneficiaries of the funds. In case of

Source	Instrument	Destination**	Use	Type of Activity	First Recipient	Final Beneficiaries*
Public: Governments	Grants	Sub-Saharan Africa	Adaptation	Improve production	Government	Small-scale producers
Public: NDBs	Low-cost debt	East Asia Pacific	Dual use	Capacity building	Formal financial institutions	Rural communities
Public: Multilateral/bilateral DFIs	Debt	South Asia	Mitigation	Improve infrastructure	Informal financial providers	Cooperatives
Public: International climate funds	Subsidies	MENA		Improve supply chains	NGOs	Value chain actors
Private: Philanthropies	Equity	Latin America and Caribbean		Policy support	Research institutions	
Private: Private finance institutions	Risk instruments	Central Asia & Eastern Europe		Wellbeing rural communities	Non-financial institutions	
Private: Corporates		Transregional		Research & development	Final beneficiaries	
Private: Rural households and individuals						

- Public
- Private
- Specific to small-scale agriculture (not tracked for other sectors in the Global Landscape of Climate Finance)

\*Detailed breakdown of geographical classification is outlined in Annex 4

\*Final beneficiaries:

- Small-scale producers include farmers and their households
- Rural communities
- Cooperatives includes farmer cooperatives, associations or organizations
- Value chain actors includes micro-entrepreneurs and formalized registered businesses providing inputs and services to farmers or other actors in the value chains

insufficient details, CPI takes a conservative approach to avoid over-reporting of climate

finance. To avoid double counting, the data is consolidated by selecting only transactions from the most reliable sources.

**Figure 1:** Framework to track small-scale agriculture climate finance

## 2.1.1 SOURCES CATEGORIES

The Global Landscape of Climate Finance reflects financing originating from governments, national development banks, multilateral and bilateral development banks, international climate funds, philanthropies, private finance institutions and corporates. For small-scale agriculture, we added a new category of sources: Rural households and individuals. It represents the investments made from producers' own funds, which can originate from income as well as received remittances and is related to the expected increasing importance of savings for rural financial markets (Shakhovskoy et al, 2019). Savings can subsequently act as an essential climate risk mitigation tool, providing rural households with a safety net in case of climate shocks.

## 2.1.2 INSTRUMENTS

While tracking grants, low cost debt, debt, and equity investments (both project level investment and investments at entity level, i.e. balance sheet debt and equity), CPI's Global Landscape of Climate Finance excludes finance provided through risk instruments (such as insurances and guarantees) as well as through subsidies in order to avoid double counting and over-estimation of investment costs (CPI (b), 2019). However, for the purpose of the current study, both types of instruments are included in the theoretical framework because they are important tools that help overcome barriers to financing and can contribute to improving the resilience of small-scale actors to climate change and incentivize the adoption of climate-smart practices.

## 2.1.3 ACTIVITIES

To define the general scope of the sectors and activities considered, we used a broad approach which relied on the definition of food and land use systems utilized by The Food and Land Use Coalition (2019). Thus, the detailed list of sectors and activities included in Annex I aims to cover the entire supply chains, from aspects related to land use and management of aquatic systems or other natural resources to post-production storage, processing, distribution and consumption. While majority of activities might relate to food production, activities related to non-food purposes are also included, particularly represented by forestry and bioenergy.

The specific use of this definition in the context of small-scale agriculture acknowledges the involvement of small-scale producers, communities, and value chain actors in all agricultural activities as well as those related to forestry, biosphere conservation, and restoration, biofuels, aquaculture, and other land uses.

For each activity listed in Annex I, we identified key words that were used in the analysis of quantitative data.

The list of activities for mitigation attempted to be as exhaustive as possible by compiling elements from various sources<sup>4</sup>.

Given the context and location-specific character of adaptation projects, the list of sectors for adaptation uses is based on examples of activities encountered in various publications. We have attempted to collect as many such examples as possible, but the list is by no means an exhaustive one.

In order to further map the use of funds, we created clusters of activities, based on the type of actors and segments of the value chain impacted. Each type of activity that resulted is briefly exemplified in Table 1. The colors used also serve as tags for each individual mitigation and adaptation activity listed in Annex I.

**Table 1:** Types of activities in climate finance for small-scale agriculture

TYPES OF ACTIVITIES	EXAMPLES OF ACTIVITIES <sup>5</sup> :
Low GHG emission and climate resilient infrastructure	Capital investment in low GHG and climate resilient infrastructure at farm level for agricultural production, as well as infrastructure necessary for post-production storage, transport and processing of agricultural products. In line with our definition of beneficiaries, this category of investments also includes general infrastructure that benefits rural communities. The projects receiving this tag were funding predominantly infrastructure, construction, or rehabilitation. Some examples include infrastructure for renewable energy generation and access, efficient water irrigation systems for regions affected by water scarcity, rehabilitation, and protection of climate-exposed roads and farm buildings, low GHG transport for rural populations, and agricultural produce.
Improved agricultural production	Financial investments at farm level with the objective to adapt agricultural production to climate change stresses and shocks and to reduce GHG emissions. The projects receiving this tag use a holistic approach focused on agricultural production targeting to similar extent machinery, infrastructure as well as practices, seeds and fertilizers. Examples include supply drought resistant seeds, organic fertilizers and technologies, adoption of climate-smart practices (such as agroforestry), working capital for staff, etc.
Improved supply chains	Financial investment to improve supply chain from farm gate to fork: agri-SMEs, produce off-takers, aggregation and distribution channels, promotion of sustainably sourced food consumption, reduction of food waste.
Capacity building	Training, advisory services, awareness raising for all actors involved in value chains, for public entities and consumers

<sup>4</sup> Buchner et al, 2019; AfDB et al, 2017; AfDB et al, 2018; EU Technical Expert Group on Sustainable Finance, 2020 ; IFAD, 2019; Climate Bonds Initiative, 2020; Fan & Rue, 2020; Cardoso & Zook, 2016; The Food and Land Use Coalition (2019)

<sup>5</sup> Examples listed here are not exhaustive, provided only for illustration purposes

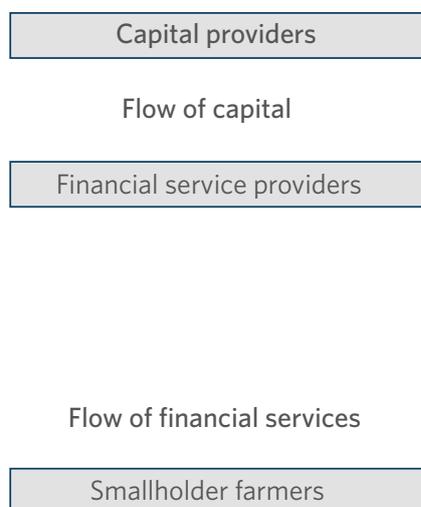
<b>Research and development</b>	R&D projects on to develop efficient and scalable solutions for sustainable and climate resilient farming practices and enhanced climate information data (crop diversity, climate services etc)
<b>Technical assistance to policy makers</b>	This includes technical assistance, capacity building and knowledge sharing activities to national and local government stakeholders
<b>Wellbeing/livelihoods of rural communities</b>	Broader range of activities aimed at improving livelihood of rural population (including vulnerable groups such as women, youth and indigenous population), thereby building their broader resilience to the impacts of climate change. Some examples include development of alternative livelihoods, improved access to climate information systems and risk management, improved nutrition and food security for poor rural communities.
<b>Improved access to finance</b>	Investments channeled through funds, risk sharing facilities, insurance, guarantee mechanisms, and financial institutions to stimulate the access of small-scale producers and micro, small and medium enterprises to credit or equity for increased resilience to climate change and mitigation activities.

## 2.1.4 SMALL-SCALE AGRICULTURE ACTORS: RECIPIENTS AND BENEFICIARIES

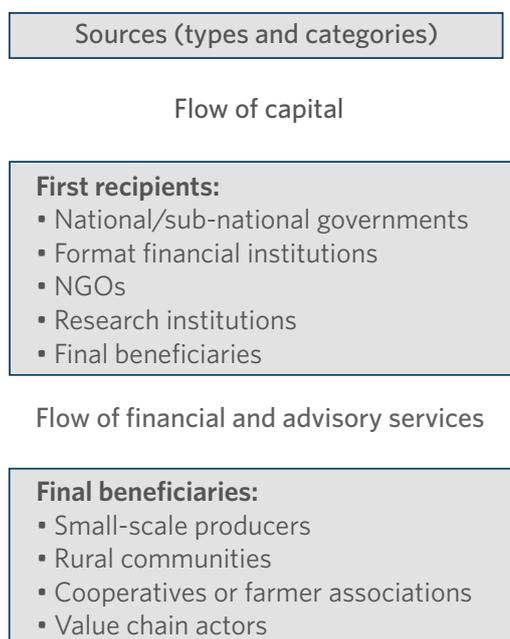
Our analysis adopted a value chain lens in mapping out the complex ecosystem of actors involved in small-scale agriculture, which is in line with recent trends observed in agricultural finance publications. In mapping out the distribution of climate finance flows downstream from sources, we defined two layers of actors, relying on the definitions proposed by The Joint MDBs report on Climate Finance (2020).

- The first recipients or borrowers are those actors directly targeted by the finance flows
- The final beneficiaries are those actors who indirectly and ultimately benefit from the finance.

### Smallholder finance industry model\*



### Climate finance to small-scale agriculture



\*2016, Dalberg, ISF - Inflection point

We note that in many instances the first recipients are also the final beneficiary of the funds, i.e., funds might be directly disbursed to their final beneficiaries. Therefore, the category of “First” recipients includes also the “Final” beneficiaries.

The smallholder finance industry model proposed by Dalberg and ISF (2016) was adapted to build the framework defining the flow of climate finance between different types of actors.

**Figure 2:** Framework to track climate finance flows between types of actors

## 2.1.5 FINAL BENEFICIARIES

The categorization in this section aims to reflect the diverse range of approaches that various funders and donors might have applied to describe and implement their projects while also taking into account the complex dynamics present in rural economies.

**Farmers or producers**, whether in possession of land property titles or not, and whether working their own land or providing labor to other farms, are placed at the center of the small-scale agriculture eco-system. Given pervasive issues in land tenure in many of the countries targeted by this study, we made the deliberate choice to eliminate the use of the term “smallholder” in order to acknowledge farmers or producers that do not hold property rights (2020, IFAD interviews).

Furthermore, there is a shift towards no longer considering producers at the individual level, but rather at the household level. Part of the reason is the recognition of the fact that livelihood strategies in small-scale farming communities are decided at the household level, and farming might be one of several economic activities performed by the respective household (Shakhovskoy et al, 2019). Additionally, one of the defining characteristics of small-scale farming is the reliance on family or household labor or reciprocal exchange of workforce with other members of the community (Rainforest Alliance, 2018).

**Rural communities.** Interviews with international corporate actors working in the agri-food industry (2020) confirmed that any funding for Corporate Social Responsibility (CSR) interventions down their supply chains, be they in the form of technical assistance or cash, are generally dedicated to community level projects without separation between social (human rights, child labor, gender, food security, prosperity, etc.) and environmental impacts (climate, deforestation, soil and water management, etc.).

In order to reflect these nuances while at the same time being inclusive of data that might apply the individual farmer lens, our analysis uses one tag for projects targeting small-scale producers (including projects referring to “smallholder farmers” as well as those referring to “smallholder households”) and a separate tag for rural communities (including those projects targeting general wellbeing of rural communities).

Equally important is the recognition that agricultural production is intrinsically linked to a cohort of rural services that are provided by various small and medium enterprises (SMEs), such as farmer associations, cooperatives and other private businesses. These rural enterprises not only support small-scale farmers in the agricultural production by supplying inputs, credit, training, storage facilities, transportation, offtake, aggregation and processing of produce (access to markets), but they also create employment opportunities for the rural communities (Shakhovskoy et al, 2019; CSAF, 2019). Agricultural SMEs are therefore

recognized to have importance in building rural prosperity as well as climate resilience (Shakhovskoy et al, 2019). In the same spirit of mirroring the reality on the ground while ensuring categorization of all data available, we opted to separate **farmer organizations (such as cooperatives or associations)** from other types of rural enterprises.

The latter category, named “**value chain actors**,” groups both micro-entrepreneurs as well as formalized registered businesses that operate within value chains to provide agricultural inputs and financial services (such as working capital) to other actors or product aggregation and processing (MIX & One Acre Fund (2018b), Goldman et al (2016).

Based on the above considerations, and the granularity of our quantitative data, we used the following main categories of final beneficiaries to filter our data:

- **Small-scale producers** (including farmers and their households)
- **Rural communities**
- **Cooperatives or farmer associations/organizations**
- **Value chain actors**

## 2.1.6 FIRST RECIPIENTS

Based on literature review, we determined the main categories of actors that are involved in financial and advisory services provision in the agricultural development finance generally. Given existing evidence for some of them or given their potential, we suggest that these types of entities can also play the role of first recipients for climate finance directed at small-scale agriculture. We attempted to build an extensive list of all such actors, which is included in Table 2.

The methodology we propose filters only the projects/investments that ultimately benefit final beneficiaries as defined above, i.e., small-scale producers, rural communities, cooperatives, and value chain actors. Therefore, the disaggregation of funds by first recipient can provide insights into the way climate financial flows for small-scale agriculture move, whether they are directly reaching the final beneficiaries or indirectly, through other first recipients.

**Table 2:** Categories of first recipients

FIRST RECIPIENTS	DESCRIPTION / FUNCTIONS
<b>National and sub-national governments</b>	Provide subsidies for inputs, insurance, interest rates, as well as concessional debt, grants, and extension services.
<b>Regulated or Formal financial institutions</b>  <b>(also referred to as Formal financial service providers “FSPs”)</b>	State banks (predominant in Asia, limited presence in Africa) that provide savings accounts and short-term lending.  Commercial banks provide larger loans requiring collaterals; therefore, they primarily serve small-holders in tight value chains, via input providers or buyers with whom they have arrangements.  MFIs provide non-agricultural group lending and savings and short-term agriculture lending.  Social lenders - impact driven lenders and funds such as Root Capital, Oikocredit, and Triodos. They provide finance to farmer organizations having off-take contracts with buyers.  Non-bank financial institutions, include social lenders and local finance companies specializing in agri-SMEs that are not served by the market.

<b>Un-regulated or informal and community-based finance service providers (FSPs)</b>	Provide credit and rotating savings, including loan associations, village savings, and loans associations and local money lenders. These provide flexible finance options for rural households, with however high interest rates
<b>NGOs</b>	Serve non-commercial farmers by providing training, credit and sometimes insurance. Preponderant in Africa, some expansion in South East Asia.
<b>Research institutions</b>	Are funded to conduct research on climate-smart/climate friendly seeds, technologies, and practices.
<b>Non-financial institutions</b>	<p>Including mobile network operators that provide mobile money accounts. They sometimes work in partnership with governments to deliver subsidies to farmers and are progressively looking for ways to offer mobile savings, insurance, and credit products. At the moment they do not seem active in the climate finance flows, but they might acquire such function in the future.</p> <p>Agricultural commodity traders and buyers may in the future serve as channels for finance from public international actors towards small-scale farmers and value chain actors active in their supply chains.</p>

**Sources:** *MIX & One Acre Fund (2018a), USAID & CSAF (2018), Goldman et al (2016), Shakhovskoy et al (2019), Swiss Re Foundation & ISF (2020), interviews (2020)*

## 3. TRACKED CLIMATE FINANCE TO SMALL-SCALE AGRICULTURE

Based on the analysis of data conducted for the Global Landscape of Climate Finance 2019 and following the proposed approach in Section 2, this section presents a summary of findings on the tracked climate finance commitments for small-scale agriculture in 2017 and 2018 in developing countries. Here we also discuss data gaps from public domestic finance and private sector funding. The findings are presented as an average between the two years for 2017 and 2018 to smooth fluctuations between individual years.

### 3.1 INTERNATIONAL PUBLIC CLIMATE FINANCE FLOWS TO SMALL-SCALE AGRICULTURE

#### 3.1.1 HEADLINE FINDINGS

**Tracked climate finance flows to small-scale agriculture developing countries amounted to an annual average of USD 10 billion in 2017/2018. This represents approximately 1.7% of total climate finance tracked in the same period and is disproportionately low in an economic context.**

Climate finance for agriculture, forestry, and land use cumulatively received an average of USD 20 billion per year in 2017/2018, which is equivalent to 3% of the total global climate finance for the period. While full comparison with other sectors is difficult due to data gaps specific to agriculture, it is worth noting that, for instance, climate finance targeting energy efficiency and renewable energy generation averaged USD 370 billion per year for the same period (equivalent to 64% of the total), while low-GHG transport received an average of USD 140 billion (or 24% of the total climate finance tracked). At the global scale, agriculture, forestry, and other land use are responsible for nearly a quarter of greenhouse gas emissions (IPCC, 2014), further showing that climate finance targeting these sectors is underserving the needs.

Out of the total climate finance tracked, a total of USD 10 billion was channeled to bring benefits to small-scale agriculture actors (Figure 3), which is equivalent to only 1.7% of the total climate finance tracked. The majority of commitments, USD 8.1, billion consists of projects developed in the agricultural sector, forestry, land use, and other natural resource management.

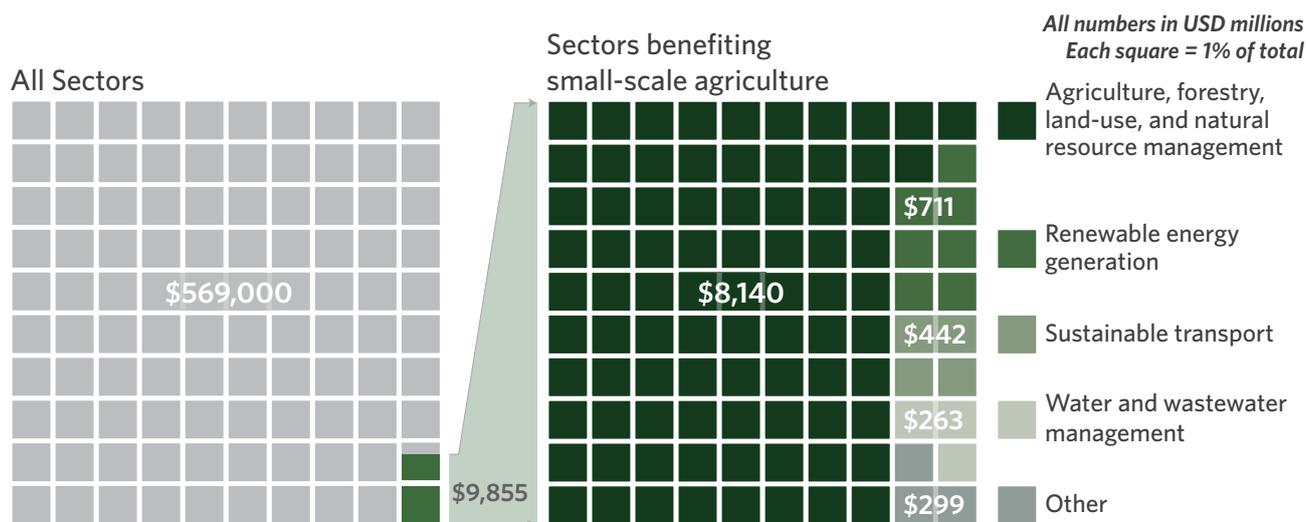
This represents approximately 40% of the total climate finance tracked for the agricultural sector (including small-scale, large scale agriculture and others) for the same period.

It shows that majority of the public international flows directed towards these sectors target

either large scale agriculture or forestry initiatives or they fund general natural resource management projects without specific focus on small-scale actors<sup>6</sup>. The remaining USD 1.7 billion that are shown to benefit small-scale agriculture actors represent commitments towards other sectors, such as renewable energy, sustainable transport, and water management that also benefit small-scale agriculture actors (Figure 3).

This amount falls short on multiple accounts. USD 10 billion covers only a small fraction of the estimated USD 105 billion investments that are required for adaptation to climate change, of which a majority is needed for agriculture and food security (FAO, 2017). Additionally, financial needs of small-scale farmers that are estimated globally at USD 238 billion annually without counting the funding requirements of agri-enterprises, appraised in the order of hundreds of billions per year. Also, placed in a macroeconomic context, the commitments towards small-scale agriculture appear disproportionately low. The average contribution of the agricultural, forestry, and fishery sectors combined to the GDP in the regions covered by our study is approximately 10%, with 16% in South Asia, and 15% in Sub-Saharan Africa (World Bank) regions which record the highest prevalence of small and medium-size farms in the world.

**Figure 3:** Share of annual climate finance in small-scale agriculture relative to other climate finance 2017/2018 rounded in USD million



Source: CPI analysis based on Global Landscape of Climate Finance 2019

## 3.2 CLIMATE FINANCE FLOW TO SMALL-SCALE AGRICULTURE

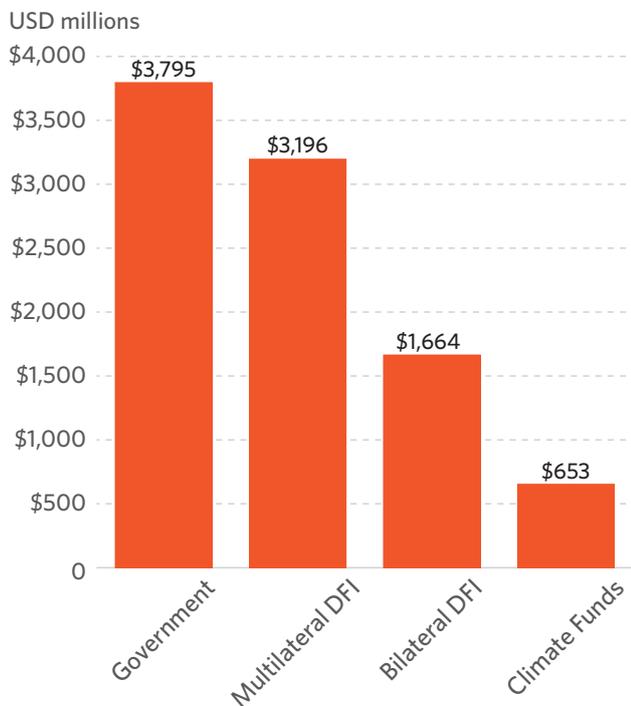
### 3.2.1 SOURCES AND FINANCIAL INSTRUMENTS

Almost all of the tracked climate finance (95%) in small-scale agriculture were provided by the public sector. The remaining amounts are tracked from the private sector; however, the

<sup>6</sup> The selection of financial flows included in small-scale agriculture is based on individual descriptions of the projects and their definition or target beneficiaries. Our methodology filters only the projects/investments that indicate as beneficiaries small-scale producers, rural communities, cooperatives and value chain actors, i.e. final beneficiaries as defined in Section 2.1.5.

majority of private sector climate finance is untracked due to data limitations (discussed in Section 3.3).

**Figure 4:** Annual commitment by public sector, in USD million



**Note:** Flows represent public international climate finance commitments to developing countries

**Source:** CPI analysis

were provided by government donors while low-cost project debt was primarily issued by multilateral and bilateral development finance institutions. In addition to low cost debt, multilateral development banks also provided most of the project level non-concessional debt (or market rate debt), although such loans tend to have favorable conditions compared to market terms (OECD, 2018). Public actors also invested project level equity and balance sheet financing invested in funds aimed at small-scale agriculture. Impact oriented funds, such as &Green, Meloy Fund, and Land Degradation Neutrality<sup>7</sup>, for example, are channelling climate finance solutions to small-scale agriculture through blending resources from public and private sectors.

Such prevalence of grants is to be expected as financial access in the agricultural sector in developing countries is still limited compared to other sectors. Small-scale producers encounter major barriers to access loans due to lack of collaterals and limited land tenure rights. In addition, grants for capacity building allow to bridge the knowledge gap for the

Tracked climate finance to small-scale agriculture is largely driven by government donors, multilateral development finance institutions, and bilateral development financial institutions each contributing 39%, 32%, and 16% respectively (Figure 4). It should be also noted that 95% of commitments recorded for small-scale agriculture represent international flows.

**Half of the climate finance directed towards small-scale agriculture comes from grants as financial instruments, while one third of it is channeled through concessional debt (33%). Both instruments have the potential to tackle some of the main barriers to finance.**

Grants are the predominant financial instrument used for small-scale agriculture climate finance, providing 50% of finance committed, followed by concessional (low cost) debt (33%), and non-concessional debt (16%). Eighty percent of the grants

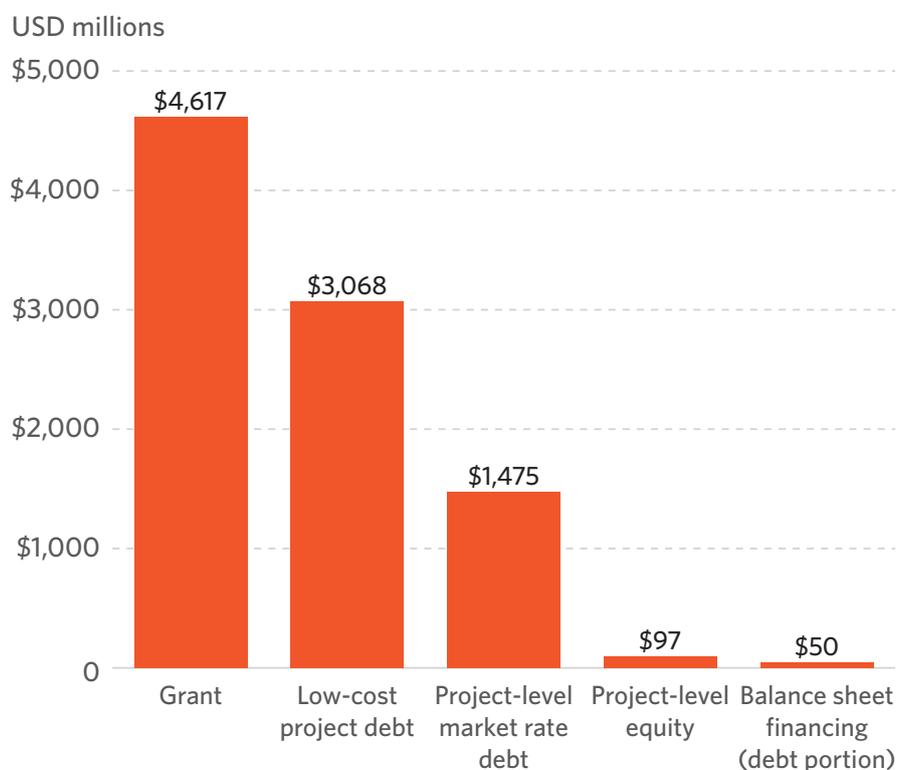
<sup>7</sup> &Green: <https://www.andgreen.fund/#the-fund>

Meloy Fund: <https://www.meloyfund.com/about>

Land Degradation Neutrality Fund: <https://www.unccd.int/actions/impact-investment-fund-land-degradation-neutrality>

adoption of climate smart agricultural practices by small-scale producers and can contribute as a de-risking or first-loss tranches to blended finance instruments to catalyze private investments, as illustrated by the financial instruments endorsed by the Global Innovation

**Figure 5:** Annual commitment by instruments used by the public sector, in USD million



Source: CPI analysis

Lab for Climate Finance.

Our analysis also captured private sector financing by corporates and commercial financial institutions in the amount of USD 539 million per year. These amounts were mostly directed to finance climate resilient infrastructure projects, such as solar photovoltaic or wind farm projects to alleviate poverty in rural areas, therefore improving general wellbeing of communities. For example, since 2013, China has deployed a large-scale initiative to boost solar photovoltaic (PV) projects to alleviate poverty in rural areas which resulted in 7% to 8% per capita increase in disposable income (Zhang et. al, 2020). Some commercial finance institutions also provided microcredits for rural population and smallholder farmers to adopt climate smart agricultural practices.

### 3.2.2 CLIMATE FINANCE USE AND ACTIVITIES

Nearly half of the tracked small-scale agriculture climate finance was directed at climate adaptation projects (49%) followed by projects tackling dual objective, i.e. both mitigation and adaptation. An example of a dual objective project is agroforestry, a land management system tackling mitigation by removing GHG through carbon storage above and below ground. It also improves climate adaptation in multiple forms such as by reducing air pollution and creating resilient microclimate for crops and livestock (Agroforestry Network,

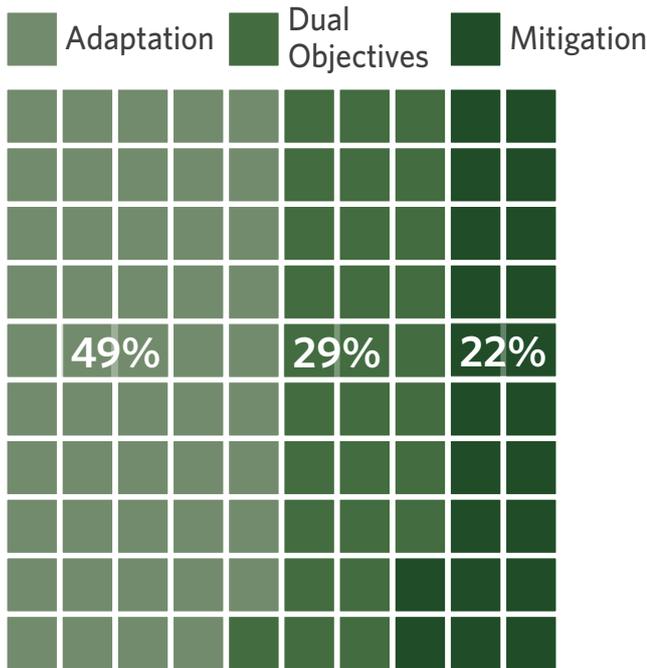
2020). Twenty-one percent, or USD 2.1 billion, was exclusively directed towards mitigation activities.

**With nearly 50% of projects targeting adaptation activities, climate finance for small-scale agriculture has a more balanced distribution between**

**adaptation and mitigation in comparison with total climate finance. This reflects the increased vulnerability of small-scale producers and rural poor to climate change impacts.**

Figure 6: Use of climate finance

Annual Financial Commitments by Use



The relatively balanced split between adaptation and mitigation in the small-scale agriculture financial flows is notable, especially in the context of the total climate finance. Ninety-three percent of the total climate funds tracked are targeting mitigation activities, with renewable energy generation being the leading sector (at 63% of mitigation finance) (Buchner et al, 2019).

The allocation of majority of small-scale agriculture climate funds to adaptation is also aligned with the increased vulnerability that actors operating in this sector are confronted with. Increased

temperatures, rainfall variability, and extreme weather events have direct effects on agricultural productivity, incomes, and food security in rural communities in Africa, Asia, and Latin America (FAO, 2016).

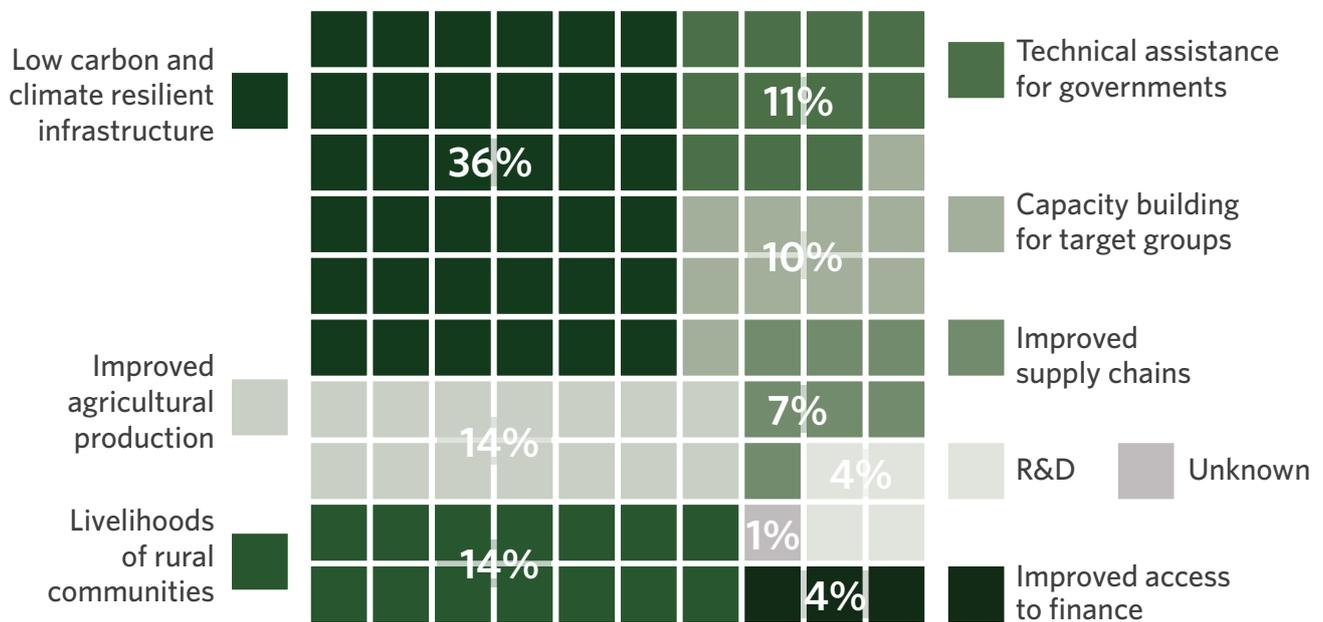
**Over one third of climate finance targeting small-scale agriculture represents investments in infrastructure, thus helping to address one of the major barriers for financial access in the agricultural sector in developing countries.**

In terms of activities, **36% of climate finance for small-scale agriculture was used towards building low GHG and climate resilient infrastructure**, such as building irrigation systems in drought affected regions or protection of climate-exposed farm buildings (Figure 7). The lack of and poor state of transport infrastructure is indeed a major barrier for finance to agriculture. It limits farmers’ access to markets and services, and it increases transaction costs for financial service providers in rural areas, thus deterring them from working with remote small-scale producers and entrepreneurs.

To a lower extent, improving the livelihoods of rural communities vulnerable to adverse climate change events was also a priority area for funders, receiving a 14% share, the same level as improving agricultural production.

Capacity building for all actors involved in value chains includes transfer of knowledge and awareness raising for farmers, agri-businesses, public entities, and consumers on sustainable agricultural practices and food consumption. Capacity building together with technical assistance to governmental institutions received 21% of the small-scale agriculture climate finance. These types of activities have the potential to tackle many of the technical and political barriers identified, therefore funding towards them needs to be raised in order to achieve transformational impacts. Development and proper enforcement of legislation guaranteeing land property rights and contractual regulations, improving the absorptive capacity of public financial systems, as well as the development of strong climate programs are only some of the aspects requiring additional efforts.

Four percent of funding was channeled through domestic financial institutions as intermediaries to facilitate credit lines and improved access to finance for small-scale producers and value chain actors. In light of the high number of commercial barriers linked to



supply of financial services by local markets, further funding to financial institutions bundled with capacity building has the potential to produce transformative and scalable results.

Figure 7: Activities

### 3.2.3 RECIPIENTS

We present the best estimates of funding split between recipients with the caveat however that in general projects target several types of recipients/beneficiaries, therefore an exact allocation of funds per beneficiary is difficult.

The largest proportion of funds, 41%, was channeled through projects targeting rural communities in general. This seems to be aligned with the fact that many projects might adopt a holistic approach to rural development whereby they target general wellbeing of rural communities, that includes economic as well as social and environmental aspects. These projects potentially include activities such as climate resilient infrastructure (receiving 35%

of climate financing) or improved livelihoods of rural communities (receiving 14%) (as per Section 3.2.1).

Finance benefitting individual small-scale producers (16%) and cooperatives, or farmer associations (15%) combined, constitute another large share of 31%. It indicates the strong focus of climate finance on agricultural production at farm level, which should address the knowledge barriers limiting the adoption by farmers of climate-smart agricultural practices.

Only 7% of the funds were found to target the value chain actors, including agri-enterprises and SMEs and even less (3%) was directed towards formal financial institutions. In contrast, many of the barriers identified are of commercial nature: insufficient level of development of agribusinesses which is making it difficult for them to attract investments, the low financial returns of financial service providers discouraging them to engage with small-scale producers, the investments risks due to information gaps. This seems to suggest that climate finance to agricultural value chains is insufficiently benefitting businesses and financial institutions which are essential for small-scale producers to improve yields, access markets and finance.

### 3.2.4 GEOGRAPHIC DESTINATION OF FINANCE

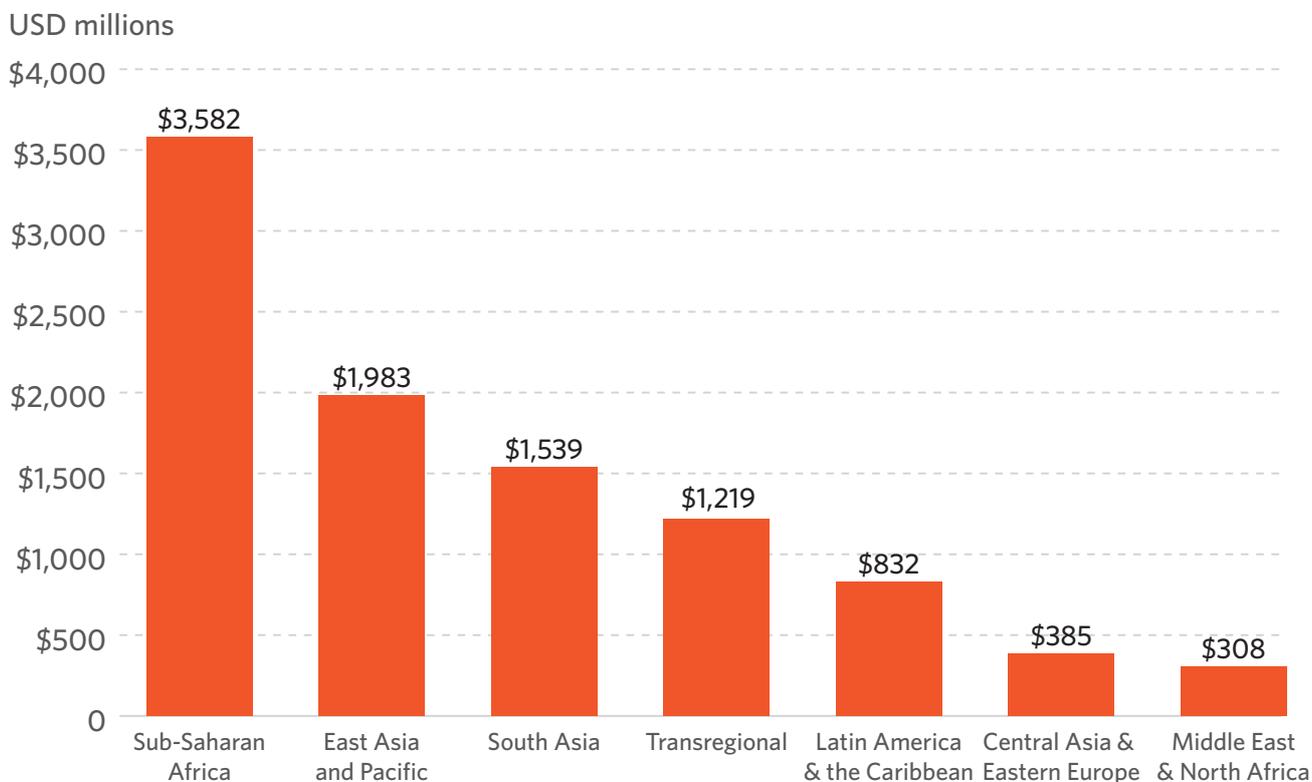
**Sub-Saharan Africa, East Asia and Pacific, and South Asia were the largest recipients of climate finance for small-scale producers in 2017/2018. This is aligned with the prevalence of small-scale producers in these regions (Lowder et al, 2016). In Sub-Saharan Africa, for example, small-scale farmers constitute 60% of the population.**

However, we note that the vast majority of funds tracked by our study represent grants originating from public sources and that finance from private entities might show a different picture. For instance, over 50% of the loan portfolios reported by the financial institutions members of the Council on Smallholder Agricultural Finance (CSAF)<sup>8</sup> are targeting small and medium agricultural enterprises in Central and South America. Only one third of their disbursements were made towards Sub-Saharan Africa enterprises and only 12% to South and East Asia ones (CSAF, 2019). Although some of these finance institutions pursue both social and environmental impacts, their lending data is not disaggregated to indicate finance supporting climate adaptation or mitigation. Ninety-one percent of all tracked projects in Sub-Saharan Africa were directed for adaptation and multiple objectives. In terms of activities, approximately USD 1 billion was committed to improved agricultural production, and USD 1.3 billion targeted climate resilient infrastructure and livelihoods of rural communities annually. Technical assistance to policy makers constituted 10% of all tracked climate finance in the region.

In East Asia and Pacific, while adaptation projects were a majority (USD 830 million), equal weight was given to mitigation and multiple objective projects with each being invested USD 500 million annually. On the other hand, climate resilient infrastructure investment is most

<sup>8</sup> CSAF is an alliance of financial institutions serving small- and medium-sized agricultural enterprises (SMEs) in Africa, Asia, and Latin America including 12 members: Alterfin, Global Partnership, Incofin Investment Management, Oiko Credit, Rabo Rural Fund, responsAbility, Root Capital, Shared Interest, Triodos Investment Management, SME Impact Fund.

prevalent in the region, representing 73%, or USD 1.4 billion annual investment. Climate finance in South Asia also favored climate resilient infrastructure, channeling USD 905 million in the region.



In most regions, adaptation projects prevailed overall, with Middle East and North Africa particularly favoring adaptation projects (83%) over mitigation, with the least amount of mitigation projects (USD 91 million) recorded compared to other regions.

Approximately USD 1.2 billion was committed to transregional programs that aim to reach multiple countries through overarching goals.

**Figure 8:** Distribution of climate finance by region of destination

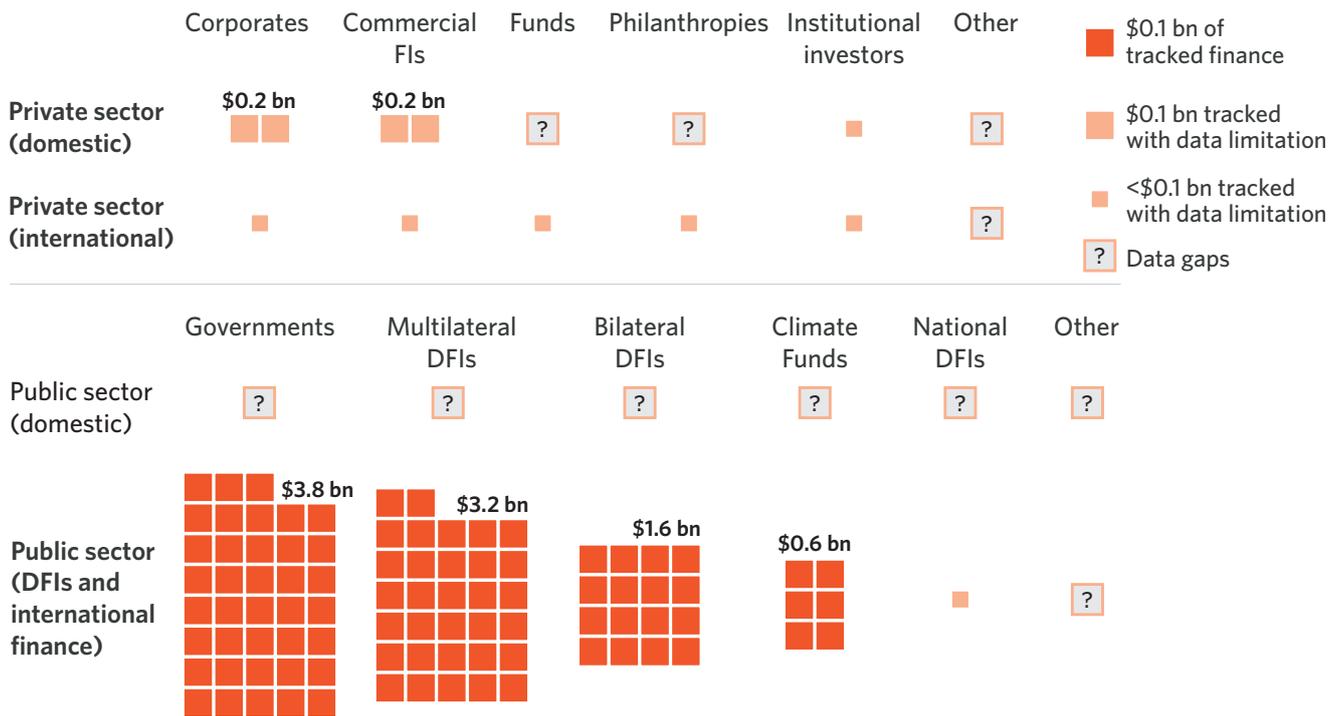
**Source:** CPI analysis Note: Figures included in the analysis generally represent flows from OECD countries to non-OECD countries as well as Chile and Mexico

### 3.3 DATA LIMITATIONS AND GAPS

Apart from data sources captured in the Global Landscape of Climate Finance, it is difficult to capture non-double counted and comparable information on small-scale agriculture climate finance with the same level of granularity as on other sectors. Although there are various data sources that may contain information on finance for small-scale agriculture, often such data is not standardized and/or does not distinguish the climate finance element from the overall data. As such, our analysis of tracked climate finance in Section 3.1 and 3.2. is based on the data captured under the Global Landscape of Climate Finance only.

In Figure 9 we summarize data limitations observed in our analysis.

**Figure 9:** Tracked climate finance and data gaps in small-scale agriculture 2017/2018



Source: CPI analysis

There are significant data gaps for international and domestic investment by private sector actors as well as public domestic finance. This is because there are no standardized ways to collect and report climate finance at the activity level by such actors, despite the essential role they can play in agricultural finance.

Domestic actors (public and private) are by far the highest investors in agriculture in low- and middle-income countries, overtaking both official development assistance and foreign direct investment, thus showing that domestic finance offers the greatest opportunity for greening financial flows to agriculture. Based on 2012 estimates, the majority of private domestic investments originated from farmers themselves (USD 168 billion per year), exceeding public investments by four times (USD 38 billion per year) (FAO, 2012; Lowder et al 2012). The lack of domestic level data, both public and private, prevents us from determining the scale of climate finance flows originating from farmer households and governments, which can be of considerable size.

Cases of international private sector contributions to climate related initiatives are in the order of millions. However, the number of such initiatives, the exact allocation by activities, and therefore a total figure is difficult to estimate. Such examples include Starbucks’ provision of USD 5 million in senior debt, vdk bank’s short-term credit facility of USD 5 million, and Lombard Odier’s B Class shares worth USD 3 million all for the Fairtrade Access Fund<sup>9</sup> in 2018 (Fairtrade Access Fund, 2018). Since this data does not have sufficient details to verify and allow us to tag amounts based on the framework we defined (climate use, type of activity, recipients, etc.), it is not included in the amounts analyzed in this report.

<sup>9</sup> The [Fairtrade Access Fund](#) operates in Latin America, The Caribbean and Africa. It provides lending to producer organizations and financial institutions working primarily with smallholder farms and that can demonstrate a high level of social and environmental performance. The fund provides investments and technical assistance to projects that support climate change adaptation and mitigation.

Even within the public sector, we have observed that data providers may classify the same projects differently. For example, a capacity building project for national and/or sub-national government bodies could be classified as a “General environment protection” project by one data source, whereas another project of a similar nature would be classified as “Environmental policy and administrative management.”

We reviewed additional data sources, as outlined in Annex 6, to explore opportunities for data sources outside the Global Landscape of Climate Finance. However, the majority of the data sources did not contain expected environmental, climate related impact or benefit to be reliably incorporated in our analysis.

Furthermore, current information coordination tools, such as OECD-DAC, do not specifically distinguish between small-scale agriculture or large-scale agriculture in the overall agriculture sector. This makes distinguishing and tracking of climate finance in small-scale agriculture especially challenging and reliant on keyword searches.

While we categorized the activities of projects to the best of our knowledge using project information sheets, some categorizations were difficult to make as there is no unified methodology on reporting climate finance for small-scale agriculture among data providers. For example, not all projects were explicit about the final beneficiaries of the project. As noted in our analysis, a majority of the projects are directed towards adaptation and multiple objectives which tend to have qualitative objectives such as improving adaptive capacity of rural households. This makes comparing of data more challenging than in other sectors (for example, renewable energy generation).

In terms of instruments, beyond credit, insurance and savings can also contribute to managing climate related risks and increase resilience by smoothing cashflow. However, due to data limitations and the specificity of our methodological approach this study is not tracking certain domestic finance, such as subsidies, insurances, guarantees or savings.

Based on our literature review, we note that the insurance needs of smallholder farmers in developing countries are estimated between USD 8-15 billion in premium value (equivalent to USD 60-80 billion in insured value coverage) (ISF & Syngenta Foundation, 2018). Despite technological progress and emergence of new models, insurance uptake remains low, particularly in Sub-Saharan Africa, where only 3% of smallholders have insurance coverage compared with 22% of South and South East Asian smallholder households and 33% of Latin American ones (Shakhovskoy, 2019). The former was driven by large government-subsidized programs, while the latter is due to more mature agricultural markets and history of social welfare programs.

In terms of savings, despite increases in recent years, the majority of the rural population still do not have savings (up to 81% in Latin America). It is interesting to note that Sub-Saharan Africa leads among the three regions, with most savings being realized with informal savings groups as opposed to formal financial institutions. Globally, informal or community-based finance providers provide an estimated USD 17 billion to smallholder households per year (Shakhovskoy, 2019).

Subsidies are instrumental for small-scale farmers to access a wide range of products and services that are essential for their agricultural activities. In addition to governmental subsidies driving the uptake of agricultural insurance in many developing countries, public support for agriculture can also be directed towards lowering the price to farmers for

climate-smart inputs (such as fertilizers or improved seeds), supporting both mitigation and adaptation to climate change. “Smart” subsidies can also be used to support service providers to small-scale producers that, while delivering social and environmental impacts, have sub-commercial profitability profiles in the long term or are highly innovative and require funding to start off (Shakhovskoy et al. 2019).

In the absence of specific data on governmental climate-related subsidies, the scale of general public support to the agricultural sector gives an indication of the potential for this support to target climate mitigation or adaptation. For instance, China’s level of public support to agriculture was USD 255 billion in average for 2014-2016, including direct subsidies for farming of USD 100 billion per year in average for the same period. However, for the period 2008-2020, only USD 7 billion was directed towards agricultural conservation, which has climate mitigation potential (Searchinger et al, 2020). India’s governmental support for agriculture was estimated in early 2010s at USD 85 billion per year, out of which only around USD 3 billion directed to soil, water conservation, forestry, and wildlife (Mustard, 2014). Across ten countries<sup>10</sup> in Sub-Saharan Africa, public expenditure on agriculture amounted to USD 4,4 billion in 2014, with input subsidies representing the largest proportion (Jayne et al., 2018).

Regarding final beneficiaries, data available, particularly the level of detail regarding direct and indirect beneficiaries of the projects analyzed, was not granular enough to allow at this stage disaggregating the results between the two layers of actors identified in our framework, (1) first recipients and (2) final beneficiaries. Hence, our analysis tagged the different projects according to the list of first recipients (Table 2), which is more comprehensive since it includes all the final beneficiaries as well. However, the framework can be used for future studies based on more disaggregated datasets.

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10 Mali, Burkina Faso, Ghana, Senegal, Nigeria, Kenya, Malawi, Tanzania, Zambia, Ethiopia

## 4. CONCLUSIONS AND RECOMMENDATION

Climate finance can play an instrumental role in increasing prosperity and climate resilience for the world's most vulnerable populations, including many small-scale farmers, rural entrepreneurs and their communities. It also provides an opportunity to reduce GHG intensity through improved agricultural practices, sustainable natural resource management and more sustainable supply chains.

This first effort to estimate climate finance for small-scale agriculture found that the USD 10 billion financial commitments in 2017/2018 are only a small fraction (1.7%) of global climate finance flows, despite the central role small-scale farmers play in agriculture-dependent economies in Africa and Asia. Similarly, small-scale agriculture receives a lower share (approximately 40%) of the climate finance flowing to agriculture, forestry, and land use overall, thus suggesting that majority of the financial support is being directed towards general land-use, forestry, and natural resource management projects without specific focus on small-scale actors. In light of the increasing vulnerability to climate change that small-scale farmers, rural agri-businesses and communities are experiencing, a higher proportion of the finance directed towards filling the financial needs gap of small-scale agriculture has the opportunity to be climate-focused.

Public funding is limited, and therefore it should be used efficiently to leverage higher investments from the private sector towards low GHG and climate resilient development for small-scale producers. Public resources have a potential to de-risk investment in agricultural development and, therefore, to catalyze funding from the private sector. However, relevant data on private sector and public domestic climate finance flows is missing, thus preventing an accurate assessment of the current needs for more strategic planning ahead.

Having more comprehensive information on climate finance that focuses on small-scale producers is crucial because information on trends, investment gaps and opportunities would shed light on practical actions that governments, development finance institutions, climate funds, private investors and businesses can take.

Reflecting on the current study, we propose the following recommendations for public and private actors to channel climate finance to small-scale agriculture at scale and to promote better information on measuring progress. These recommendations also represent an opportunity to step up the support for small-scale agriculture and build back rural economies sustainably amidst the current economic recession.

### **Channel climate finance to small-scale agriculture at large**

1. **Enhance collaboration between the public and private sectors to mitigate the risk associated with investments in the agricultural sector and leverage financial resources.**
  - 1.1 Governments, DFIs, and climate funds should exploit the full potential of blended finance mechanisms in order to de-risk climate-related investments in small-

scale agriculture and attract private capital. Public participation through first-loss tranches of capital or guarantees has the potential to massively improve the risk-return profile of investments in small-scale agriculture, thus serving the objectives of impact investors.

- 1.2 Weather indexed insurance has the potential to de-risk loan products as well as to play an essential role in increasing the resilience of small-scale producers to climate related events. Private and public funders should seize the opportunity and invest in development of low-cost insurance products that make use of technology to decrease complexity and costs and increase pay-out speed. An example of such product was supported in 2019 by the Global Innovation Lab for Climate Finance: [Blockchain Climate Risk Crop Insurance](#).

## **2. Governments should make more effective use of public resources and policies targeting risk management and capacity building for climate-related finance while incentivizing conservation efforts at the local level.**

- 2.1 Subsidized loans to small-scale producers should be made conditional on the implementation of climate-smart agricultural practices and technologies and should be coupled with technical assistance adapted to each specific agro-ecological zone. This can tackle some of the technical barriers preventing the uptake of climate smart practices by small-scale producers. Similar type of conditionalities can be embedded in credit to agri-businesses who serve small-scale producers, thus stimulating more climate-adapted and lower emission value chains. Blueprints for such financial instruments blending public and private investments to provide conditional loans have been developed in past years by the Global Innovation Lab for Climate Finance. Some examples include [Climate-Smart Lending Platform](#), [The West African Initiative for Climate Smart Agriculture](#), [Rural Prosperity Bond](#).
- 2.2 At the national level, governments could stimulate finance service providers' penetration with small-scale agriculture by providing subsidies for weather insurance bundled with loans. Similar to India's National Crop Insurance Program (ISF & Syngenta Foundation, 2018), the subscription to an insurance when taking a loan could be made compulsory. This can also act as a de-risking mechanism for blended finance funds that provide conditional loans to small-scale producers and agri-businesses. Innovative fiscal transfer instruments should be put in place by national governments to incentivize the implementation at regional, district or village level of sustainable agriculture, forestry, and other natural resources management efforts. These instruments can be inspired from the ecological fiscal transfers that are used in Brazil, India, and Indonesia among other countries, to redistribute government tax revenues that compensate regional or local authorities for conservation actions (Kieft & Efriyanti, 2019). For instance, such fiscal transfers can compensate for revenue foregone by protecting community forests, thus becoming a source of income for the surrounding small-scale producers involved in stewarding them. It is also important that such fiscal transfer instruments are designed and implemented with a long-term perspective in mind, to avoid losing the carbon sequestration and biodiversity gains once they stop.

## **3. International and domestic climate flows should stimulate the transition of agri-businesses and finance service providers towards low emission supply chains**

- 3.1 Most of the sub-national barriers identified are of commercial nature, while only 7% of the climate finance tracked targeted value chain actors (such as agri-SMEs or finance institutions). Agri-businesses and finance institutions play an essential role in supporting small-scale producers and linking them to markets. In order to maximize the impact of climate finance directed at producers and infrastructure, more investments bundled with capacity building should be targeting agri-businesses and financial institutions to help them mainstream climate conditionalities and principles in their supply chains.

### **Promote better information on measuring progress towards climate adaptation and mitigation for small-scale agriculture**

#### **4. Build consistent tools to report and track international climate finance towards small-scale agriculture.**

- 4.1 Governmental donors, multilateral and bilateral development banks, and climate funds should work together to further enhance their reporting of climate finance for small-scale agriculture under a common definition and set methodology. That would entail more dialogue to build a common approach and training among key actors to define and report climate finance for small-scale agriculture. The existing reporting mechanisms, such as OECD-DAC Rio Markers or Joint MDB reporting methodology, provide an excellent platform to build on and add clarity on small-scale agriculture climate finance to further implement climate finance reporting under a common approach.
- 4.2 Public donors and funders should initiate a similar dialogue with the private sector actors that can play an essential role in mobilizing financial resources towards climate adaptation and mitigation in small-scale agriculture. Philanthropic organizations, private finance institutions, and corporate entities should be included in this dialogue. Reporting mechanisms should be designed with the needs and priorities of private sector entities in mind to enable future consistent reporting across both private and public sectors. The dialogue should focus on identifying what kinds of data will help shed light on (a) progress being made to measure public and private investment in mitigation and adaptation, as well as on the contrary, investment supporting high emissions activities and maladaptation, and (b) where public support can better leverage impact and scale especially by incentivizing the private sector.
- 4.3 To address information asymmetries, private sector actors, including networks of practitioners in agriculture finance and investment action groups, should step up in collecting and sharing primary data on investment opportunities in order to accurately assess and mitigate their risk.
- 4.4 Annual surveys of private sector key players including major foundations, multinational corporates and agricultural banks collecting data on investments in mitigation and adaptation relevant investments in a standardized manner would enhance the comprehensive picture on the state climate finance flows to small-scale agriculture worldwide. Such surveys could be similar to those conducted by the Council on Smallholder Agricultural Finance (CSAF) for their annual [State of the Sector](#) publications or by the Global Impact Investing Network (GIIN) for their

[Annual Impact Investor Survey](#), with additional elements regarding climate finance flows and beneficiaries.

- 4.5 Other more resource intensive opportunities for further data collection from corporate actors include:

Manual financial data aggregation of CSR reports from corporations which can include case studies of projects targeting climate outcomes for small-scale agriculture

Manual data aggregation from reports of existing financial instruments (funds, bonds, facilities, etc.) operating in the agriculture sector. Tracking financial flows towards certification for sustainable agriculture (such as the Rainforest Alliance's Sustainable Agriculture Standard) or sustainable value chains (UTZ Certification for sustainable farming of coffee, tea and cocoa; FSC certification for responsible timber production)

Aggregating such data in line with the methodology proposed in this publication could be challenging, as there is a risk of double counting across existing datasets and certain assumptions need to be made in order to fill in unavailable data points.

## **5. Recipient governments should track progress through domestic climate finance tracking in small-scale agriculture to support their policy making processes.**

- 5.1 Ministries of finance and national treasuries in developing countries should increasingly require all government ministries and agencies to regularly report on their climate-related investments to keep a detailed check on progress against investment sectors. Given their importance and prevalence in developing countries, such reporting should also show resources benefitting small-scale producers. However, to ensure this data is high-quality there may be a need for increased capacity building across the Ministries on climate finance definitions, standards, and tools. A consistent approach will allow the reporting to be more efficient and reliable and feed into the policy making process, thus addressing some of the technical and political barriers to climate finance, for example better estimation of needs and costs of adaptation measures and developing climate adaptation and mitigation programs, including budgets and legal/regulatory frameworks.
- 5.2 Since delivery channels for financing small-scale agriculture involve actors at multiple levels, data collection should not be limited to project level data and should also include broader primary and secondary information sources. For example, a household survey approach can be applied to tackle data gaps on financing provided by informal finance institutions and climate investments funded by households.

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## 6. ANNEXES

### 6.1 ANNEX I: TYPES OF BARRIERS TO CLIMATE FINANCE FOR SMALL-SCALE AGRICULTURE

The barriers identified (detailed list is included in Annex I) based on literature review and interviews were separated in two categories:

- First, at the national and international level, barriers include those related to dynamics between national governments and international actors, organizations, bilateral/multilateral development and climate funders. A majority of these stakeholders are public or philanthropic entities, and their interactions affect national governments' access to international funding which is ultimately channeled towards small-scale agriculture. However, international commercial entities, such as multinational corporates and consumers can also have an impact on access to finance in the agricultural sector.
- Second, at the subnational level, barriers affect access to finance for value chain actors, local financial service providers, farmers and farmer associations, and generally rural communities.

All barriers (full list included in Annex I) were further analyzed to account for:

- **Category of barriers** used to provide further insights into the level of action needed to address them and can be related to the type of activity targeted by climate finance flows. The categorization of barriers is based on previous frameworks defined by CPI (Micale et al, 2013; Tonkonogy et al, 2018). Three such categories are used:

#### Political barriers

Including aspects related to governance and legal framework, the legitimate actions of governmental institutions to implement their regulatory powers through policy.

#### Technical barriers

Are related to the technological dimension of the agricultural activities. They can include physical aspects related to technology and weather-related risks, as well as aspects related to technical capacity and knowledge.

#### Commercial and Financial barriers

These barriers originate in the economic context and are related to the availability and cost of capital, investment real and perceived risks, profitability of financial service providers, and the investment readiness of agricultural businesses.

- **Primary relevance for either agricultural development finance or climate finance:** Actors and communities involved in small-scale agriculture encounter a number of challenges

in accessing finance required for their agricultural needs as well as for non-agricultural necessities. Traditionally these barriers have been associated with agricultural and rural development finance. Climate finance is channeled through very much the same structures, serving the same markets and actors, and therefore it is subject to these challenges in addition to barriers that are typical to climate finance.

- **Power to remedy.** For each barrier, we determined whether private or public stakeholders have the power to intervene and remedy. This aspect is relevant for the analysis of primary recipients of financial flows as mapped in this study, as to some level primary recipients of finance could also have the power to remedy existing barriers.
- **Small-scale agriculture** actors affected for which we utilize the same categories as for the final beneficiaries of climate finance flows (detailed in section 2.1.6):
  - Small-scale producers (SP)
  - Rural communities (RC)
  - Cooperatives and farmer associations (CFA)
  - Value chain actors, including entrepreneurs (VC)

This alignment is based on the assumption that the actors affected by barriers should be the final beneficiaries of climate finance flows.

**Table 3:** Overview of barriers to small-scale agriculture finance

Barriers to small-scale agriculture climate finance	Category of barriers	Primary relevance for:	Power to remedy:	Type of small-scale agriculture actors (same as final beneficiaries):
	<ul style="list-style-type: none"> <li>• Political barriers</li> <li>• Technical</li> <li>• Commercial and financial</li> </ul>	<ul style="list-style-type: none"> <li>• Agricultural Development Finance (ADF)</li> <li>• Climate Finance (CF)</li> </ul>	Public Sector (Pub) / Private Sector (Pri)	<ul style="list-style-type: none"> <li>• Small-scale producers (SP)</li> <li>• Rural communities (RC)</li> <li>• Cooperatives and farmer associations (CFA)</li> <li>• Value chain actors, including entrepreneurs (VC)</li> </ul>
National and International levels				
Poor contractual regulations and/or contract enforcement, which permits side-selling and increases risk for off-take arrangements	Political	ADF	Public national level	SP, VC
Limited formal property rights for land, which limits the ability of farmers to provide collateral, and makes their access to finance difficult	Political	ADF	Public national level	SP

Underdeveloped transport infrastructure, which limits access to markets and increases transaction costs for financial service providers	Technical	ADF	Public national level	SP, RC, CFA, VC
Limited capital available due to lack of information on viable investment opportunities in agriculture and absence of risk mitigation mechanisms	Commercial	ADF, CF	Public national and international level	SP, RC, CFA, VC
Limited availability of estimations of needs, costs and impacts of adaptation measures as well as low level of knowledge on potential sources of funding	Technical	CF	Public national level	SP, RC, CFA, VC
National institutions' difficulties to ensure compliance with international funds' procedures and standards for accessing climate finance	Technical	CF	Public national and international levels	SP, RC, CFA, VC
National governments' low capacity to develop climate adaptation and mitigation programs and to duly monitor them	Technical	CF	Public national level	SP, RC, CFA, VC
Lack of coherent national climate policies, budgets, legal and regulatory frameworks	Political	CF	Public national level	SP, RC, CFA, VC
Lack of coordination between national institutions and stakeholders to define and implement clear priorities for the climate agenda	Political	CF	Public national level	SP, RC, CFA, VC
Climate finance donors and funders have lengthy program approval processes which delay funds disbursement	Technical/Political	CF	Public international level	SP, RC, CFA, VC
Low absorptive capacity of public financial systems limits the effective management of climate finance funding	Technical/Political	CF	Public national level	SP, RC, CFA, VC
Low incentives for adoption of climate-friendly agriculture and monetize sequestered carbon in biomass and soil, due to immature international carbon markets	Political	CF	Public national and international level	SP, RC, CFA
<b>Subnational level</b>				
The mismatch between farmers' financial needs and financial services available in the market, including cost of capital, repayment schedules that are not aligned with production cycles	Commercial	ADF	Private financial institutions Public national level	SP, RC, CFA, VC

High transaction costs due to small-scale and dispersed customers coupled with under-developed customer information systems	Commercial	ADF	Private financial institutions  Public authorities	SP, RC, CFA, VC
The low financial returns of Financial Service Providers working in small-scale agriculture discourages new entrants	Commercial	ADF, CF	Private financial institutions	SP, RC, CFA, VC
Limited capital available due to high investment risk, information gaps and asymmetries and weak risk mitigation mechanisms	Commercial	ADF, CF	Public institutions  Private financial institutions	SP, RC, CFA, VC
Limited investment pipeline with early stage businesses needing technical assistance in conjunction with finance.	Commercial	ADF, CF	Private businesses	VC
Seasonality of cashflows for both producers and finance providers which is exacerbated by climate variability, increases the risk of default.	Commercial	ADF, CF	Public institutions at national level Private financial institutions and supply chain actors	SP, RC, CFA, VC
Agricultural assets are typically too small and numerous to attract large-scale investors. Aggregating and securitizing a sufficient number of bankable assets with the same level of development can be difficult.	Commercial	CF	Private national and international level	CFA, VC
Insufficient allocation of financial resources (including loans, grants for technical assistance, subsidies) from the national government to sub-national authorities and towards the agricultural sector generally.	Political	ADF, CF	Public national level	SP, CFA, VC
Lack of engagement of small-scale producers with climate-smart practices due to lack of knowledge, financial incentives and the perception of risk associated with the transition period. Therefore, climate financing at farmer level requires technical assistance.	Technical/Commercial	CF	Public national and local authorities  Private local and international value chain actors	SP, CFA

Limited access to insurance and guarantee schemes to cover default risk / underperforming transactions, where both the supply of insurance products and the demand are weak.	Commercial	ADF, CF	Public national level  Private supply chain actors and financial providers	SP, CFA
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**Sources:** Goldman et al (2016), FAO (2016), Limketkai et al (2019), CIF (2020), The Food and Land Use Coalition (2019), Chiriack et al (2019), Micale, Van Caenegem (2019),

## 6.2 ANNEX II TYPOLOGY AND ACTIVITIES OF SMALL-SCALE AGRICULTURE CLIMATE FINANCE

**Table 4:** Color coding - Types of activities:

TYPES OF ACTIVITIES
Low GHG emission and climate resilient infrastructure
Improved agricultural production
Improved supply chains
Capacity building
Research and development
Technical assistance to policy makers
Wellbeing/livelihoods of rural communities
Improved access to finance

**Table 5: MITIGATION – Sectors, activities, sub-activities, and keyword**

CATEGORY	SECTOR	ACTIVITIES	SUB-ACTIVITIES	KEYWORDS
<b>AGRICULTURE, FORESTRY, LAND USE AND NATURAL RESOURCE MANAGEMENT</b>	Agriculture	Agriculture projects that do not deplete and/or improve existing carbon pools	<ul style="list-style-type: none"> <li>Reduction in fertilizer use</li> <li>Rangeland management</li> <li>Collection and use of bagasse, rice husks, or other agricultural waste</li> <li>Low tillage techniques that increase carbon contents of soil</li> <li>Prevent soil compaction by avoiding traffic on wet soil; avoiding or strongly reducing tillage operation on wet soils; reducing stock density.</li> <li>Maintain permanent grassland</li> </ul>	<ul style="list-style-type: none"> <li>Fertilizer use</li> <li>Agricultural waste</li> <li>Tillage</li> <li>Irrigation</li> <li>Crop residues</li> <li>Restoration</li> <li>Rangeland management</li> <li>Livestock</li> <li>Drip irrigation</li> <li>Seed(s)</li> <li>Agricultural produce</li> </ul>
		Rehabilitation of degraded lands		
		Reduction in energy use in agricultural processes	<ul style="list-style-type: none"> <li>Energy efficient traction (e.g., efficient tillage)</li> <li>Energy efficient irrigation</li> </ul>	
		Improve existing carbon pools	<ul style="list-style-type: none"> <li>Management of crop residues like collection and use of bagasse, rice husks or other agricultural waste</li> <li>Sowing of cover/catch crops using a locally appropriate species mixture with at least 1 legume and reducing bare soil to the point of having a living plant coverage index of at least 75% at farm level per year.</li> <li>Reduced tillage techniques that increase carbon content of soil</li> <li>Rehabilitation of degraded lands</li> <li>Peatland restoration</li> <li>Rangeland management</li> <li>Undertake a GHG assessment of sources of emissions and sinks on the farm</li> <li>For non-perennial crops, apply crop rotation, including at least one legume</li> </ul>	
		Reduction of non-CO2 GHG emissions from agricultural practices and technologies	<ul style="list-style-type: none"> <li>Paddy rice management – shallow flooding, mid-season drying event, off-season straw</li> <li>Reduction in fertilizer use, based on field characteristics</li> <li>Nutrient management in order to reduce Nitrous Oxide (N2O) emissions, including Recording of nutrient applications and use of low emission N-application technology</li> </ul>	
		Alternative meat and dairy products	<ul style="list-style-type: none"> <li>On-site storage at facilities or projects 100% dedicated to production of selected alternative meat and dairy products.</li> </ul>	
		Supporting Infrastructure	<ul style="list-style-type: none"> <li>Machinery and equipment to manage and cultivate eligible land or livestock</li> <li>Associated management, information systems and other technologies</li> <li>Drip, flood and pivot irrigation systems</li> </ul>	
		Supply chain	<ul style="list-style-type: none"> <li>Input supply systems for seed production, distribution and access</li> <li>Energy efficient primary processing and storage facilities for eligible agricultural produce</li> <li>Minimize post-harvest loss</li> <li>Measures in existing supply chains dedicated to improvements in energy efficiency or resource efficiency upstream or downstream, leading to an overall reduction in GHG emissions</li> </ul>	

Afforestation & reforestation (other land-use)	Afforestation on non-forested land	Conversion of low productivity land (e.g. along field edges) into woodland to increase C sequestration and protect against soil erosion	<ul style="list-style-type: none"> <li>Reducing emissions from deforestation and degradation</li> <li>REDD</li> </ul>
	Reforestation on previously forested land		
	Sustainable forest management and conservation of forests	Sustainable forest management activities that increase carbon stocks or reduce the impact of forestry activities on soil quality, soil carbon and biodiversity (e.g. harvesting methods, continuous cover, maintain deadwood in adequate quantities)	
	Enhancement of carbon stocks	Practices that increase carbon sinks and existing carbon stocks above and below ground (e.g. natural regeneration, species diversification, selection of native species)	
	Reducing emissions from deforestation and degradation	Non-intervention forest management approaches (e.g. reduced harvest)	
	Supporting Infrastructure	Supporting Infrastructure	
	Supply chain	<ul style="list-style-type: none"> <li>Associated management, information systems and other technologies</li> </ul>	
Livestock	Livestock projects that reduce methane or other GHG emissions	<ul style="list-style-type: none"> <li>Improved feeding practices: use of feed additives that reduce enteric methane emission of ruminants; precision and multi-phase feeding techniques to reduce N<sub>2</sub>O emissions from manure; use feed sourced responsibly, not produced in deforested areas</li> <li>Development of sheep and cattle feed that contains dried seaweed or other ingredients which in turn cut methane emissions significantly</li> <li>Agroforestry, silvopastoralism or grassland/pasture management that offsets CH<sub>4</sub> emissions by at least 20%</li> <li>Better health planning and management - breed selection for improving both methane and ammonia emission efficiency.</li> </ul>	<ul style="list-style-type: none"> <li>Livestock</li> <li>Sheep feed</li> <li>Cattle feed</li> <li>Methane</li> <li>Manure management</li> <li>Biodigesters</li> <li>Alternative meat</li> <li>Alternative dairy</li> </ul>
	Manure management	<p>Manure management with biodigesters producing biogas for heating or cooking</p> <p>Any practice that reduces or offsets CH<sub>4</sub> and N<sub>2</sub>O by 20%: cooling of liquid manure, sealing manure storage, composting</p>	
	Permanent grassland management	<ul style="list-style-type: none"> <li>Pasture renovation</li> <li>Reduce compaction by removing animals from very wet fields</li> <li>Maintain permanent grassland</li> <li>No ploughing of permanent grassland</li> </ul>	
	Alternative meat and dairy products	On-site storage at facilities or projects 100% dedicated to production of selected alternative meat and dairy products.	
Biosphere Conservation and Restoration	Projects seeking to reduce emissions from the deforestation or degradation of ecosystems	Payments for ecosystem services	<ul style="list-style-type: none"> <li>Biosphere conservation</li> <li>Biosphere restoration</li> <li>Ecosystems</li> <li>Ecosystem services</li> </ul>
	Supporting Infrastructure	<ul style="list-style-type: none"> <li>Machinery and equipment to manage eligible ecosystems</li> <li>Associated management and information systems and other technologies</li> </ul>	

	<b>Biofuels</b>	Production of biofuels, including biodiesel and bioethanol		<ul style="list-style-type: none"> <li>• Biofuel</li> <li>• Biodiesel</li> <li>• Bioethanol</li> </ul>
	<b>Fisheries and Aquaculture</b>	Supporting Infrastructure	<ul style="list-style-type: none"> <li>• Energy efficient machinery and equipment to manage and harvest in fisheries and fish farms (e.g., fishing vessels)</li> <li>• On shore and off-shore fish processing and storage facilities connected to eligible fisheries and fish farms</li> <li>• Associated management, information systems and other technologies</li> </ul>	<ul style="list-style-type: none"> <li>• Fisheries</li> <li>• Aquaculture</li> <li>• Fish farms</li> <li>• Fish processing</li> <li>• Fish storage</li> </ul>
Energy		<ul style="list-style-type: none"> <li>• Reduction in energy use or resource efficiency</li> </ul>		
Supply chain		<ul style="list-style-type: none"> <li>• Energy efficient primary processing facilities and storage for eligible fisheries and aquaculture activities</li> <li>• Measures in existing supply chains dedicated to improvements in energy efficiency or resource efficiency upstream or downstream, leading to an overall reduction in GHG emissions</li> </ul>		
<b>Renewable Energy Generation</b>	<b>Solar</b>	Solar energy use for irrigation	<ul style="list-style-type: none"> <li>• Installation, supervision and maintenance of solar PV</li> </ul>	Solar irrigation
		Solar energy use for groundwater pumping	<ul style="list-style-type: none"> <li>• Installation, supervision and maintenance of solar PV</li> </ul>	
		Renewable energy use in greenhouses	<ul style="list-style-type: none"> <li>• Installation, supervision and maintenance of solar PV</li> </ul>	Renewable energy
	<b>Research and Development</b>	Climate focused R&D in crops		
	<b>Monitoring</b>		Performance monitoring: monitoring GHG emissions and net carbon balance	
	<b>Extension Services</b>		To improve agronomic practices and access to technology and infrastructure	
	<b>Consumption</b>	Sustainable consumption patterns	<ul style="list-style-type: none"> <li>• Healthy diets (diversified sources of protein, plant-based diets)</li> <li>• Reducing food loss and waste</li> <li>• Local loops and linkages between urban consumers and farmers</li> </ul>	Reduce food loss

**Sources:** Buchner et al, 2019; AfDB et al, 2017; AfDB et al, 2018; EU Technical Expert Group on Sustainable Finance, 2020 ; IFAD, 2019; Climate Bonds Initiative, 2020; Fan & Rue, 2020; Cardoso & Zook, 2016; The Food and Land Use Coalition (2019)

**Table 6: ADAPTATION – Sectors, activities, and non-exhaustive list of examples of sub-activities, and keywords**

CATEGORY/SOURCE	SECTOR	ACTIVITIES	SUB-ACTIVITIES	KEYWORDS
AGRICULTURE, FORESTRY, LAND USE, AND NATURAL RESOURCE MANAGEMENT	Agriculture	Crop diversification and resilience	<ul style="list-style-type: none"> <li>Provision of information on crop diversification options to farmers</li> </ul>	<ul style="list-style-type: none"> <li>Crop diversification</li> <li>Crop varieties</li> <li>Seeds</li> <li>Drought resistant</li> <li>Drought-tolerant</li> <li>Flood resistant</li> <li>Soil erosion</li> <li>Mulch</li> <li>Water management</li> <li>Water recycling</li> <li>Water storage</li> <li>Drip irrigation</li> <li>Micro-jet irrigation</li> <li>Shelterbelts</li> <li>Agriculture facilities</li> <li>Agriculture transportation</li> </ul>
			<ul style="list-style-type: none"> <li>The use of improved strains and varieties of crops, which are adapted to the local soil and climate conditions (particularly to droughts and floods)</li> </ul>	
			<ul style="list-style-type: none"> <li>Increased production of fodder crops to supplement rangeland diet affected by climate change</li> </ul>	
			<ul style="list-style-type: none"> <li>Use of microorganisms to substitute for or to diminish mineral N fertilizer and pesticides or to promote crop growth</li> </ul>	
			<ul style="list-style-type: none"> <li>Development of public-release seeds for crops which are more resistant to the impacts of climate change using biotechnology through conventional breeding or CRISPR technology (e.g., drought resistant wheat, flood-resistant rice, drought-tolerant rainfed rice and common beans, pest-resistant maize and cow pea varieties)</li> </ul>	
			<ul style="list-style-type: none"> <li>Diversified production</li> <li>Intercropping and crop rotation</li> <li>Reducing the percentage of area planted to vulnerable crops</li> <li>Controlled agriculture (vertical farming, hydroponics)</li> </ul>	
		Soil health and erosion management	<ul style="list-style-type: none"> <li>Enhancement of soil water retention (e.g. through use of cover crops, organic fertilizers, minimum tillage)</li> <li>Improved management of slopes and basins to avoid/reduce the impacts caused by increased soil erosion</li> <li>Promote adoption of climate resilience technologies to reduce soil erosion</li> <li>Mulching with cover crops (green manure), such as forage grass and leguminous forage, in tea and tea-oil plantations to conserve soil moisture and control soil erosion</li> </ul>	
		Nutrient and pest control management	Integrated pest control measures (chemical and biological)	
		Water management	<p>Promote adoption of climate resilience technologies to save water (e.g., water recycling)</p> <p>Significant on-farm water-storage capacity as a buffer against the effects of seasonal drought</p>	

	Water management		<ul style="list-style-type: none"> <li>▪ The use of water efficient irrigation technologies, including sprinkle and drip irrigation, which allow real-time control of irrigation</li> </ul>	
			<ul style="list-style-type: none"> <li>▪ The establishment of “shelterbelts” of trees around tea and tea-oil plantations that will protect crops from drying out and save water</li> </ul>	
			<ul style="list-style-type: none"> <li>▪ Drip or micro-jet irrigation, lining of canals, changes to flow velocity, new building codes for dams and canals</li> </ul>	
	Weather forecasting		Forecasting tools and systems	
	Infrastructure		<ul style="list-style-type: none"> <li>▪ Transportation: Rehabilitation and protection of climate-exposed roads and buildings</li> <li>▪ Irrigation investments in contexts of climate-induced water scarcity and rehabilitation</li> <li>▪ Farm facilities: Modified designs, siting and construction materials, deeper foundations, protective walls, vegetated contour bunding</li> </ul>	
	Fisheries and Aquaculture	Techniques	Adoption of sustainable aquaculture techniques to address changes in fish stocks resulting from climate change impacts and supplement local fish supplies, etc.	<ul style="list-style-type: none"> <li>▪ Aquaculture</li> </ul>
Afforestation & reforestation (other land-use)		<ul style="list-style-type: none"> <li>▪ Ecological diversification, including shifting land use from monoculture to polyculture or other diversified production</li> <li>▪ Agroforestry</li> <li>▪ Management of seedling stand and timely thinning (to reduce damage from increased wind)</li> <li>▪ Use of early warning systems or wildfire control measures (in case of heatwaves)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Agroforestry</li> <li>▪ Intercropping</li> </ul>	
Livestock		Using species and breeds adapted to changes in CO2 and climate, e.g., temperature, water regimes, extreme events, or seasonality	<ul style="list-style-type: none"> <li>▪ Livestock species</li> <li>▪ Livestock breeds</li> </ul>	
Biosphere Conservation and Restoration		Biosphere Conservation and Restoration		
Cross-Sectoral	Training, and monitoring	<ul style="list-style-type: none"> <li>▪ Capacity-building, e.g. for improved climate risk management</li> <li>▪ Training in locally appropriate climate-smart/ climate-friendly agricultural practices</li> <li>▪ Advisory services on transitioning a farm to climate friendly practices</li> </ul>	<ul style="list-style-type: none"> <li>▪ Climate-friendly practices</li> <li>▪ Climate-smart agriculture/practices</li> <li>▪ Climate friendly inputs</li> <li>▪ Transition</li> </ul>	
	Research and development	Testing climate friendly practices, inputs, adaptive crop varieties or technologies Research relating to climatic trends	<ul style="list-style-type: none"> <li>▪ Improved seeds</li> <li>▪ Drought resistant seeds</li> <li>▪ Flood resistant seeds</li> </ul>	
	Financial services	<ul style="list-style-type: none"> <li>▪ Financial services, e.g. climate risk-based insurance</li> <li>▪ Specific targeting of climate vulnerable beneficiaries to receive financial services</li> </ul>	<ul style="list-style-type: none"> <li>▪ Climate risk-based insurance</li> <li>▪ Crop insurance</li> <li>▪ Weather index insurance</li> </ul>	

Sources: Buchner et al, 2019; AfDB et al, 2017; AfDB et al, 2018; EU Technical Expert Group on Sustainable Finance, 2020; IFAD 2019; Climate Bonds Initiative, 2020; Cardoso & Zook, 2016; Calderone et al, 2019.

## 6.3 ANNEX III LITERATURE REVIEW

There are many publications and databases related to agricultural development finance, historically focusing on the financial needs of smallholder farmers. However, the vast majority do not include references to climate mitigation or adaptation, nor to climate finance. However, they provide valuable frameworks and concepts that are required to understand the dynamics of the various stakeholders involved in rural finance.

Although some of the publications on climate finance that we reviewed for this study included sections analyzing the agricultural sector, there are rarely analyses focusing on small-scale agriculture.

The **Joint report on Multilateral Development Banks' climate finance 2019 (published in 2020)** includes programmed climate finance commitments of seven multilateral development banks (MDBs)<sup>11</sup>. For 2019, USD 1,714 million were committed by the MDBs to mitigation in agriculture, aquaculture, forestry and land-use in low and middle-income countries, with majority being allocated to Sub-Saharan Africa, followed by Latin America and the Caribbean and South Asia. In terms of adaptation finance, several of the MDBs sector groups can be of relevance for small-scale agriculture: Crop and food production (USD967 million); Other agricultural and ecological resources (USD 1,325 million); Water and wastewater systems (USD 2,693 million), Cross-cutting sectors (USD 1,924 million), Institutional capacity support or technical assistance (USD 2,016). The publications however does not include figures specifically for small-scale agriculture. Global Landscape of Climate Finance captures project level data where possible from the MDBs.

The **2016 FAO State of Food and Agriculture (SOFA)** takes a closer look at climate finance needs and commitments in the agricultural sector but without differentiating between various categories of agricultural producers. World Bank estimates for adaptation costs are referenced in the report: for the agricultural sector those would be more than USD 7 billion per year. The analysis is also pointing out the significant differences between climate finance commitments to the agricultural sector and actual disbursements, with the former being higher than the latter. This can be caused by both factors related to long approval processes on the provider side as well as low absorptive capacity on the recipient country's side. The report notes the absence of global estimates of the costs of adaptation but does emphasize that costs of inaction far outweighs the costs of adaptation measures. Two country level examples include Uganda where the budget for adaptation could reach USD 644 million annually by 2025 and Vietnam those are estimated at about USD160 million per year.

On the basis of climate finance flows estimations drawn from the Global Landscape of Climate Finance 2019, CCAFS and Kois (**2019, Financing the transformation of Food system under a changing climate**) highlight policy options, innovative financial solutions and strategies that can be used by both public and private actors to help the transition to low-GhG and resilient food systems. As argued by CSAF in their Benchmark report, CCAFS and Kois support the strategic use of public and philanthropic capital in the form of blended finance to de-risk investments in towards food systems.

<sup>11</sup> African Development Bank (AfDB), the Asian Development Bank (ADB), the European Bank for Reconstruction and Development (EBRD), the European Investment Bank (EIB), the Inter-American Development Bank Group (IDBG), the Islamic Development Bank (IsDB) and the World Bank Group (WBG)

Part of their [Climate Investing Track](#) workstream, GIIN produced in 2019 *Scaling Impact Investment in Forestry*, which analyzes a database of 39 sustainable and impact forestry funds. Although there is no distinction between the type of farmers involved in these funds, it is noted that majority of them are investing in the US, Canada and Oceania, with only 6 out of 34 investing in emerging markets South East Asia, SSA and Latin America. The latter have a median size of USD144 million/vehicle, which is considerably smaller than the median size of funds in developed markets, i.e. USD210 million. Together, the 34 vehicles analyzed manage USD 9.4 billion in forestry and related assets.

## Key actors

In terms of access to finance for agricultural needs, the recent study conducted by ISF Advisors, Aceli and USAID (2020) maps out three categories of financial service providers with prevalence depending on the development stage for the agricultural finance in a given country: Non-institutional moneylenders/Informal lenders, Government-supported community lenders, commercial lenders.

A similar dynamic perspective is used by ISF and RAFFL (2019, *Pathways to prosperity*) whereby smallholder households, central actors of the agricultural sector, are analyzed through different stages. Reference is made to climate change adaptation and mitigation as outcomes of these transition pathways. Importantly, the study moves beyond credit to underline the need for smallholder households to have access to insurance (for risk mitigation), digital payments and savings in rural financial markets. The study also focuses on agricultural small and medium enterprises with their financial needs as well as various types of finance providers, such as value chain actors, formal financial institutions, informal and community based financial institutions.

Another CSAF publication (CSAF, USAID, 2018), bridges the knowledge gap with regards to costs and risks related to lending to agri-SMEs, as generally literature concentrates on direct-to-farmer segment of the market. The publication analyses the performance of loans extended to agricultural SMEs by nine CSAF lenders and emphasize the challenges lenders are confronted with. Consequently, it notes the need for more public and philanthropic actors' interventions to stimulate this market. In order to address the finance gap, these interventions should be coordinated at value chain level, use blended finance instruments, and use technology and innovation to cut down costs.

Another 2018 report produced by **Dalberg, CSAF and GDI (Economics of agri-SME lending in E Africa)** builds evidence on the economics of financing to agri-SMEs in East Africa. The study is built on empirical data collected from 29 lenders from Kenya, Rwanda, Tanzania, Uganda, and Zambia and it analyses the various operating models to in order to help target market interventions. Three broad categories of actors are found to serve SMEs financial needs: global social lenders, agriculture local deposit-taking banks and other local-non banking financial institutions<sup>12</sup> (smaller than banks and global social lenders).

At a more micro scale, ISF and Swiss Re Foundation used a bottom up approach to analyze one niche of climate finance in agriculture: advisory services for climate-smart agriculture (CSA) (2020). The study presents an overview of the CSA advisory services sector,

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<sup>12</sup> "diverse category of lenders with a local operational footprint (although international origin and funding base) that are active in ag or SME finance. Generally smaller than banks or global social lenders, spanned the range of social and commercial interests and tend to focus on specific product offerings (asset leasing or short-term credit lines) or on specific borrower segments (producer groups or certain value chains). Generally, target borrowers with needs of between USD 10k and USD 100k, in rare cases lending up to USD 500k.

emphasizing opportunities and needs, trends, typology of actors involved and of their business models, without having a specific focus on small-scale agriculture. It emphasizes the trend of agricultural advisory services moving from the exclusive remit of governments towards more business-focused providers. A mapping of funders and enablers is included and general financial commitments for over multiple years are provided for selected funders. However, in most cases, the annual spending/allocation and whether it is directed towards smallholder agriculture is not provided.

## Activities

An important shift in the literature about agricultural finance is to consider whole food and land use systems, without making a distinction between different types of farmers and producers (The Food and Land Use Coalition, 2019). This framework has the benefit of providing a holistic perspective on global issues, like those related to climate change and food security, more aligned with the Sustainable Development Goals. Additionally, it uses a supply chain approach and places consumers and consumption patterns under the spotlight as critical factors that shape evolution of land use systems and food production. These include healthy diets, productive and regenerative agriculture, protecting and restoring nature, diversify protein supply, reducing food loss and waste; local loops and linkages between urban consumers and farmers, digitization of food and land use systems, stronger rural livelihoods and gender inclusion.

**Joint MDBs report (2020)** The methodologies used for tracking climate finance intended to track progress towards targets built around the Paris Agreement and subsequent pledges.

The **2018 Preliminary Review of Agriculture related activities in the GCF portfolio** is based on publicly available information on the Green Climate Fund portfolio of projects approved between 2015 and 2018. The following sub-sectors are considered: agriculture (crops and livestock), forestry and other land use, fisheries and aquaculture, integrated systems, water management and bioenergy.

In the analysis of smallholder agriculture, **SOFA 2016** focuses on adaptation and its links it to poverty reduction and sustainable management of natural resources. In addition to the adoption of climate-smart agricultural practices, the report emphasizes the need for diversification of farm production and of off-farm income and employment in rural areas. Beside direct support to farmers, in order to increase resilience, it is essential to also work on infrastructure improvements, extension services, access to weather information, access to markets, to credit and insurance.

Aceli and USAID (2020) Governmental actions that can facilitate development of agriculture finance are also included in the publication and contributed to our understanding of barriers and actors having the power to remedy. National governments have the responsibility to set conducive policy and development agenda as well as enabling private sector financing activities by setting payment infrastructures that can reduce capital costs, providing incentives for digitization, promote strategies for financial inclusion). More directly, governments can influence private sector financing through credit guarantees, defining minimum quotas of banks' loan assets that must be held in agriculture, creating dedicated subsidized funds, public insurance schemes and providing institutional cap building.

## Data sources

Among the publications reviewed, the estimation of commitments made by the FAO (2016) and by IFAD (2019) is based on climate finance data that are available in the OECD’s Creditor Reporting System and ODI’s Climate Fund Update (CFU), which are both used by the CPI Global Landscape of Climate Finance. In addition, the data used by the Joint Report on Multilateral Development Banks also overlaps with the data directly collected by CPI from development finance institutions.

In the search for additional data sources, the databases listed in Table 7 were explored.

**Table 7:** Additional databases examined for the study

<p><a href="#">CSAF Open Data Portal</a></p>	<ul style="list-style-type: none"> <li>- Interactive dashboards providing information on the lending activities of the members of the Council on Smallholder Agricultural Finance (CSAF). These include provision of credit to agricultural SMEs and producer organizations. The CSAF members include 13 private lenders. The tool presents aggregated data for 7 years (2013 to 2019).</li> <li>- Data provided:             <ul style="list-style-type: none"> <li>• Aggregated disbursements by year, country, region, value chains (coffee, cocoa, cashew nuts, soya beans, quinoa, other) and number of clients;</li> <li>• average and median loan size per year and region;</li> <li>• portfolio risk per loan size and region, country, year</li> </ul> </li> <li>- The database does not include details on the type of activity financed, therefore there is no possibility to tag the amounts for climate relevance.</li> </ul>
<p><b>Rural &amp; Agricultural Finance</b> <a href="#">Smallholder Financial Solutions</a></p>	<ul style="list-style-type: none"> <li>- Interactive dashboard of 768 existing financial solutions (such as programs or financial products) targeting smallholder farmers in developing countries worldwide. The details provided include provider and partners, products and business models.</li> <li>- The field “Overview of Programme or Product or Initiative” can in theory provide insights into the uses of the capital (sector, type of agricultural practices incentivized etc.) which could in theory provide insights on the climate relevance. However, this field is not completed for many of the entries.</li> <li>- The database does not provide information on the level of funding, nor on the sources of the funds, making it unusable for the current study.</li> <li>- Other fields include information regarding impact on income, productivity, and resilience.</li> </ul>

<p><b>MIX &amp; One Acre Fund</b></p> <p><a href="#">Smallholder Finance Product Explorer Dataset</a></p>	<p>The Smallholder Finance Product Explorer is a project funded by the Mastercard Foundation &amp; Open Society Foundations and implemented by One Acre Fund and MIX from 2016–2019.</p> <p>The dataset includes 74 financial instruments and is accompanied by a taxonomy and three Insights Briefs. The objective of the project is to showcase the instruments to investors and help designing future financial products for smallholders.</p> <p>Data fields include details on the product structure (including information on association of credit with insurance for risk mitigation), the type of financial service provider and the profile of clients (gender), commodity targeted and socio-economic impact (particularly farmer yields; change to profit / income or poverty reduction).</p> <p>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.</p> <p>The dataset does not contain any information on environmental impact, links to climate adaptation or mitigation, type of agricultural practices promoted.</p>
<p><a href="#">ISF Fund Database</a></p>	<ul style="list-style-type: none"> <li>- Dynamic dataset of agricultural funds investing in smallholder finance.</li> <li>- The data can be filtered by fund manager, total fund size (although this information is missing for some of the funds), target region and ISF Archetype (Wholesale multi-sector or agriculture funds ▪ Niche impact funds ▪ Local or small regional funds ▪ Early stage venture funds ▪ Frontier plus agriculture funds) (2017, ISF brief).</li> <li>- No information regarding the expected environmental, climate related impact of the funds.</li> </ul>

GIIN's climate investing space is worth watching for further developments as they are exploring potential future work focusing on Food and Agriculture whereby asset owners and fund managers would be invited to co-create financial products to ensure food security in emerging markets.

## 6.4 ANNEX IV DATA COLLECTION METHODOLOGY AND GEOGRAPHICAL SPLIT

The data collection primarily focused on deep dive of climate finance under agriculture, land use and forestry sector. In order to cover the maximum of activities identified, the amount tracked for small-scale agriculture also includes commitments tagged for other sectors like renewable energy, energy efficiency and sustainable transport that were found to benefit small-scale agriculture actors as final beneficiaries.

We analysed project level information in the database to verify whether they were targeted at small-scale producers, value chains and their communities as final beneficiaries.

Data collection and cleaning used the same principles as outlined in the [Global Landscape of Climate Finance Methodology](#). These, for example, include tracking non-double counted new money targeting climate finance for small-scale agriculture.

Geographical split used for the analysis is outlined in Table 8. This split ensured maximum data coverage due to the way data providers report climate finance by regions i.e. not all actors provide data at country level but rather at regional level.

**Table 8:** Geographical split of countries in the analysis

<b>REGION</b>	<b>COUNTRY</b>
<b>Middle East &amp; North Africa</b>	Algeria, Bahrain, Egypt, Islamic Republic of Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Syrian Arab Republic, Tunisia, United Arab Emirates, West Bank & Gaza, Yemen
<b>Sub-Saharan Africa</b>	Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Republic of Congo, Dem. Rep. of Congo, Côte d'Ivoire, Djibouti, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, São Tomé & Príncipe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, South Sudan, Sudan, Swaziland, Tanzania, Togo, Uganda, Zambia, Zimbabwe
<b>South Asia</b>	Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka
<b>East Asia &amp; Pacific</b>	Brunei, Cambodia, China, Cook Islands, Fiji, Indonesia, Kiribati, Korea DPR, Lao PDR, Malaysia, Marshall Islands, Fed. States Micronesia, Mongolia, Myanmar, Nauru, Niue, Palau, Papua New Guinea, Philippines, Samoa, Singapore, Solomon Islands, Thailand, Timor-Leste, Tonga, Tuvalu, Vanuatu, Vietnam
<b>Central Asia &amp; Eastern Europe</b>	Albania, Armenia, Azerbaijan, Belarus, Bosnia & Herzegovina, Bulgaria, Croatia, Georgia, Kazakhstan, Kosovo, Kyrgyz Republic, Lithuania, Moldova, Montenegro, North Macedonia, Romania, Russian Federation, Serbia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan
<b>Latin America &amp; Caribbean</b>	Antigua & Barbuda, Argentina, Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, St. Kitts and Nevis, St. Lucia, St. Vincent & Grenadines, Suriname, Trinidad and Tobago, Uruguay, Venezuela

## 6.5 ANNEX V LIST OF STAKEHOLDERS INTERVIEWED

**Table 9:** List of stakeholders interviewed for the study

<b>ORGANIZATION</b>	<b>NAME</b>
<b>Council on Smallholder Agricultural Finance (CSAF) Global Development Incubator (GDI)</b>	Tom Carroll
<b>Mastercard Foundation Rural and Agricultural Finance Learning Lab (RAF LL)</b>	Mikael Clason Hook
<b>Mars Wrigley</b>	Inge Jacobs
	Marcia Cardelli de Souza
<b>Root Capital</b>	Elizabeth Teague
<b>Dalberg</b>	Jesse Baver;
	Kusi Hornberger
<b>Initiative for Smallholder Finance (ISF)</b>	Matthew Shakhovskoy
<b>Bill &amp; Melinda Gates Foundation</b>	Emily Zuberi
	Jenny Frankel-Reed
	Stanley Wood
	Ammad Bahalim
<b>IFAD</b>	Alashiya Gordes
	Liza Leclerc

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