The Lab

Global Innovation Lab for Climate Finance

SMALLHOLDER RESILIENCE FUND

INSTRUMENT ANALYSIS

SEPTEMBER 2021

Smallholder Resilience Fund

LAB INSTRUMENT ANALYSIS
September 2021

DESCRIPTION & GOAL —
A blended investment fund and supporting venture studio that deploys synchronized investments and provides technical assistance to existing and new small and medium-sized enterprises across entire agricultural supply chain of high-value, climate-smart crops

SECTOR —
Sustainable Agriculture & Food Systems

FINANCE TARGET —
Grants: Foundations, public funding
Concessional investments: Development finance institutions, impact investors, public funding
Commercial investments: Institutional investors, local financial institutions

GEOGRAPHY —
For pilot phase: Rwanda
In the future: Rest of Sub-Saharan Africa

The Lab identifies, develops, and launches sustainable finance instruments that can drive billions to a low-carbon economy. The 2021 Lab cycle targets three specific sectors: sustainable food systems, sustainable energy access, and sustainable cities, in addition to two regions: Brazil and Southern Africa.

AUTHORS AND ACKNOWLEDGEMENTS

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SUMMARY

Africa's smallholders represent the largest climate-vulnerable population on the planet. Their livelihood is entirely reliant on the environment, yet extremely sensitive to even minor changes in temperature or rainfall. Building climate resilience for these farmers requires a massive improvement in Africa's agricultural value chains.

Diversification into climate-smart, high-value crops offers a clear pathway to increased resilience for smallholders; however, underfinanced value chains prevent smallholders from accessing the inputs or markets they need to reduce reliance on staple crops that are vulnerable to the effects of climate change.

The Smallholder Resilience Fund (SRF) is designed to address multiple market failures simultaneously. Using a *synchronized investment* approach, the SRF will build the capacity of existing small and medium-sized enterprises (SMEs) by providing finance across entire value chains to purchase, process, and export high-value smallholder produce at scale. Meanwhile, the SRF's 'venture studio' will identify value chain gaps and help to launch and scale new farmer-centric SMEs into investment-ready businesses.

Together, these initiatives will also bring smallholder produce to lucrative international markets that demand products be certified as sustainably and ethically sourced, incentivizing smallholder investment in climate-smart crop diversification. The initial pilot fund will focus on an identified pipeline of smallholder-facing SMEs within the avocado value chain in Rwanda, before expanding into additional value chains and geographies.

This proposed instrument meets all four of the Lab's endorsement criteria:

Innovative:

- Synchronized investments strengthen entire value chains, mitigating the business risk of individual investments
- Venture studio will create new SMEs to fill identified value chain gaps

Financially Sustainable:

- Synchronized approach enables scale, diversification, and aggregation
- The proponent's existing presence on the ground reduces up-front origination and ongoing monitoring costs

Catalytic:

- The pilot will deploy $4.2 million of grant funding to increase the annual income of over 100,000 farmers by approximately 15%
- Once scaled, the SRF aims to expand to additional value chains and markets, catalyzing $50-100 million to impact over one million smallholders

Actionable:

- The proponent has a 15-year track record of successfully partnering with smallholders, deep relationships with relevant stakeholders, over 8,000 staff on the ground in nine countries, an existing pipeline of investable SMEs, and an array of data

Next steps: One Acre Fund has engaged legal counsel to finalize the SRF's business model, governance structure, and details of financial instruments offered. In addition to initial resources already deployed to kickstart operations, grant funding of $4.2 million is required hire an experienced investment professional, conduct final diligence on target SMEs, finalize impact indicators, and ultimately deploy investments.

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CONTEXT

Smallholder farmers in Sub-Saharan African live at the nexus of multiple global crises: extreme poverty, the COVID-19 pandemic and climate change. Strengthening farmer-facing value chains offers a powerful opportunity to sustainably increase the profits & resilience of this population.

Sub-Saharan Africa's 50 million smallholder families represent the largest climate-vulnerable population on the planet[1]. Their livelihood is entirely reliant on the environment and extremely sensitive to even minor changes in temperature or rainfall. As a result, climate change can have devastating consequences for extreme-poor families already living on the edge of subsistence. A recent analysis conducted by McKinsey (2020) finds that climate change will sharply increase yield volatility for African farmers, increasing the likelihood of large seasonal losses of up to 30%. Such reduced yields are likely to perpetuate further deforestation and environmental degradation as more land will be required to grow the same volume of produce.

Building farm-level resilience to climate change in Africa is a humanitarian and ecological imperative – and an achievable goal. Diversification into climate-smart, high-value crops offers a clear pathway to increased resilience for smallholders, which is possible through massively improving Africa's agricultural value chains.

At present, value chain failures prevent African farmers from accessing the inputs and markets they need to diversify their crops. For example, agricultural small and medium-sized enterprises (agri-SMEs)[2] handle over 60% of all food produced on the continent, but lack capacity to purchase, store, and process smallholder production (e.g., due to a region-wide lack of cold chain infrastructure). Lacking coordination, no single SME is incentivized to increase its capacity beyond the capacity of adjacent SMEs within the same value chain. As a result, up to 35% of the continent's agricultural production is lost (Aceli, 2020; FAO, 2019)[3]. Agri-SMEs are also unable to effectively market smallholder produce to lucrative international markets, let alone invest in improving farm-level sustainability and resilience.

These systemic inefficiencies and failures are driven by a lack of investment. Even at a historic high point for global financing at the intersection of agriculture and climate, commercial banks are discouraged by the risk profile and high transaction costs of investing in African smallholder agriculture. The result is an estimated $65 billion financing gap for agri-SMEs – widely referred to as the "missing middle" (Aceli, 2020).

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[1] Smallholder farmers are either individual farmers with up to 10 hectares; or farmers' organizations (groups of farmers acting collectively such as "smallholder farmers' associations," "cooperatives," "farmer collectives," "rural producer associations," (Poole & de Frece, 2010)).
[2] Agricultural input and technology suppliers, produce aggregators or intermediaries, processing companies, transporters, and exporters. SMEs are generally larger than micro-enterprises (which can self-finance and operate successfully within their local social, political and economic ecosystem) but are smaller than large companies, which can access loans from commercial banks (CASA, 2020).
[3] Fruit and vegetable postharvest losses in Sub-Saharan Africa can reach up to 35%, more than twice the postharvest loss rates seen in Asia and over three times that seen in Europe and North America (FAO, 2019).

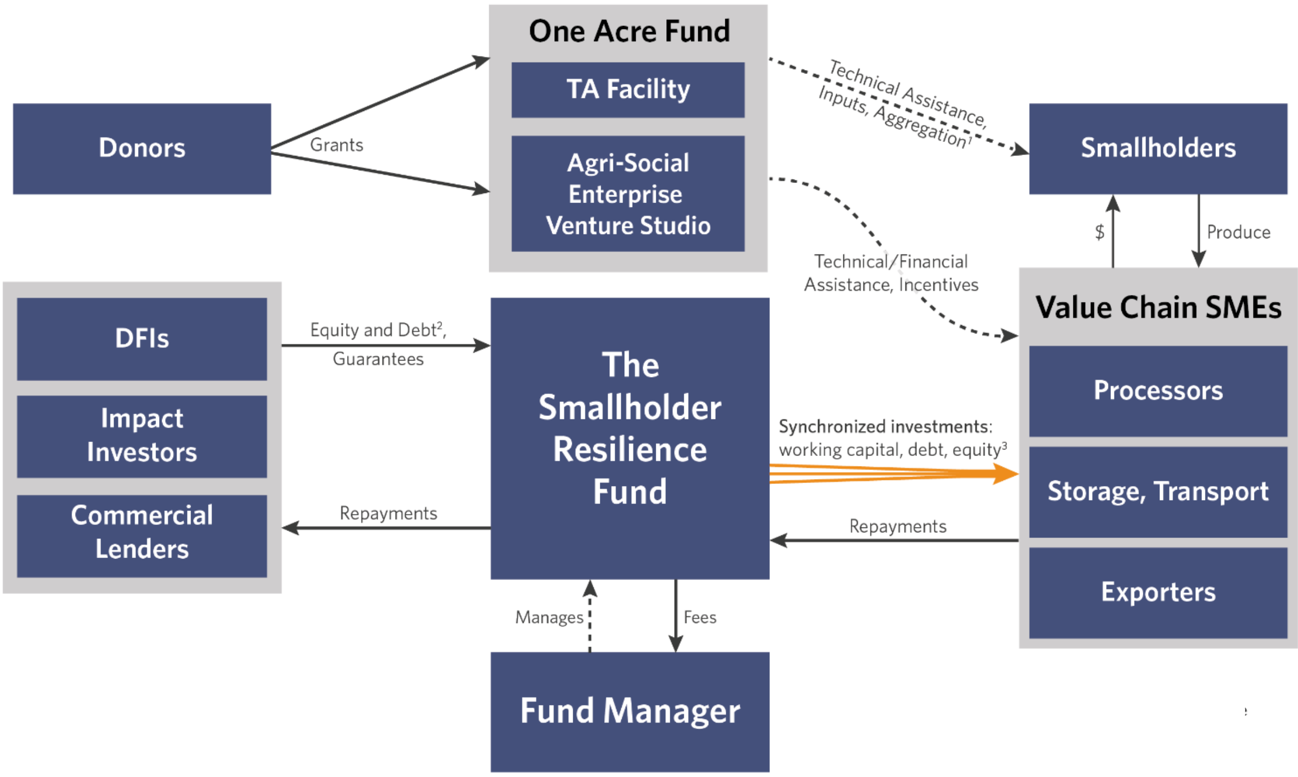
CONCEPT

1. INSTRUMENT MECHANICS

The SRF will provide 'synchronized investments' to existing agri-SMEs and fill in value chain gaps through a venture studio for new companies, creating farmer-centric businesses with positive environmental impacts.

Proposed to the Lab by One Acre Fund (1AF), the SRF aims to de-risk and attract value chain investments that will enable mass numbers of smallholders to achieve higher incomes and greater climate resilience. Figure 1 illustrates the key actors and financial flows.

Figure 1: *Instrument mechanics*



Notes to Figure 1:
1) 1AF aggregates produce if there is no existing aggregator. If aggregator exists, then farmers work directly with aggregator;
2) The SRF would raise equity and debt at both market and concessional terms to achieve a blended finance structure;
3) Investments contingent on (i) guaranteed purchase of produce from smallholders and (ii) sustainability criteria to be defined by the SRF.

1.1 SMALLHOLDER RESILIENCE FUND

The SRF will deploy a *synchronized investment strategy* – investing in the capacity of existing SMEs across entire value chains of high-value, climate-smart tree crops, rather than investing in one company at a time. This approach addresses miscoordination between value chain SMEs whereby no single SME is incentivized to increase capacity beyond the capacity of interdependent SMEs within the same value chain. Therefore, a shortfall in any single SME within a value chain results in a linkage failure that impacts the capacity of all additional value chain SMEs. The synchronized approach not only aims to address all linkage failures existing between interdependent value chain SMEs, but also aims to connect more explicitly, the client SMEs and the smallholder farmers. All synchronized investments deployed by the SRF will prioritize smallholders' interests to create *farmer-centric* value chains.

SRF will use a suite of financial instruments specifically tailored to meet the unique needs of each value chain. For example, value chains that are chronically underdeveloped may require high-touch investments and technical assistance (TA) at multiple levels, from aggregation to end market offtake agreements. Alternatively, value chains with acute shortfalls may require investment in just one or two SMEs.

The SRF will provide a combination of equity, working capital, mezzanine debt and senior term debt, specifically targeting those SMEs that require between $250,000 to $2 million in capital. Meanwhile, 1AF will provide technical assistance to efficiently convert invested funds into greater capacity to purchase smallholder produce. Targeted SMEs include agricultural input and technology suppliers, produce buyers, processing companies, supermarkets, exporters, and other intermediaries.

The financing terms of each instrument are designed to target SMEs that might not otherwise have access to financing due to infeasible collateral requirements or payment terms. Blended finance solutions and loan guarantees offered by the SRF provide favorable combinations of reduced collateral requirements, gradual repayment schedules, and low interest rates. Terms may vary and include incentives that progressively promote positive social and environmental changes in the SMEs supported, based on the extent that pre-defined key performance indicators are met (see section 1.2 for more details).

1.2 Venture Studio

At the same time, **1AF will also create a venture studio** to launch and scale new investment-ready businesses that will fill specific gaps in the value chain (such as aggregation and cold storage), identified using a systems mapping approach. Unlike incubators and accelerators which support existing enterprises, venture studios build new companies they want to see in the world. The venture studio will evaluate critical market needs, then research opportunities to invest growth equity, partnering with local entrepreneurs to implement new business models which have been formulated and validated by the venture studio itself. In addition to start-up equity capital, the venture studio will provide a suite of business support services including finance, accounting, and marketing.

One Acre Fund and/or companies launched from the venture studio will serve as aggregators for the smallholder network's production, filling a value chain gap and ensuring a customer/supply base for the SMEs supported and sufficient cashflows for smallholders. The SRF will also implement marketing strategies with its partner SMEs aimed at obtaining price premiums from international buyers for sustainably and ethically sourced products.

1.3 Governance Structure

The SRF and the venture studio will be organized as two independent entities, governed by One Acre Fund. The SRF will make investment decisions with an investment committee, including the fund manager and other backers/stakeholders.

The fund would initially require catalytic capital to kickstart its operations. Once revenues are stable and scaled, the SRF aims to achieve a blended finance structure with equity and debt at both commercial and concessional terms raised from development finance

institutions, commercial lenders, impact investors, and institutional investors (more details on the implementation pathway in section 3).
The SRF will support SMEs that commit to its eligibility requirements of gender equality, a prohibition of clearing of land with high conservation value, and other environmental and social criteria in line with a Human Rights Based Approach (HRBA) as defined by the United Nations. A full list of criteria and KPIs is provided in Annex I.[4]

Through incentive structures and lending conditions, the SRF will ensure that a portion of the additional profits generated by SMEs is passed down to the smallholders that supply the SMEs. Grant-funded technical assistance provided to farmers will help ensure these additional profits are reinvested into activities that increase smallholder resilience to climate change, such as agroforestry initiatives.

1.4 Theory of Change

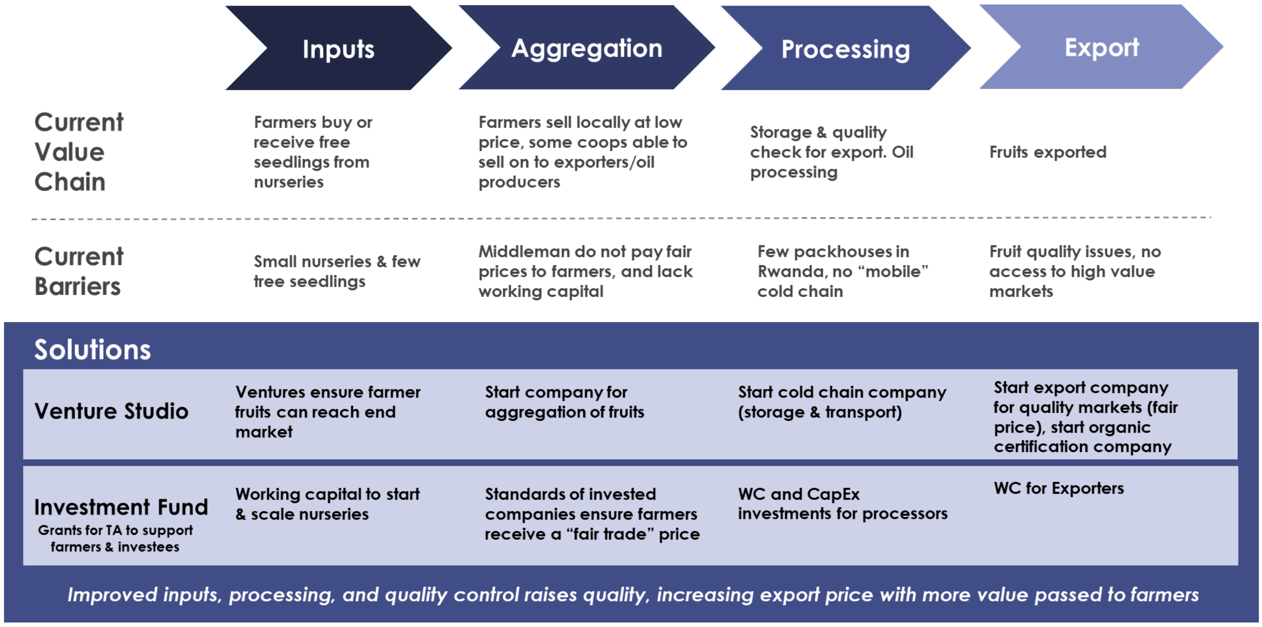
Once operational, the relationship between the SRF and the venture studio unlocks a number of potential **synergies:**

- Venture studio and SRF coordinate to formalize and streamline diligence process, including standardization of financial reporting, legal structures, procurement processes, and real-estate/ permitting documentation. Such standardization will reduce transaction costs at the time of SRF investment.
- SMEs will process and sell larger quantities of products, originating more profits. Dividends paid to the venture studio from the sale of finished products are reinvested in continued growth and financial stability of operating SMEs in the leadup to SRF investment.
- SRF provides exit opportunities for venture studio equity investments by executing buyouts of investment-ready companies created in the venture studio using both debt and equity instruments.
- Venture studio forms new companies that support SMEs within the SRF portfolio, helping to reduce business risk and stabilize payments of interest, principal and working capital from SMEs to the SRF.

Figure 2 below illustrates the example of how the venture studio and SRF can address barriers in Rwandan avocado value chains. The SRF would enable concurrent investments across the local avocado value chain: in the input producers, processors, and exporters that link smallholders to end markets. 1AF would also orchestrate the approach, aggregating farmers' produce and building the capacity of SMEs. Ultimately, a strengthened value chain is estimated to increase annual income by up to 15% per Rwandan smallholder (1AF, 2021. Internal presentation).

[4] Lending criteria include: (i) cannot dispose of wastewater or solid waste in a way that materially threatens human or environmental health, (ii) no use of fires for clearing forests or other land, (iii) social and governance criteria including but not limited to no child labor, fair wages, established governance processes, nondiscrimination policy, and anti-corruption, (iv) Greenhouse gas emissions mitigation, (v) reduction, elimination, and avoidance of toxic chemical use in processes, materials, and products, and (vi) Gender equality in hiring.

Figure 2*: SRF's approach to address barriers across the avocado value chain in Rwanda*



1.5 Value Proposition for Smallholders and SMEs

Smallholders: The primary objective of the SRF will be to generate climate resilience among smallholder farmers, and by extension, their local communities. Improved value chains will allow farmers to diversify into high-value and climate-smart crops via shifted market incentives:

- Farmers will have greater access to affordable and high-quality inputs for these new crops, as well as TA from One Acre Fund, which will result in more crops planted and harvested.
- Farmers will have greater access to processing facilities that increase end product volume and quality, and to new markets/buyers that are willing to pay a premium for high quality, sustainably produced produce.
- Over time, smallholder unit prices may also increase as TA improves produce quality and lending conditions incentivize SMEs to procure high-value smallholder produce at prices reflective of the increased end market value.
- Together, these factors will result in higher smallholder volumes and profits, effectively de-risking farmers' upfront investment in longer-term high-value crops.

Furthermore, 1AF will support farmers in reinvesting their additional profits into activities that further increase their resilience to climate shocks. These activities include further crop diversification, obtainment of land rights and adoption of climate-smart agriculture practices (CSA).[5]

[5] In alignment with the definitions and best practices provided by the World Bank and FAO, CSA activities that 1AF will implement with farmers include mulching, manuring (and using the right amount of organic and inorganic fertilizer), crop rotation, and trees at the edge of plot to avoid erosion. For more information on the World Bank's definition of CSA, see: https://www.worldbank.org/en/topic/climate-smart-agriculture

SMEs: One way the SRF will attract SMEs is by offering significantly more favorable financing terms than those typically available. These benefits include loan guarantees, reduced collateral requirements, and lower interest rates. Terms may vary and include incentives that progressively promote positive social and environmental changes in the SMEs supported. Financing terms may be improved based on the extent that pre-defined key performance indicators are met, such as:

- SMEs committing to increase the amount of product sourced from smallholders, paying an equitable price or a premium for sustainably produced crops.
- SMEs implementing social and governance policies, including but not limited to no-child labor, fair wages, gender balance, established governance processes, non-discrimination policy, and anti-corruption.
- SMEs using the SRF financing to specifically introduce sustainability practices in their operations. For example, energy and water efficiency improvements, renewable energy solutions at facilities and warehouses (including solar-powered cold storage), conversion of waste to energy systems.

2. INNOVATION

The SRF provides dedicated financing solutions to address the financing gap for agri-SMEs in Africa, called the "missing middle."

2.1 Barriers Addressed: Lack of Finance for Agri-SMEs in Africa

Smallholder-facing agricultural SMEs in Africa are severely underfinanced. More than 60% of East Africans work in agriculture, yet the sector receives less than 10% of commercial lending across the region; this figure is as low as 2% in Rwanda. Across Sub-Saharan Africa, agriculture suffers a $180 billion financing gap, of which $65 billion relates specifically to agri-SMEs (Aceli, 2020). The SRF is purpose-built to begin bridging this gap by overcoming three key barriers as described in Figure 3 below:

Figure 3*: Key barriers and corresponding solutions.*

Barrier	Description	Solution
Agri-SMEs are considered too risky and costly to finance	According to Aceli Africa, agri-SME lending is considered at least twice as risky as other sectors served by the same lenders in Africa. Investment costs are also high compared to other sectors, driven by agri-SMEs' remote locations, lack of digital recordkeeping, and origination costs; these origination costs are the single biggest expense in new deals with agri-SMEs, comprising nearly 46% of the total loan income, on average. The high business risk profile paired with above average operating costs for lenders results in returns which are, on average, 4-5% lower than returns in other sectors in East Africa (Aceli, 2020). This means that lenders often turn down new business with agri-SMEs (Small Foundation, 2020).	The SRF will leverage 1AF's existing staff presence already operating in remote locations across eight African countries. 1AF not only has a myriad of connections with local smallholders and agri-SMEs but also owns essential data about their creditworthiness, which will be key to reducing deal-origination and monitoring costs. Further, the relationship between the venture studio and the SRF will help to reduce the challenges associated with conducting up-front due diligence and ongoing monitoring of agri-SMEs. This combination uniquely positions the SRF to reduce fund costs. Further, the venture studio serves as a robust vetting process of participant SMEs, reducing the due diligence burden for the SRF.
Limited pipeline of investment-ready SMEs	Many agri-SMEs in Africa struggle to access financing from commercial and development banks due to the lack of basic financial management and governance, and a lack of account history or collateral (Aceli, 2020; CASA, 2020).	The blended finance structure of the SRF will reduce collateral requirements, while the 1AF-managed technical assistance will build financial management and governance capacity within existing SMEs in preparation for receiving funding. In parallel, the venture studio will generate new investment-ready SMEs that will have maintained standardized and robust financial data in accordance with generally accepted accounting principles, increasing investment actionability for either the SRF or other investors.
SMEs' profits are not shared with smallholder farmers	As the final consumer price for food is substantially set by global markets, and each value chain intermediary demands a margin, greater price pressure is put on smallholder producers, leading to a perpetuation of low incomes and poverty (CASA, 2020).	The SRF will adopt several approaches to ensure SMEs' profits are shared with smallholders. The unit price of smallholder produce will increase due to both increased produce quality resultant from 1AF-led technical assistance and increased collective bargaining power of smallholders enabled by aggregation services provided by 1AF. Meanwhile, the diversification of high-value tree crops will lead to more stable production, thereby reducing variability of farmer income. Finally, the venture studio will form new SMEs with farmer-centric business models that engage in fair profit sharing with smallholders.

2.2 INNOVATION: SYNCHRONIZED INVESTMENT

To better understand the current landscape of financing solutions available to agri-SMEs in Africa and identify the unique aspects of the SRF, the Lab Secretariat gathered information from several comparable existing instruments (see Annex II).[6] The SRF differentiates itself from other instruments because of the unique combination of the following features:

- a synchronized investment approach,
- a venture studio to generate new SMEs, and
- staff deployed across remote locations with existing smallholder and SME networks.

The first innovation at the core of the instrument is the concept of synchronized investment into agri-SMEs across entire value chains. The instruments deployed through the synchronized investment approach may vary depending on the need and the financial tools available:

- **Working Capital**: Synchronized working capital investments may facilitate more efficient payments between SMEs by rolling account balances up the value chain, rather than requiring cash transfers between each counterparty. This process adds value for borrower SMEs by reducing the number of cash transactions. Meanwhile, fund investments are de-risked by reducing maximum cash outstanding. More details about the working capital approach are provided in Annex VI.
- **Mezzanine and Senior Debt**: Synchronized loans address a coordination problem between SMEs within a value chain: as a value chain is only as strong as its weakest link, no single SME is incentivized to invest in additional capacity that exceeds that of its counterparties. Long-term debt provided to SMEs across *all* layers of the value chain simultaneously facilitates coordinated investment in building additional capacity.
- **Equity**: By investing equity capital across an entire value chain, the synchronized approach can use its ownership role to consolidate overhead and realize the benefits of vertical integration. Ownership also presents an opportunity to influence business processes, enabling adoption of farmer-centric business practices. Over time, equity interests can be converted to debt, providing a pathway to exit for the SRF.

2.3 INNOVATION: VENTURE STUDIO FORMATION OF NEW SMES

For some value chains, solely investing in existing SMEs may not be sufficient to effect meaningful change. New companies may need to be created to fill critical market gaps that exist in value chains that support smallholder farmers. This is the case, for example, of cold chain facilities and storage in Rwanda.[7]

Incubators, accelerators, and venture studios are all approaches used to support the creation of early-stage companies (see figure 4 and Annex III for examples). After reviewing their investment models, we concluded that the venture studio model is the most appropriate option to fill value chain gaps and maximize the impact of the SRF.

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[6] The Secretariat conducted detailed review of IDH FarmFit, Root Capital, AgDevCo, TerraFund, GAFSP, FAFINA, ABC Fund, SME Impact Fund, and FinGAP.

[7] Cold chains are underdeveloped in many Sub-Saharan African countries (due to a lack of local manufacturers, cooling technologies, inadequate financing solutions and unreliable electricity). This limits the ability of countries to store perishable foods at scale, as well as vaccines.

***Figure 4**: Overview of type of early-stage company support & investment models*

Accelerator	Incubator	Venture Studio
• Targets existing companies with an initial product and a team (seed to Series B) • Time-bound program (3 months - 2 years) • Focus on education, mentorship, and networking • May or may not exchange funding for equity in the company	• Targets entrepreneurs with very early-stage ideas (idea to seed) • Not time-bound; entrepreneurs can join and leave at any time • Supports founders with a workspace, mentorship, and community • May provide foundational services, such as office space, regulatory compliance advice, support building an advisory board • Most incubators take little to no equity in the companies; generally supported through external funding	• Venture studios build the companies they want to see in the world • Studio formulates and validates new business ideas, then goes out and finds the founders • May provide a more comprehensive set of business support services than an incubator, including HR, finance, marketing, and design support • Take an equity stake in the company in exchange for the suite of business services; may also make venture investments in the companies

MARKET TEST AND BEYOND

3. IMPLEMENTATION PATHWAY AND REPLICATION

An initial proof of concept is being implemented to serve the avocado value chain in Rwanda, before expanding into other countries where One Acre Fund already has staff infrastructure and a presence on the ground.

1AF is currently designing a pilot application of the SRF in Rwanda, focused on the avocado value chains. 1AF has over 2,000 staff in the country, where they serve more than 750,000 smallholders, and have relationships with every major public/private actor in their agricultural sectors, as detailed in Figure 5 below.

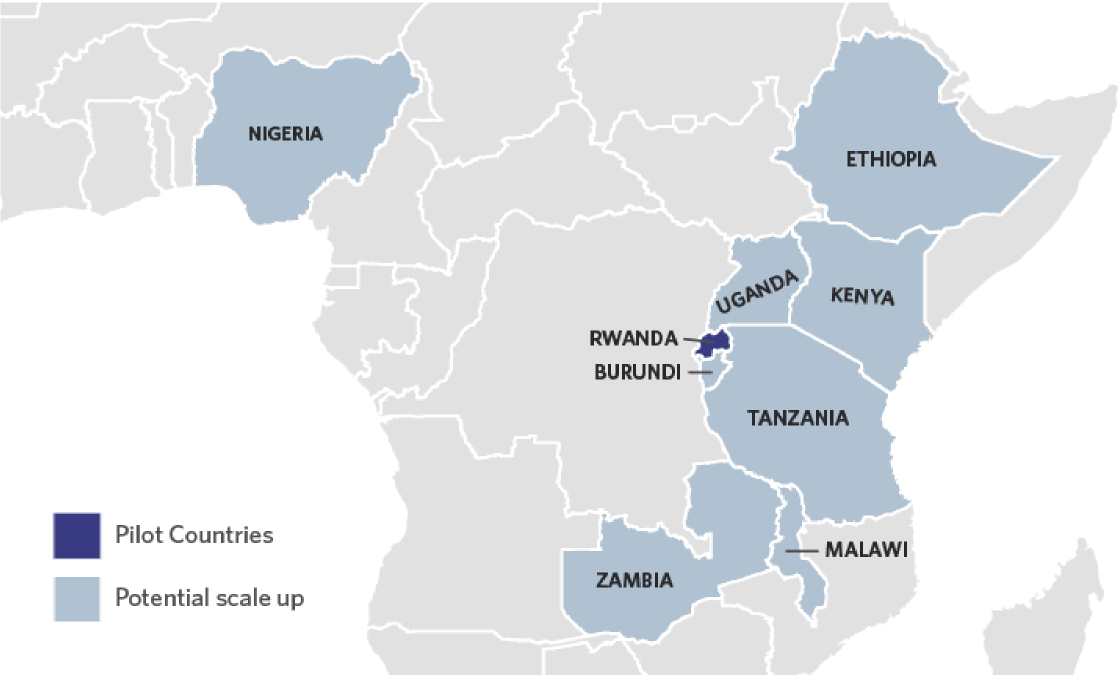
***Figure 5**: Overview of One Acre Fund's strategic positioning in Rwanda*

One Acre Fund Position in Rwandan Market	
Farmer Network	Serves over 750,000 smallholders in Rwanda with extension, inputs, financing and market access.
Team and infrastructure	Over 2,000 staff in Rwanda spread across offices, warehouses, processing facilities, tree nurseries, and the field.
Agri-SMEs	Partnerships with a large network of agri-SMEs. For avocado in particular, working with several suppliers, purchasers, and oil producers.
Government	1AF is a long-standing and trusted partner of the Rwandan government.
End Market	Relationships with an increasing network of end-market buyer in various value chains, including avocados. For example, 1AF purchased over 2,000 metric tons of maize grain from 2,000 farmers in a recent pilot. End market considerations are increasingly important criteria in seed selection as farmers transition from subsistence to commercial farming.

In Rwanda more than 55% of the population lives on less than $1.90 a day (WB, 2019), with over 70% of the workforce employed in agriculture production, a sector that contributes up to one-third of the national GDP and makes up most of Rwanda's exports. Three-quarter of Rwanda's agricultural production comes from smallholder farmers. (RDB, 2021).

In the following years, the model can be scaled to other countries in Sub-Saharan Africa where 1AF operates: Kenya, Burundi, Ethiopia, Malawi, Nigeria, Tanzania, Uganda, and Zambia.

Figure 6*: One Acre Fund's countries of operations*



3.1 Implementation Pathway

SRF will be ideally implemented at scale in 3 stages, with a proof of concept that is currently being designed (Figure 7).

Figure 7: *Implementation pathway*

Stage	Focus	Instruments	Outcomes
1. Proof of Concept *(Two years: early 2022 – 2023)*	Rwanda avocado value chains. Other value chains/ countries to be considered.	Primarily concessional investment in TA, loan guarantees, mezzanine and senior debt, and equity.	Demonstrating economic viability of the fund, prioritizing supply chain investments capitalized. Venture studio launches first companies. Evaluate market needs to better tailor product offerings (e.g., equity, debt, hybrid) and TA to meet long-term SRF goals.

2. Graduation *(Three years: 2024-2026)*	Rwanda avocado value chain, add 1-2 value chains.	Growing proportion of private investment phase, supported by concessional investment in the instruments deemed most viable during the pilot.	Generate stable financial returns, ensuring that SMEs are equipped to operate sustainably upon exit. Transition invested SMEs to long-term investment sources/private investors. Transition investments in mature/investment-ready VS companies to the SRF, or other long-term investors.
3. Scaling *(Years six+: from 2027)*	All nine 1AF countries of operation in Africa. Multiple value chains.	Private investment in the instruments deemed most viable during the pilot phase, supported by ongoing grant-funded TA, and limited direct investment by concessional investors.	Ensure value chains are sufficiently de-risked to attract private capital. Ensure venture studio companies are investment-ready to attract long-term investment. Redeploy funds to replicate the SRF and VS models in new geographies and for additional products.

3.2 GOVERNANCE

Pilot phase: One Acre Fund will form a subsidiary to house both the venture studio and the SRF operations in the pilot phase. This allows for more flexibility to experiment with deployment and testing of different financial instruments in the market. However, to preserve independence, an Investment Committee including funders, SME value chain experts, and One Acre Fund leadership will be established to guide SRF investments. One Acre Fund will hire a dedicated team to operate the venture studio and a professional fund management team for the SRF, bringing in experienced entrepreneurship and investment professionals to serve each function.

Graduation and scaling phase: After the initial pilot phase has proven viability of the SRF, One Acre Fund will form a separate SRF entity (see Figure 1) to raise additional investment capital for the graduation and scaling phases. The SRF will continue to have oversight from the Investment Committee, which will be expanded to include new investors. At the end of the pilot phase, it will be determined whether the venture studio will remain a subsidiary of One Acre Fund or be spun out into a separate legal entity for the graduation and scale up phases.

3.3 CHALLENGES TO INSTRUMENT SUCCESS

To increase the probability of the instrument's success, the Lab Secretariat has thoroughly analyzed potential challenges to implementation, along with the strategies to address them, that the proponents will incorporate into the design and operational practices of SRF. The potential challenges and their corresponding mitigation strategies are presented in Figure 8 below:

***Figure 8**: Challenges to instrument success and mitigation strategies.*

Challenge/Risk	Description	Response/Mitigation Strategy
SMEs entering bankruptcy	Due to selection process and other factors causing low performances; or because of crop risks and farmers' low production due to adverse weather conditions.	SRF will provide tailored financial products to increase SMEs' performances and profits – including technical and financial management assistance – and develop value addition capabilities (e.g., processing). Synchronized investments will also support adjacent and interdependent SMEs within a value chain, reducing counterparty risk. To mitigate farmer risk, SRF may design or intermediate the purchase of affordable insurance products to offset low-yield seasons.[8] Crop risk will be further mitigated by sourcing from smallholders across many agro-ecological zones. TA facility will aid smallholders in increasing reliability of supply.
Investment origination	Insufficient pipeline/complexity in assessing SMEs creditworthiness.	SRF/1AF staff is already present in remote locations, with capabilities to identify projects and perform due diligence at a lower cost than financial institutions. Companies created in the venture studio will also contribute to the pipeline of investable opportunities.
Conflicts of Interest/ breaches of fiduciary trust	Equity interests in multiple SMEs within a single value chain presents potential conflicts of interest in the context of contract negotiations between SMEs with direct business dealings or bankruptcy proceedings that impact multiple SMEs within the same value chain.	Synchronized investments in multiple interdependent SMEs along the same value chain will be limited to working capital, mezzanine debt, or senior debt where possible. Robust governance structures will be developed and applied to ensure that breaches of fiduciary trust between equity partners are avoided.
Market risks	Limited and variable supply of smallholder produce, especially during tree the 5-6 year maturation phase prior to newly planted trees yielding crops, and low rates of fruit reaching international markets where the majority of value is created.	• One Acre Fund has already distributed over 500,000 seeds to date, securing near-term supply for value chain SMEs. • The venture studio will launch a branding and marketing SME for end market sales that pursues offtake agreements with international buyers in strategic export markets such as Europe and Dubai seeking sustainably sourced commodities. • 1AF will work with farmers to improve the quality of supply in the near-term; and iv) agroforestry TA provided by 1AF diversifies produce, increases yield, and reduces yield volatility in the long-term.

[8] See also "Blockchain Climate Risk Crop Insurance" at: https://www.climatefinancelab.org/project/climate-risk-crop-insurance/

Foreign exchange risks	Erosion of fund investment value in US dollar terms due to inflation of local currencies.	Portfolio returns are calibrated to compensate for foreign exchange risks, proving competitive on a risk-adjusted basis. Additionally, investments in export-oriented SMEs along with diversification of loan tenors and, once scaled, diversified geography mitigates risk. The SRF will also consider the potential use of derivative products/currency hedges.

4. FINANCIAL IMPACT AND SUSTAINABILITY

4.1 Private Finance Mobilization and Replication Potential

Once scaled, the SRF and adjacent agri-SME venture studio aim to catalyze $50-100 million of blended concessional and commercial finance towards smallholder value chains. While synchronized investments and technical assistance reduce the business risk of investments in SMEs, concessional capital mitigates financial risk faced by commercial investors, providing a pathway to competitive return profiles. By serving a 'first-loss' function, concessional investors shelter commercial investors from bearing the risk associated with lower-than-expected operating income, up to a certain point.

4.1.1 Smallholder Resilience Fund

The SRF will leverage 1AF's fundraising expertise and presence on the ground in key markets to raise and deploy $2.0 million of grant funding to launch the two-year pilot phase, deploying $1.4 million of funds into investment-ready SMEs to validate SRF viability. During a three-year scale-up phase, grant funding will be progressively replaced by a blended finance structure utilizing a combination of loan guarantees, concessional debt and equity, commercial debt and equity, and ongoing technical assistance managed by 1AF to mobilize commercial investments.

Beginning in the sixth year of operation, the fund will reach a steady-state commercial phase whereby proven SRF operations scale into additional geographic and product markets. Once fund composition has stabilized, target private capital mobilization of between $30-60 million, comprising approximately 60% of total fund size, once scaled.

Through its blended finance structure, the SRF may be able to provide local currency loans at approximately 13% interest, compared to current market rates which can be upwards of 20% (Dalberg, 2018). This is possible due to the risk tolerance of concessional capital and the de-risking effect of synchronized investment. The SRF can offer ongoing repayment structures that avoid a one-time balloon payment and low interest rates that reduce the burden of debt service payments on SME operations.

4.1.2 Venture Studio

During the pilot phase of operation, the 1AF-managed agri-SME venture studio will deploy $2.5 million of grant-funded catalytic equity to form new agri-SMEs that fill acute gaps in smallholder value chains. Upon attaining profitability and establishing a history of formal financial records after 3-5 years of growth within the venture studio, SMEs will have largely been de-risked in the eyes of commercial investors, making them *investment ready*. At this point, the venture studio's grant-funded catalytic equity stake will be replaced by return-oriented capital, via either the SRF itself or other third-party investors. All proceeds to the venture studio on the sale of its equity stake will be redeployed to launch new businesses that fill additional value chain gaps. After 10 years, initial funds from the venture studio's pilot phase are expected to mobilize between $10-24 million of commercial capital by redeploying returns on investment to launch and grow additional SMEs.

The high-risk nature of seed equity investing necessitates grant or other catalytic capital to form new SMEs. However, these risks are partially mitigated by the high-touch support and ongoing TA support, providing an avenue towards long-term financial sustainability.

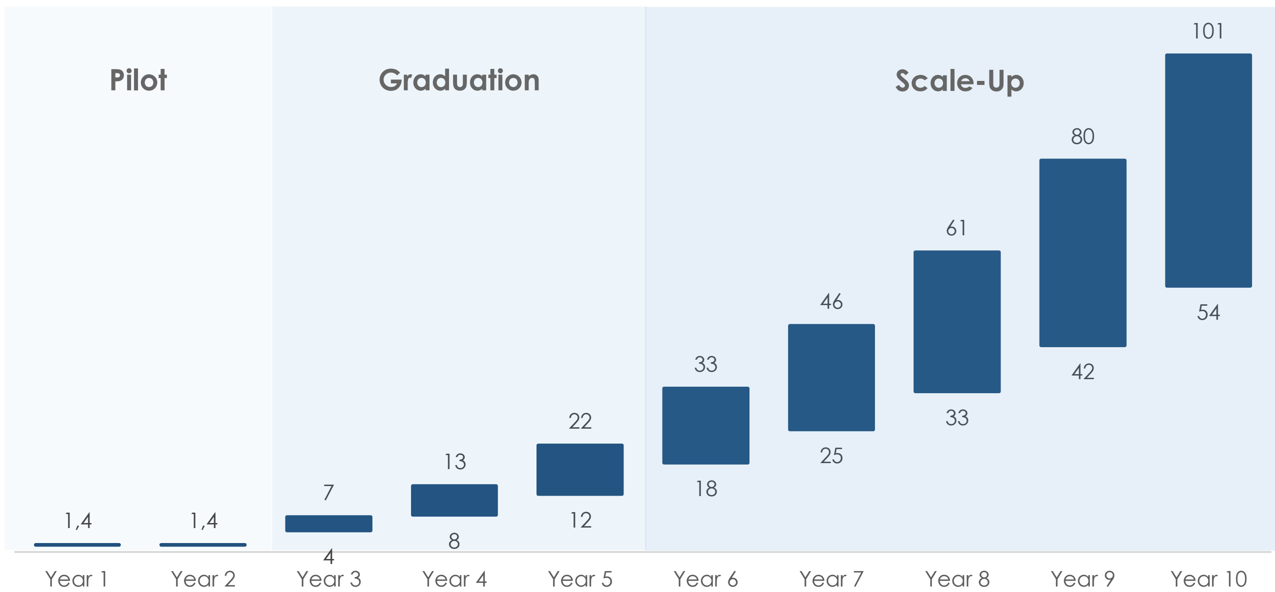
4.2 Quantitative Modeling

4.2.1 Overview

The SRF's strategy to generate long-term smallholder resilience via synchronized investments across value chains necessitates flexibility to deploy financial products appropriate for each actor. As such, the Lab Secretariat has modelled the financial viability of the SRF investments in both equity and debt. The model projects 10 years of fund operations, beginning with deployment of grant funded pilot capital during the first two years of operations, followed by a gradual scale to steady state operations.

Of the assumed $4.2 million in grant funding for the pilot phase, $1.3 million of start-up costs are incurred to establish and staff both the SRF and venture studio. Net proceeds of $2.9 million are then deployed to fund two avocado processor SMEs as part of the SRF ($1.4 million) and launch two aggregation and cold storage businesses within the venture studio ($1.5 million). Following the two-year pilot phase, the model assumes that the SRF expands into one additional market per year, investing between $0.6 million and $1.4 million in 1-2 investment-ready SMEs per active market, per year. Further, the SRF is assumed to invest in 50% of all SMEs launched from the venture studio. Figure 9 illustrates the range of total capital mobilized under the modelled scenarios, indicating that the SRF has the potential to deploy between $50-100 million of capital over 10 years of operation.

Figure 9: *SRF modelled range of cumulative capital deployment ($ millions)*



4.2.2 Blended Debt & Equity Results

In order to attract investment by a wide range of commercial investors with varying risk appetites, the SRF model evaluates both blended debt and blended equity instruments with varying risk/return profiles.

The modelled interest rate for blended debt varies depending on the proportion of concessional and commercial capital, with interest rates rising as the share of concessional capital declines. On average, the model assumes commercial investors comprise approximately 60% of total debt deployed, yielding a blended interest rate of 14% charged to SMEs. Concessional debt protects commercial returns in the event of adverse cashflow scenarios, absorbing all losses before commercial investors are impacted. After fees, concessional and commercial debt investors are expected to realize returns of 10% assuming all debt service payments are made.

The blended equity structure modelled for the SRF targets baseline commercial returns of 30% to attract equity investors with higher risk tolerance and expected returns. By accepting a lower return hurdle, the SRF's concessional equity tranche allows commercial equity investors to realize returns in excess of project-level returns on an un-blended basis.

Figure 10 summarizes the sensitivity of debt and equity returns to the different operating cashflow scenarios. The '100%' scenario reflects the target returns of each investor under a scenario in which cashflow forecasts for all SMEs are realized as originally forecast. Should project cashflows fall short of expectations, concessional debt and equity investors shelter commercial investors from realizing large-scale losses under a range of scenarios.

For example, should project operating cashflows fall to 25% of their initially projected values, overall debt and equity returns would fall to 1% and 6%, respectively. Due to the blended finance structure, however, concessional investors bear a disproportionate share of losses, allowing commercial debt and equity investors to maintain returns of 7% and 12%, respectively. See Annex IV for additional detail.

***Figure 10:** SRF internal rate of return (IRR) on invested capital*[9]

	Project Cashflow Sensitivity (% of Forecasted Cashflows)				
	125%	100%	75%	50%	25%
Blended Debt Returns					
Commercial Debt	10%	10%	10%	10%	7%
Concessional Debt	10%	10%	10%	8%	--
Total Debt	**10%**	**10%**	**10%**	**10%**	**1%**
Blended Equity Returns					
Commercial Equity	31%	28%	25%	20%	12%
Concessional Equity	16%	12%	7%	2%	--
Total Equity	**21%**	**18%**	**14%**	**10%**	**6%**

[9] All returns are shown in local currency. See section 2.2 for more detail on foreign currency risk.

5. ENVIRONMENTAL AND SOCIO-ECONOMIC IMPACT

With the potential to increase farmers annual income by 15% or more, SRF can support smallholders in Africa to become more climate resilient, while at the same time, creating new local jobs and introducing climate mitigation solutions.

5.1 Environmental Impact

The SRF has the potential for significant impact related to the climate adaptation of smallholder farmers and avoided emissions throughout agricultural value chains. In terms of adaptation, the SRF aims to increase and diversify smallholders' income sources through the adoption of high-value/climate-smart crops (versus staple-crop monoculture) that increase their resilience if one crop fails due to climate change events.

Climate mitigation benefits will arise from i) reduced emissions from SMEs operations due to the introduction of higher efficiency standards and sustainable practices, ii) agroforestry, tree-planting, and land restoration from farmers, and iii) reduced land clearing due to increased smallholder profitability.

The SRF will also contribute to alleviate broader environmental and ecological stresses faced by rural communities. As the Sub-Saharan Africa population is expected to double by 2050, the region faces growing pressure to increase food production amidst falling yields due to the combined effects of climate change, soil degradation, deforestation, and biodiversity loss (World Bank, 2019). Technical assistance provided by One Acre Fund will assist farmers in implementing CSA practices and crop diversification to restore degraded, unproductive, or unused lands and foster crop biodiversity, increasing resilience not only for smallholders themselves, but also for the rural ecosystems they inhabit.[10] Further, promotion of intercropping perennial tree crops with deep root systems leads to enhanced soil health and improved yields.

Environmental sustainability will be validated at the smallholder level using an ongoing monitoring and evaluation approach which compares a defined population of smallholders supported by 1AF technical assistance and SRF investments with a control group of comparable smallholders that are not impacted by 1AF or SRF operations. This data driven approach tracks indicators such as tree cutting practices and tree survival rates.

Lastly, the SRF will also promote sustainability improvements at the SME level, by incentivizing adoption of environmental and climate-smart practices such as those listed in section 1.5 above. As part of its monitoring and evaluation routines, the SRF will guide SMEs' implementation of these policies and practices and assess their results.

5.2 Social and Economic Impact

In terms of socio-economic impacts, the SRF will contribute to increasing smallholders' annual profits by $50-100 as a result of the sale of additional crops sold to SMEs. Considering

[10] For example, intercropping additional high-value crops within macadamia orchards can generate microclimates which increase plant yield (Perdoná 2015, Moreira et. al 2018). 1AF will conduct ongoing monitoring and evaluation of biodiversity indicators using Simpson's Diversity Index (SDI).

that over 55% of the population in Rwanda lives on less than $1.90 day (WB, 2019), this means an increase of up to 15% in average annual income of the poorest population.

The low value staple crops relied upon by many smallholders are vulnerable to the effects of climate change, whereas perennial tree crops tend to be more resilient. Recent analysis of the impacts of climate change on agriculture suggests that staple crop yields could decrease as much as 7.1% for maize, 5.6% for rice, 10.6% for soybean, and 2.9% for wheat (Alliance for Science, 2020). Avocado also has a long lifespan (an avocado plant can live up to 50 years). 1AF is helping smallholders make the transition from low-value staple crops to high-value ones like avocado by providing millions of seeds, looking to build off of already strong avocado growth in Rwanda: exports increased by almost 100% between 2019 and 2020 (NAEB, 2020). Further, farming practices advocated by 1AF and applied by smallholders in Rwanda and other parts of Africa limit the use of commercial irrigation and pesticides than have resulted in negative environmental impacts of avocado farming elsewhere.

This can contribute to mitigating the impacts of the COVID-19 crisis on SMEs and farmers, which pushed many smallholders into vulnerability as crop prices fell, food markets closed, and off-farm income opportunities disappeared (RAF Learning Lab, 2021). On top of the $65 billion financing gap for agri-SMEs, the COVID-19 pandemic has further reduced borrowing opportunities for agri-SMEs, exacerbating value chain linkage failures (RAF Learning Lab, 2021). The SRF has the potential to kickstart the rural value chains that have been hampered by the COVID-19 pandemic, allowing them to 'build back better' into well capitalized value chains that are more resilient to demand shocks, providing reliable support to smallholders.

The SRF also aims to improve food security in Sub-Saharan Africa, reducing post-harvest food losses, and creating additional green jobs. Increased farmer sales, diversification into high value crops, and higher production standards will make agricultural products supported by the SRF more desirable for international markets, generating new business opportunities and profits for smallholders.

The Smallholder Resilience Fund will contribute to the advancement of multiple Sustainable Development Goals (SDGs), in particular: SDG 1 (eradicate poverty), SDG 2 (zero hunger), SDG 5 (gender equality), SDG 12 (responsible consumption and production), and SDG 13 (climate action).

5.3 Sectoral Impact: Sustainable Food Systems

The main goal of the Lab's Sustainable Food Systems stream is to identify innovative solutions to catalyze private investment to improve the sustainability and resilience of global food systems while supporting a green, resilient recovery from the COVID-19 pandemic. The Food and Agriculture Organization of the United Nations (FAO) estimates that the additional number of undernourished people in 2020 due to the COVID-19 pandemic could be as high as 130 million, largely living in Africa (FAO, 2020).

By strengthening African agricultural value chains, the SRF will improve the resilience and economic outcomes of several categories of actors that are strictly interconnected: from smallholder farmers to food processors, distributors, and exporters. For the Rwanda pilot, the SRF will also contribute to achieving the countries' adaptation objectives stated in their Updated Nationally Determined Contributions (NDC).

NEXT STEPS

One Acre Fund has engaged legal counsel to finalize the SRF’s business model, governance structure, and details of financial instruments offered. In parallel, staff on the ground in Rwanda are conducting preliminary diligence on an initial pipeline of investment-ready SMEs which have been identified for the pilot phase. In addition to initial resources already deployed to kickstart operations, grant funding of $4.2 million is required to advance the SRF into the pilot phase: hire an experienced investment professional, conduct final diligence, finalize impact indicators, and ultimately invest in multiple SMEs along a value chain. As the project evolves, additional financing will scale the SRF to serve more SMEs and untap the full potential of high-value, climate-resilient agricultural value chains in Africa.

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ANNEX I: SUSTAINABILITY CRITERIA AND CONDITIONS

SME Facing Criteria	Criteria Type	Challenges
Cannot clear land of high conservation value	Due diligence	Defining "high conservation value"
Cannot dispose of wastewater or solid waste in a way that materially threatens human or environmental health	Due diligence	Ongoing monitoring and enforcement
No use of fires for clearing forests or other land	Due diligence	Ongoing monitoring and enforcement
Social and governance criteria including but not limited to no child labor, fair wages, established governance processes, nondiscrimination policy, and anti-corruption	Lending condition	Ongoing monitoring and enforcement
Greenhouse gas emissions mitigation (metric tons of CO_2e)	KPI	Standardizing measurement process
Reduction, elimination, and avoidance of toxic chemical use in processes, materials, and products (metric tons of toxic chemicals)	KPI	Defining "toxic chemicals“ and measuring reductions
Gender equality in hiring	KPI	Ongoing monitoring and enforcement
Farmer Facing Criteria	**Criteria Type**	**Challenges**
Cannot clear forest to plant new avocado and macadamia trees (or other crops supported by the fund) going forward	Participation condition	Ongoing monitoring and enforcement
Not using harmful environmental practices in field	Due Diligence	Ongoing monitoring and enforcement
Increased use of mulching, manuring (and using the right amount of organic and inorganic fertilizer), crop rotation, and trees at the edge of plot to avoid erosion	KPI	Developing measurement process
Applying Soil health practices (i.e., lime application, reducing acidity, composting, intercropping)	KPI	Ensuring farmer understanding via TA
Participate in 1AF trainings and trees are healthy (kgs of fruit, survival)	KPI	Avocado trees require a lot of care
Soil erosion (MT from Revised Universal Soil Loss Equation)	KPI	Ensuring farmer understanding via TA

ANNEX II: EXAMPLES OF COMPARABLE INSTRUMENTS

Detailed List of Comparable Instruments:

Instruments	Description	Differentiation
IDH FarmFit	Smallholder focused public-private impact fund, taking on responsibility for first losses incurred in investments	• Focus on staple and cash crops • No specific climate focus • Direct loans to smallholders
Root Capital	Non-profit with a focus on financing agricultural SMEs and farmer cooperatives (working capital and equipment loans) Includes advisory / technical assistance services	• Focus on coffee, cacao, tree nuts and local food crops • Does not act as aggregator
AgDevCo	Impact investor in agriculture businesses across the value chain, to support smallholder out grower programs and create jobs & market linkages	• Larger ticket size ($2-10m) • Works with more mature agribusinesses

TerraFund/ Rural Prosperity Bond	Debt SPV providing missing-middle-sized loans to scale-up SMEs' restoration efforts after graduation from the World Resource Institute's Land Accelerator capacity building program	• Debt-only investment vehicle • Unsynchronized investment in a single value chain link
Global Agriculture and Food Security Program (GAFSP)	Multilateral financing instrument dedicated to fighting hunger, malnutrition, and poverty by strengthening sustainable and resilient food and agriculture systems. They have provided $1.7 billion in financial and technical resources to projects along the entire agriculture value chain. 65% of their projects address climate change.	• Offer grants and concessional loans to SMEs • Does not offer direct financial support, rather pools donor resources and channels funding through established regional and multilateral development agencies
Facility For Agriculture Finance in Africa (FAFINA)	A pan-African investment vehicle supported by Convergence and AfDB that will provide critical financing to "missing middle" small and medium sized agribusinesses (agribusiness SMEs) in Sub-Saharan Africa. Provides both direct and indirect financing to agribusiness SMEs.	• Offers a syndication platform to attract local commercial banks to co-finance transactions at the project level • Larger ticket size: $ 1M+
Agri-Business Capital Fund (ABC Fund)	A European Commission funded initiative led by IFAD. Explicitly targets "Missing Middle" farmer organizations and SMEs that are active in agricultural value chains, through a mix of direct financing and finance intermediation.	• Has a focus on unemployed youth and a large gender component • No climate focus • Capitalizes on existing IFAD projects and presence on the ground
SME Impact Fund (SIF)	Debt SPV that provides financing as loans. Four main types of loans are available: (i) input finance; (ii) crop finance; (iii) farm investment; and (iv) company investment. Also offer TA as business model and financial modelling support. They offer more flexible terms than other financial institutions.	• Larger ticket sizes: $65,000 to $650,000 with an average loan size of $200,000 • Investment horizon capped at 5 years
Financing Ghanaian Agriculture Project (FinGAP)	USAID funded project being implemented by Palladium and other local institutions. Aims to stimulate commercial lending to the entire agriculture value chain with a focus on staple crops of maize, rice, and soy (MRS). Operates a Payment by Result model. Also provides technical assistance.	• Specific focus on Ghanian agricultural ecosystem • Operates a Payment by Result (PBR) model • Does not offer credit lines

Complete List of Comparable Instruments:

Instrument Name	Fund manager(s)	Invest Type	Geographic focus	Investment Strategies	Focus on Adaptation?	Focus on SMEs?	Ticket size
AgDevCo	AgDevCo	Debt & Equity	Africa	Agriculture	No	Yes	$ 100k – 10M
Africa Agriculture and Trade Investment Fund (AATIF)	Deutsche Bank	Debt & Equity	Africa	Agriculture/Farmland (direct & indirect investments)	No	Yes	$ 150k – 4M
AgriFI	EDFI Management Company	Debt & Equity	Global	Agriculture	No	Yes	EUR 1M – 5M
Aceli Africa	Aceli	Debt	Africa	Agriculture	No	Yes	
African Agricultural Fund	Phatisa Group	Equity	Africa	Agriculture/farmland (100%)	Yes	Yes	
Agri-Vie Fund	EXEO Capital	Equity	Africa	Agriculture/farmland, timberland	No	Yes	$ 6M
Agri3	Mirova Althelia	Debt/Guarentees	Global	Agriculture / Food / Forestry	Yes	Yes	$ 2 – 15 million

Acumen Resilient Agriculture Fund (ARAF)	Acumen	Debt	Eastern Africa	Agriculture	Yes	Yes	$ 2M
Agri-Business Capital (ABC) Fund	Bamboo Capital Partners. Investment Advisor: Injaro Investments	Debt & Equity	Africa, South America & Asia	Agriculture / Food	No	Yes	EUR 200k – 800
AAF SME Fund	Databank Agrifund Manager	Equity	Africa	Agriculture	No	Yes	$ 150k – 4M
Climate Resilience and Adaptation Finance & Technology Transfer Facility (CRAFT)	Lightsmith Group	Equity	Global	Climate adaptation and resilience	Yes	Yes	$ 2 – 15 million
Conexsus Impact Fund	TBD		Brazil	Agriculture/forestry	Yes	Yes	Starts at $ 1m
Crop Farming Loans	Juhudi Kilimo	Debt	Kenya	Agriculture	No	No	
Dutch Fund for Climate Development (DFCD) - Land Use	FMO	Debt & Equity	Africa	Agriculture	Yes	No	
Food Securities Fund	Vistra (Alternative Investment Fund Manager)		Africa / East Africa	Agriculture / restoration	Yes	Yes	
Forest Resilience Bond	FRB Yuba Project I LLC	Debt	Western US	Agriculture / restoration	Yes	No	
Financing for Low Carbon Auto Rickshaws	Not a fund	Debt	India	Transport	No	No	
Grove Forestry Smart Ledger (FSL)	Not a fund		India	NBS	Yes	No	
Hivos Food and Lifestyle Fund	Hivos Foundation	Debt	South Africa	Agriculture	No	Yes	
IDH FarmFit Fund	IDH		Global	Agriculture	No	No	
Lending for African Farming (LAFCo)	Barak Fund Management	Debt	Africa	Agriculture	No	Yes	
MEDA Risk Capital Fund (MRCF)	Sarona Asset Management	Debt	Global	Agriculture/others	Yes	Yes	
Root Capital	Root Capital	Debt	Global	Agriculture	No	Yes	$ 50k – 2M

Rabo Rural Fund	Rabobank Foundation	Debt	Multi-region	Agriculture	No	Yes	$ 200k – 2M
Responsible Commodities Facility	Sustainable Investment Management (SIM)	Debt	Brazil	Land use/ forestry /agriculture/ financial services	Yes	No	

ANNEX III: REVIEW OF INCUBATOR MODELS

Example	Description	1AF/ SRF Value Add
The Land Accelerator (WRI)	Curated network and accelerator program for entrepreneurs who restore degraded forests and farmland Provides 3-month virtual training & networking program which includes: (i) weekly training & networking sessions, (ii) weekly 'office hours' with pro-bono mentor and (iii) access to Fledge's online learning resources Upon completion of three-month program, SMEs receive $5k grant funding Objective is to equip existing entrepreneurs with skills to attract third party capital	Transforms value chains by identifying and addressing gaps in value chains by deploying proven business models through local entrepreneurs Preferred funding source identified prior to SME/entrepreneur involvement in venture studio
Fledge to Africa Eats	Partnership between Fledge accelerator program and Africa Eats HoldCo provides direct pathway from accelerator to funding Fledge provides 2-month accelerator program including: (i) mentorship, (ii) online educational resources, and (iii) equity investment of $15-20k Upon completion of accelerator program, Africa Eats takes over Fledge's stake, investing additional equity capital (avg. $500k per company) Goal to provide institutional-scale investment to catalyze public listing in African exchanges by 2024 and in London/NYSE (or equivalent) by the end of the decade	Provide high-touch support for early-stage businesses to catalyze entrepreneurship and create new businesses SRF's capabilities to offer working capital and equipment loans allow SMEs to build credit through accessing blended finance
Factor[e] Ventures	Venture studio supporting SMEs which addresses critical market needs in energy, agriculture, mobility, and waste currently operating in 44 countries. Where existing SMEs are not addressing critical needs, Factor[e] incubates and scales internal business concepts. Invests $250-750k of active equity capital, participating in the design, development, and management of companies	Sectoral and geographic focus on agri-SMEs in 1AF countries provide highly specialized technical assistance and deep knowledge of localized value chain dynamics 1AF field staff provide potential for ongoing boots on the ground support

ANNEX IV: FINANCIAL MODEL DETAILS

Portfolio composition: The SRF is modelled to reflect investments in three SME types with varying business models. These example SME types represent prospective investment targets which have been identified by 1AF:

1. An 'investment ready' avocado processor with established positive operating cashflows. The assumed financial history of this SME profile makes it a candidate for either debt or equity investment by the SRF that can be deployed to increase purchasing capacity and scale.

2. A new avocado aggregation and cold chain business launched from the venture studio. This SME profile becomes 'investment-ready' for equity investment by the SRF after two years of operation. As this SME's operating profile matures, it becomes 'investment ready' for debt investment by the SRF after five years of operation.

3. A macadamia processor assumed to be 'investment ready' upon the SRF's expansion into new value chains following the pilot phase. This SME type is assumed to have positive operating cashflows and requires investment by the SRF to increase purchasing capacity and scale. The established financial history of this SME profile makes it a candidate for either debt or equity investment by the SRF.

Modelled cashflows for each SME type are derived from historical and projected financials provided by operating SMEs and adjusted to reflect an internal analysis of market conditions.

Debt financing assumptions: The SRF model assumes two distinct debt structures:

1. A 50/50 split between commercial and concessional investment, modelled with a blended 13% interest rate. This structure is applied for SMEs with projected cashflows that are *insufficient* to support higher debt service payments demanded by commercial investors.

2. A 75/25 split between commercial and concessional investment, modelled with a blended 17% interest rate. This structure is applied for SMEs with projected cashflows that are *sufficient* to support higher debt service payments demanded by commercial investors.

Both debt structures are modelled as fully amortizing loans with equal monthly payments that gradually pay down principle until the loan term has expired. Under the blended finance structure, all monthly payments of both interest and principal are made to commercial debt investors prior to any interest or principal payments are made to concessional debt investors. This structure serves to drastically reduce risk for commercial debt investors as concessional investors are first to absorb all losses. For example, in the 50/50 split scenario where commercial and concessional investors contribute an equal portion of total project-level debt, the concessional investor will absorb all losses up to the point at which cashflows are reduced to 50% of their originally forecasted values. Likewise, in the 75/25 split scenario concessional investors absorb all losses up to the point at which cashflows fall 25% relative to their originally forecasted values.

Risk to debt investors is further mitigated through the application of a minimum debt service coverage ratio (DSCR), which aims to ensure that SMEs have sufficient cashflow to make interest and principle payments. For example, an applied minimum DSCR of 1.65 would require that the projected cashflows must be 65% higher than the required monthly debt service payment. This is the case under the 50/50 split scenario in which the modelled DSCR is 1.8 times the required debt service payment for commercial investors, and 1.5 times required debt service payment for concessional investors.

These risk mitigating criteria provide a stable return profile for both commercial and concessional investors, enabling positive returns for both investor types under a range of downside scenarios.

Equity financing assumptions: SRF equity investments are modelled in order to maximize the proportion of commercial capital mobilized while maintaining minimum return thresholds for both commercial and concessional investors. Unlike SRF debt investments which require positive operating cashflows prior to investment, SRF equity investments can be made in SMEs which have not yet attained profitability but have a clear line of sight into future profitability. Therefore, equity investments are assumed to be made in less mature SMEs, such as that illustrated by the avocado aggregation and cold chain SME template described above.

In order to limit risk exposure for commercial investors, equity investments are made in two phases. During the first two-year investment phase, concessional investors play an outsized role, comprising between 66% and 75% of the SRFs equity stake in a portfolio SME, while commercial investors contribute between 25% and 33% of total equity. Once cashflows begin to stabilize reflecting reduced risk, commercial investors are assumed to purchase a portion of concessional equity, taking up to a 66% stake in the SME for the second three to five-year investment phase. This allows commercial investors to limit their exposure to nascent SMEs during the first two years of SRF equity investment, while still comprising the majority of long-term equity capital provided through the SRF.

ANNEX V: CAPITAL STRUCTURE DETAILS

	Equity	Debt
Eligible Activities	CapEx, SG&A	CapEx
Average Commitment	~$650,000	~$900,000
Currency	Local	Local
Cost of Capital	Target IRR (Market): 30% Target IRR (Concessional): 13% Target IRR (Blended): 22%	Interest Rate (Market): 22% Interest Rate (Concessional): 9% Interest Rate (Blended): 14%
Investment Horizon	2-7 years	10-15 years
Exit Strategy	Leveraged buyout (LBO) or debt conversion	Principle/interest repayment or refinancing
Origination Cost	10%	10%
Fund Management Cost	Fund management fee: 3% of total investment (min. $200k/yr) Performance fee: 5% of residual cashflows	Fund management fee: 1.5% of total investment (min. $100k/yr)
Value Chain Rationale and Benefits	Improved governance and operations via incubator's TA. Improve sustainability through the introduction of environmental (energy/resource efficiency) and social practices	Capital to purchase new equipment/ infrastructures (e.g. processing machinery, quality control machinery, warehouse, transport fleet) increases processed volumes
Fund Rationale and Benefits	Opportunity to directly implement farmer-centric business practices. Ongoing TA provides access to debt capital markets, allowing for LBO exit at favorable terms	1AF presence on the ground reduces origination and monitoring costs. Collateralization of debt investments in new equipment limits downside

ANNEX VI: EXAMPLE: SYNCHRONIZED WORKING CAPITAL

Situation Overview: SRF makes synchronized working capital commitments of $15,000 each priced at 1% per month to both *Processor SME* and *Exporter SME,* which operate in the same smallholder value chain.

Processor SME draws $10,000 from SRF's working capital facility at 1% monthly interest in order to procure smallholder produce. *Processor SME* then applies a 10% mark-up on produce before selling to *Exporter SME*. *Exporter SME* likewise purchases the produce on SRF-provided credit priced at 1% per month before selling it at a 10% mark-up into the international markets.

Under an *Un-Synchronized Approach*, each transaction must occur in sequence. For example, *Processor SME* cannot pay down its working capital account balance until *Exporter SME* issues payment to purchase produce from *Processor SME.* Meanwhile, *Exporter SME* cannot issue payment to *Processor SME* until after *Exporter SME* draws on its revolving WC facility. The result is a bottleneck in payment timing to the fund.

The *Synchronized Approach,* enabled by SRF's investment in both *Processor SME* and *Exporter SME,* alleviates this bottleneck by allowing for simultaneous transactions. Internal SRF accounting facilitates payment from *Exporter SME* to *Processor SME* by rolling the outstanding working capital balance from *Processor SME's* WC account to *Exporter SME's* WC account. This results in (i) reduced turnover time between payments, (ii) fewer total transactions/ lower transaction costs, and (iii) lower max cash exposure for the SRF. This example is illustrated in Figure 11 below.

***Figure 11**: Synchronized working capital mechanics.*

Un-Synchronized Approach

			Account Balance		Cash Payment	
Step	**Transaction**	**SRF**	**Processor**	**Exporter**	**Processor**	**Exporter**
1	Processor WC Draw	(10,000)	10,100		10,000	
2	Processor Payment to Aggregator				(10,000)	
3	Exporter WC Draw	(11,000)		11,110		11,000
4	Exporter Payment to Processor				11,000	(11,000)
5	Processor Repayment	10,100	(10,100)		(10,100)	
6	Exporter Gain on Sale					12,100
7	Exporter Repayment	11,110		(11,110)		(11,110)
	Total	**210**	**-**	**-**	**900**	**990**

Synchronized Approach

			Account Balance		Cash Payment	
Step	**Transaction**	**SRF**	**Processor**	**Exporter**	**Processor**	**Exporter**
1	Processor WC Draw	(10,000)	10,100		10,000	
2	Processor Payment to Aggregator				(10,000)	
3,4,5	Exporter WC Draw & Payment	(900)	(10,100)	11,110	900	
6	Exporter Gain on Sale					12,100
7	Exporter Repayment	11,110		(11,110)		(11,110)
	Total	**210**	**-**	**-**	**900**	**990**

1 The *Un-Synchronized Approach* necessitates that gross cashflows be exchanged for each transaction along the value chain

2 The *Synchronized Approach* consolidates the number of cash transactions, increasing operational efficiency

3 The *Synchronized Approach* reduces the maximum capital exposure for SRF by 48% from $21,000 to $10,900