Singapore Institute of International Affairs

FINANCING INDONESIA'S INDEPENDENT SMALLHOLDERS

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Executive Summary

• In Indonesia, independent smallholders dominate the production of many agricultural commodities. However, they are also linked to major economic, environmental, and social challenges.

Challenges linked to independent smallholders include low productivity, low crop quality, deforestation, fires and haze, and social conflict.

• Access to finance provides one possible means of addressing these issues. However, the characteristics of independent smallholders make it difficult for them to access formal financing.

These characteristics include remote location, lack of collateral and legal land title, lack of financial literacy, exposure to production risk, small required loan amounts, and irregular and lengthy repayment schedules.

• To address declining productivity, many independent smallholders urgently need finance to replant their ageing plantations within the next few years.

Without finance, independent smallholders may resort to clearing new plantation land or conduct replanting with low-quality seed stock, creating significant negative economic and environmental impacts in the long term.

• Providing independent smallholders with access to finance requires a suite of interventions to be jointly implemented by governments, plantation companies, off-taking companies, financial institutions, and NGOs.

This suite of interventions includes project identification and monitoring, collectivising smallholders, training in good agricultural practices, providing access to superior agricultural inputs, supporting certification and off-taking agreements, and designing financial products appropriate for independent smallholders' needs.

• In return, supporting independent smallholders can provide companies in the agricultural supply chain and financial institutions with significant benefits.

All companies in the supply chain stand to benefit from improved crop yields and quality, increased profitability, reduced reputational risk, and fulfilment of traceability and certification commitments. Plantation companies may enjoy reduced environmental impacts and social conflict. Financial institutions may be able to expand their customer base and align their policies with the Indonesian government's push for sustainable finance.

• Most independent smallholder financing projects are still in the pilot stage. However, they have already demonstrated positive economic, environmental, and social impacts.

Given the current supportive stance of government bodies such as the Financial Services Authority and regional governments, there is good potential for successful pilot projects to be scaled up and replicated across Indonesia.

• There is potential for financial institutions and investors based outside Indonesia to invest in these projects through specially-designed investment vehicles and facilities.

A number of these investment vehicles have already been launched, with the support of the Indonesian government and development agencies such as UN Environment, USAID, and IDH.

1. Introduction: The Importance of Green Finance and Smallholders in ASEAN

1.1 Green Finance in ASEAN's Agricultural Sector

This report focuses on the prospects of providing green finance to independent smallholders in Indonesia's agricultural sector, especially those in oil palm. Smallholder plots are very small compared to those of the large plantations – smallholders typically manage 2 hectares or less, whereas the largest plantations can cover hundreds of thousands of hectares.

Yet their numbers add up. As a group, smallholders are highly significant in the supply chain, as they are responsible for the majority of Indonesia's agricultural output for crops ranging from rubber to cocoa. They are also significant in the Indonesian political economy, especially given how democracy has taken root in the country and the greater focus now given to ameliorating inequalities within society. There is now a renewed political incentive for understanding and addressing key issues for the smallholder, which will only increase as Indonesia heads into the presidential election in 2019. A third reason attention must be given to smallholders is their impact on environmental protection and sustainability. What smallholders do will affect not only the local and national environment but regional and global outcomes on a range of issues, from deforestation, fires, and haze to the management of biodiversity and carbon emissions. The commitments under the Paris Agreement underscore the need to give this issue attention.

Against this background, this Report surveys three projects in Indonesia that aim to expand independent smallholders' access to finance. Improving financial access for smallholders has significant potential to unlock better profitability, social cohesion, and environmental protection. Each of these projects represents a new kind of initiative through which private actors work in partnership not only with national authorities and international bodies, but also with local communities and smallholders.

While these projects are at present still nascent or limited in scope to certain crops or geographical areas, they hold promise and bear closer attention going forward. An analysis of the aims and methods used by these projects to achieve their economic, environmental, and social goals is offered, with the hope that this can help more people understand the different efforts that are currently emerging in Indonesia. Only then will it be possible for these projects to scale up and offer a broader impact.

This Report draws on studies about smallholders as well as interviews with a broad range of stakeholders, including plantation companies, NGOs, financial institutions, agricultural consultants, and multilateral development agencies. Inputs are also drawn from a workshop, "Making Green Finance Count: Impact Investing for Indonesia's Agricultural Sector", that was jointly organised in Jakarta by World Resources Institute Indonesia and the Singapore Institute of International Affairs (SIIA). The SIIA's work on sustainability has increasingly considered the shift in Singapore and ASEAN towards low-carbon growth that addresses economic, social, and environmental issues, and the role of green finance in assisting this transformation.

This Report begins by considering why independent smallholders are important and some of the key challenges they face. Benefits of financing independent smallholders are then considered, together with the components that can build towards a successful agricultural smallholder financing project. Examples are taken from a selection of existing smallholder financing projects to show how these can be implemented. We then survey some key initiatives that are emerging in different agricultural products, before concluding with suggestions for the next steps that should be considered to move forward on this issue.

1.2 Why Independent Smallholders Are Important

Independent smallholders dominate Indonesia's agricultural commodities production, managing 85 percent of Indonesia's rubber plantations,[1] 90 percent of its coffee plantations,[2] and 95 percent of its cocoa plantations.[3] For oil palm, Indonesia's most valuable agricultural export,[4] the proportion of plantations managed by independent smallholders is smaller – about 30 percent[5] – but still significant. Hence, the vast majority of companies operating in Indonesia's agricultural supply chains are either directly or indirectly impacted by the activities of independent smallholders.

Independent smallholders are linked to economic challenges, such as low productivity and crop quality, as well as environmental and social challenges, such as deforestation, fires and haze, and social conflict. These latter challenges arise as the plantations of independent smallholders are often located adjacent to or within Indonesia's sensitive forest and peatland landscapes. The sustainable management of these landscapes is critical for reducing carbon emissions, conserving biodiversity, and maintaining ecosystem services. The longer we wait to assist independent smallholders, the more complex these issues will become, and because of the massive size of these landscapes, the decisions made by Indonesia's independent smallholders have significant global impacts.

Supporting independent smallholders is also becoming increasingly critical because of the urgent need for replanting. Many of the plantations started by smallholders in the 1980s and 90s, including oil palm, rubber, and cocoa, are reaching the end of their productive lives. If these crops are not replanted, smallholders risk significant and accelerating declines in yield and revenue. However, replanting requires clearing land and purchasing new seed stock, which is prohibitively expensive for the majority of independent smallholders. In addition, crops such as oil palm and cocoa do not yield for the first 3 to 7 years following replanting, further increasing the financial burden.

If independent smallholders are not supported to conduct replanting sustainably, they may choose to abandon their plantations in favour of establishing new ones. This increases the likelihood of deforestation and land burning. From a long-term perspective, these new plantations will likely be established with cheap, low quality seedlings, locking smallholders into another cycle of inferior productivity and profitability, as well as prolonging the associated environmental and social issues.

2. Why Companies and Financial Institutions Should Support Independent Smallholders

2.1 The Replanting Challenge

Supporting independent smallholders is becoming increasingly critical because of the urgent need for replanting. Many of the plantations started by smallholders in the 1980s and 90s, including oil palm, rubber,[6] and cocoa,[7] are reaching the end of their productive lives. For example, almost 30 percent of Indonesia's smallholder oil palm plantations will need to be replanted by 2025.[8] If these crops are not replanted, smallholders risk significant and accelerating declines in yield and revenue.

However, replanting requires large amounts of capital, which is needed to clear the land and purchase new seed stock. For example, the estimated replanting cost of an oil palm smallholder plantation is 40 to 50 million IDR.[9] This is prohibitively expensive for the majority of independent smallholders, who, unlike plasma smallholders, are unable to rely on off-taking companies to offset the expense. In addition, certain crops, such as oil palm and cocoa, do not yield for the first 3 to 7 years following replanting, increasing the financial burden even further.

If independent smallholders are not supported to conduct replanting sustainably, they may choose to abandon their plantations in favour of establishing new ones. This increases the likelihood of deforestation and land burning. From a long-term perspective, these new plantations will likely be established with cheap, low quality seedlings, locking smallholders into another cycle of inferior productivity and profitability, as well as prolonging the associated environmental and social issues.

2.2 Benefits of Financing Independent Smallholders

On top of avoiding negative environmental and social impacts, if performed effectively, financing independent smallholders can also provide a range of economic, environmental, and social benefits to plantation companies, downstream off-taking companies, and financial institutions. These benefits and the institutions that stand to receive them are described below.

Benefit	Plantation Companies	Downstream Off-takers	Financial Institutions
1. Improve Yields, Quality, and Profitability	√	√	√
2. Reduce Reputational Risk	√	√	√
3. Reduce Environmental Impacts	√		
4. Fulfil Traceability and Certification Commitments	√	√	√
5. Reduce Social Conflict	√		
6. Create New Customer Base			√
7. Align with Government Push for Sustainable Finance			√

Improve Yields, Quality, and Profitability

In general, the plantations of independent smallholders produce significantly less crop yield and lower-quality crops than those of plasma smallholders and plantation companies. A 2013 survey of oil palm smallholders conducted by IFC found that the average yield of independent smallholders was 32 percent lower than that of plasma smallholders and 54 percent lower than that of well-managed company plantations.[10] This can be attributed to a variety of reasons, including lack of access to high-quality seeds, poor knowledge of agricultural practices, and lack of access to high-quality agricultural inputs and tools such as fertiliser and heavy machinery.

The poor yields of independent smallholders are exacerbated by their generally low profit margins. Due to their rural location, independent smallholders must often sell their crops through several levels of local traders, all of whom receive a cut of the profits. The small and fragmented plots managed by independent smallholders also prevent collectivisation and economies of scale, decreasing profitability.

The poor yields of independent smallholders can significantly impact the profitability of plantation companies, especially those that source a significant percentage of their raw materials from independent smallholders. The entry of low-quality raw materials into the supply chain also has a negative effect on the quality of the products produced by downstream off-takers using these raw materials. Finally, sub-optimal yields and crop quality expose the banks providing loans to plantation and off-taking companies to additional credit risk.

On the other hand, providing independent smallholders with financing options allows them to purchase better-quality seeds, tools, and agricultural inputs. This will improve their yields and crop quality, creating knock-on profitability gains for all institutions in the supply chain.

Reduce Reputational Risk and Environmental Impact

In the absence of adequate law enforcement, low yields may drive independent smallholders to illegally clear additional land for agriculture, increasing the rate of deforestation. An analysis by Global Forest Watch shows that 45 percent of Indonesia's deforestation from 2000 to 2015 took place outside of concession boundaries,[11] suggesting significant involvement by smallholders in the deforestation observed.

Many independent smallholders also use fire to clear land, as they cannot afford to do so with machines and chemicals. Once set, these fires may spread out of control, especially on sensitive landscapes such as degraded peatlands, generating large amounts of carbon emissions and haze pollution. Without oversight, independent smallholders may also cause environmental pollution and engage in illegal labour practices like employing child labour.

Another major challenge faced by independent smallholders is the lack of formal land rights. 90 percent of Indonesian smallholders lack government-issued freehold land titles (Sertifikat Hak Milik - SHM),[12] as the process of obtaining these land titles is long, bureaucratic, and expensive. In addition, many independent smallholders illegally operate, either knowingly or unknowingly, in protected or restricted landscapes such as national parks.

Plantation companies found to be sourcing from these high-risk smallholders, whether knowingly or unknowingly, risk significant negative impacts on their reputation. This may translate to large financial impacts if customers, financiers, and investors decide to dissociate from the company as a result. Conversely, plantation companies that are able to demonstrate a proactive, sustainable approach towards working with smallholders may enjoy an improved reputation and be better able to attract customers and financiers.

Downstream off-taking companies may face similar consequences. Off-taking companies that produce consumer goods are especially vulnerable to reputational impacts and customer losses as a result of public advocacy campaigns

Finally, the financial institutions that finance plantation companies exposed to smallholder risks are also exposed to significant reputational risk through their clients. Recent examples of campaigns directed at financial institutions focusing on their links to plantation companies with unsustainable practices include Greenpeace's Dirty Bankers campaign against HSBC in January 2017[13] and Rainforest Foundation Norway's campaign against six Southeast Asian banks in May 2017.[14]

On the flip side, working with independent smallholders in their supply chain makes it easier for companies to identify potential environmental and social risks and address them before they escalate into public liabilities.[15]

Fulfil Traceability and Certification Commitments

A growing number of consumers, especially in Europe and North America, are demanding more information on the origins and sustainability impacts of the goods they purchase. In response, many plantation and off-taking companies have made time-bound commitments to achieve full traceability of their raw materials to the plantation level. A smaller number of companies have also committed to sourcing only raw materials that have received sustainability certification.

As independent smallholders produce a large proportion of the supply of many agricultural commodities, it will be necessary for companies to work with independent smallholders to fulfil these traceability and certification commitments. This is becoming an increasing concern as the deadlines for these commitments approach, especially for larger downstream off-taking companies, which may source large volumes of raw agricultural materials from many thousands of independent smallholders.

Reduce Social Conflict

Active engagement with independent smallholders through financial and other support programmes helps plantation companies build better relationships with these smallholders. This reduces the risk of land conflicts and other disagreements with local communities, which may disrupt plantation companies' operations if not quickly identified and resolved.

In addition, by gaining the trust of independent smallholders, plantation companies may find it easier to convince smallholders to invest in their land. Companies may thereby enjoy the economic benefits generated by smallholders' improved yields and profitability.[16]

Create New Customer Base

Though the loan amounts required by individual smallholders are small, collectively, smallholders represent a large untapped market for financial institutions such as retail and commercial banks. In addition, creating replicable, scalable credit models that fulfil the needs of independent smallholders could not only generate more business for these banks, but also equip these smallholders with greater financial literacy. This could lead to greater demand for other financial products such as savings accounts, investment products, and insurance. (For more information on the financing options currently available to smallholders, please see the box: "Limitations of Current Smallholder Financing Options")

Align with Government Push for Sustainable Finance

In July 2017, the OJK passed a regulation (Regulation No. 51/POJK.03/2017) that mandates financial institutions to develop a sustainable finance programme, as well as report on the economic, social, and environmental impacts of their operations.[17] Providing financial options tailored to independent smallholders would allow financial institutions to fulfil this regulatory requirement.

2.3 Loans Versus Other Types of Financing

In this report, "financing" and "access to finance" refer to credit, specifically in the form of loans, unless indicated otherwise. It is important to note that there are other possible means of extending financing to independent smallholders, such as through savings accounts and microinsurance. Some of the smallholder financing projects profiled in this report include or have begun exploring these other, non-credit forms of finance as well. However, this report will focus on loans, as this is the area of smallholder finance where the greatest amount of work has been done in Indonesia.

Limitations of Current Smallholder Financing Options

Many of the problems faced by independent smallholders could be resolved through better access to credit. However, the financing options currently available to independent smallholders are limited and often inappropriate for developing the plantations of independent smallholders, for reasons outlined below.

Loans through Local Traders

Due to their rural location, most independent smallholders lack access to formal financing institutions such as banks. Instead, independent smallholders may obtain loans through local traders or middlemen. However, these loans usually have high interest rates and a short tenor. Hence, they can only be used to support household expenses and short-term operating capital, rather than large, long-term expenses such as replanting.

Commercial Bank Loans

Even independent smallholders with access to formal financing institutions often have difficulty obtaining loan approvals. This is due to a variety of reasons, many related to banks' procedural requirements when lending money:

Lack of Cashflow Information: Many independent smallholders do not keep financial or agricultural production records, making it difficult for banks to evaluate their cashflow and creditworthiness. Many also owe significant outstanding debt to local moneylenders, further reducing their ability to take on additional loans.

Exposure to Production Risk: Independent smallholders often plant on small, non-contiguous plots. This makes it difficult for them to share risks and makes them disproportionately vulnerable to production losses. To exacerbate the issue, few independent smallholders purchase crop insurance; such insurance is also not readily available for many crops in Indonesia.

Lack of Formal Land Rights: Commercial banks generally require farmers to produce their land title for use as collateral. However, banks only recognise the validity of official land titles issued by the government. The majority of independent smallholders lack these land titles, as they are difficult and expensive to obtain. Banks are also hesitant to work with farmers without formal land titles as this creates the risk that these farmers could be operating illegally.

Lack of Collateral: In some cases, commercial banks do not accept land title as collateral, because of the limited value of the small, fragmented plots held by independent smallholders. Hence, even farmers with official land titles are often unable to access formal financing.

Lack of Guarantors: Some commercial banks also require customers to have a guarantor to serve as a form of external credit enhancement. For plasma smallholders, mills or off-taking companies may fill this role. Conversely, it is difficult for independent smallholders to secure a guarantor because they have no long-term formal business relationship with any mill or off-taker.

High Administrative Costs: For most commercial banks, working with independent smallholders involves high acquisition and servicing costs. These costs result from the remote location of most independent smallholder plantations, making it hard to visit smallholder clients, and the fact that most commercial banks lack experience and expertise in working with independent smallholders. In addition, the loans extended to smallholders are small (generally some tens of millions of IDR, or a few thousand USD). As administrative costs do not vary significantly with loan size, this means that banks can only expect limited profits from working with smallholders relative to the costs incurred.

Payment Schedule: Due to fluctuations in yields between harvest seasons, the earnings received by smallholders are often irregular and spread out over several years. This is especially the case for smallholders who have just conducted replanting, which for crops such as oil palm and cocoa entails an unproductive period of 3 to 7 years. This makes it difficult for banks unfamiliar with smallholders' needs to calculate an appropriate loan repayment schedule.

Risk-Averse Attitude: Many commercial banks display risk-averse attitudes, and are unwilling to work with new types of clients, such as independent smallholders, until a business model for doing so has been adequately demonstrated.

Specialised Financial Products

In light of these issues, there have been attempts made by both the Indonesian government and commercial banks to design financial products tailored to the needs of independent smallholders. Though these products generally address some of the issues preventing independent smallholders from accessing finance, none of them can yet be considered a complete solution.

Microfinance Institutions: In 2013, the Indonesian Financial Services Authority (Otoritas Jasa Keuangan – OJK) passed a new act governing the activities of microfinance institutions. This law took effect in 2015.[18]

In theory, the purpose of microfinance institutions is to provide financial services to clients without access to other formal financial institutions. However, microfinance providers are generally still restricted to districts and towns with a larger density of clients, as it may not be economically viable for them to operate in sparsely-populated rural areas.[19] Hence, many independent smallholders remain unable to access microfinance.

Branchless Banking: In 2015, the OJK introduced new branchless banking rules that allow commercial banks to extend their services to areas not serviced by physical branches. Banks do this by recruiting local agents, who provide services such as micro-savings and payment services on behalf of the bank.

However, most banks do not offer loans through branchless banking agents. When loans are offered, they are also governed by rules that may make them inappropriate for independent smallholders' capital requirements. For example, the maximum loan available is 20 million IDR, and the maximum tenor is generally 1 year.[20] Notably, this means that these services cannot be used to finance replanting.

SME Loan Mandate and Kredit Usaha Rakyat (KUR): To encourage banks to extend more capital to small and medium enterprises (SMEs), OJK has introduced regulations requiring Indonesian banks to allocate 20 percent of their loan portfolio to SMEs by 2018.[21] To help banks develop their SME customer base, the Indonesian government also introduced the Kredit Usaha Rakyat programme, or KUR, in 2007. Under KUR, state-owned banks and regional banks (Bank Pembangunan Daerah – BPD) receive government subsidies that allow them to design low-interest-rate financial products for SMEs.[22] This allow banks to cut interest rates to as low as 7 percent, compared to over 20 percent for standard microfinance loans.[23]

KUR has the potential to solve some of the issues with smallholder finance: the interest rates of KUR loan products are relatively low, and state-owned banks and regional banks together form a network with significant geographical coverage. Under the KUR Retail option, banks may also extend loans of up to 500 million IDR,[24] which is sufficient for most independent smallholders' capital needs, including replanting.

However, banks still have the discretion to design the characteristics of individual KUR financial products. Hence, these products may fail to satisfy all the conditions required for independent smallholders to access them. For example, CIMB Niaga's and Bank Mandiri's smallholder credit products continue to require collateral and guarantors, which many independent smallholders cannot provide.[25]

Government Funds: The Indonesian government has set aside some funds to support the needs of independent smallholders, particularly replanting. One example is the Oil Palm Estate Fund (Badan Pengelola Dana Perkebunan Kelapa Sawit – BPDPKS), which was launched in July 2015. By collecting export levies on palm oil products, the Fund had accumulated 11.7 trillion IDR as of October 2017. A percentage of these funds is earmarked to help oil palm farmers improve their production and conduct replanting.[26] However, coordination issues, stringent requirements for disbursement, and the allocation of the vast majority of the fund to other purposes such as biodiesel subsidies have made it difficult for independent smallholders to access the fund without additional support.[27]

Foreign Financiers

Some financial institutions based outside Indonesia, particularly impact investors and commercial banks exposed to the agricultural industry, have expressed interest in ways to support independent smallholders' financial needs. However, foreign financial institutions face obstacles that are preventing them from participating more actively, such as difficulties in carrying out credit assessments and due diligence on the ground and restrictions on financial flows from outside Indonesia. Overcoming these obstacles will likely require tailor-made financial schemes involving elements such as local partners and blended finance. A number of such schemes exist (see Section 3.10), but remain in the pilot stage.

3. Components of a Successful Agricultural Smallholder Financing Project

A number of projects aimed at improving independent smallholders' access to finance (both loans and savings) are currently being implemented in Indonesia. These projects are being carried out in various locations and with various crops, including palm oil, cocoa, coffee, and corn. Some of the most significant and/or promising projects include:

Swisscontact's Sustainable Cocoa Production Programme, which supports 131,429 cocoa smallholders across Indonesia to improve cashflows and access savings accounts and loans.

Mercy Corps' AgriFin Mobile programme, which works with rural and commercial banks to disburse loans and bundled services to 2,773 corn smallholders in West Nusa Tenggara province.

Golden Agri-Resources (GAR)'s Innovative Financing Scheme, which is working to help 450 oil palm smallholders within GAR's supply shed conduct replanting.

Scheme	Sustainable Cocoa Production Programme (SCPP)	AgriFin Mobile Programme	Innovative Financing Scheme
Implementer	Swisscontact	Mercy Corps	Golden Agri-Resources (GAR)
Start Date	2012	2014	2014
Commodity	Cocoa	Corn	Palm oil
Location(s)	Aceh, Lampung, Sumatra Barat, Sumatra Utara, Sulawesi Barat, Sulawesi Selatan, Sulawesi Tengah, Sulawesi Tenggara, Gorontalo, and Nusa Tenggara Timur provinces	Bima District, Dompu district, Sumbawa District, and Bima City, all in West Nusa Tenggara province	Riau and Jambi provinces
No. of farmers (current)	131,429	2,773 (total in years 1-4)	450
No. of farmers (targeted)	165,000	15,000 farmers total by 2020	20,000 (by 2022)
Funding	Swiss State Secretariat for Economic Affairs, Millennium Challenge Account for Indonesia, downstream cocoa-buying companies (Barry Callebaut, Cargill, Ecom, JeBeKoko, Krakakoa, Mars, Mondelēz International and Nestlé)	Swiss Agency for Development and Cooperation, financial institution partners (BPR Pesisir Akbar, Bank Oke Indonesia, Asuransi Central Asia), agricultural company partner (Syngenta)	GAR (covers management fees), banks, other financial institutions (e.g. IDH, IFC), Oil Palm Estate Fund, downstream palm oil off-taking companies

Though these projects all have different characteristics, they generally share certain elements which can be identified as prerequisites for finance to be extended to independent smallholders. The SIIA has identified these components and developed a set of indicators for assessing them. The components and indicators are described in detail in the section below.[28]

It is important to note that this list of components may not be exhaustive. A project may also not require all of the components identified to achieve its sustainability objectives. This is because smallholder financing projects vary significantly in terms of geographical coverage, objectives, and current stage of implementation. In addition, most smallholder financing projects are still in the pilot stage, having been in operation for five years or less, and the impacts and levels of success of these projects are still being evaluated. Nevertheless, these indicators provide a useful framework for designing and assessing smallholder financing projects.

Stage 1: Project Identification

3.1 Evaluation and Monitoring

Before any intervention is made, a baseline study is first conducted, a process that generally takes up to 12 months. This helps to identify locations with the greatest potential for projects, ascertain improvements that could be made to farming processes, and collect baseline data against which the impact of the project can be measured. During this phase, the programme design, cost-benefit analysis, and training materials are also developed.[29]

Conducting a baseline study is especially important when working with independent smallholders, as the characteristics of independent smallholders may vary greatly from place to place. During the study, the independent smallholders who will be participating in the survey are interviewed and specific indicators for each smallholder are measured. These indicators may include age, literacy, number of household members, level of existing farming knowledge, level of existing access to finance, value of assets held, legality of land tenure, and membership in a farmer group or community association.

Another important reason for conducting a baseline study is to enable creditworthy smallholders to be separated from non-creditworthy ones. By analysing information about smallholders' yields, economic situation, and cashflow, financial institutions can restrict lending to those smallholders with the highest productive potential, thereby reducing the risk of default.

While the project is being carried out, monitoring and surveys are also conducted on a regular basis. This helps project implementers evaluate whether the intervention is working, and decide how to re-allocate resources and modify their strategy, if necessary.

Case Study: Financial Access Credit Risk Scoring Tool

Financial Access, a financial services advisory firm focused on developing countries, has designed a tool that provides an estimate of a smallholder's credit risk by measuring 25 financial, household, and production variables and their impact on cash flows. The tool can be applied to various crops in various countries and for the purpose of both short-term and long-term loan products. Using this tool allows banks to quickly separate bankable smallholders from non-bankable ones, reducing default risk and lowering the interest rates the bank needs to charge. The tool is currently being piloted in a number of areas and agricultural crops, including in a joint SNV-Financial Access project in Jambi province that works with independent oil palm smallholders in need of replanting loans.[30]

3.2 Tracing, Mapping, and Spatial Planning

Once a project area has been chosen, individual smallholder farmers within the area are identified and geographically mapped. This provides a picture of the actors within the landscape and helps to identify smallholders with higher risk, such as those located in protected forests and other areas unsuitable for agriculture. Depending on the project's objectives, such smallholders can either be excluded or special provisions can be designed to allow their participation while minimising environmental and legal risk. In addition, the economic interactions of the smallholders with other actors in the supply chain, including local traders, middlemen, and plantation companies, are traced. This enables project implementers to connect smallholders directly with downstream mills and plantation companies. In certain areas, middlemen may also be persuaded to take on new roles, such as disbursers or guarantors of loans.

Case Study: CocoaTrace

CocoaTrace is a cloud-based software programme developed by tech startup Koltiva to support the tracing and monitoring of cocoa smallholders. CocoaTrace provides each smallholder an ID card with a unique QR code, which is scanned during each transaction. By monitoring the farmers' transaction history, CocoaTrace is able to trace the supply chain in a particular area and track the cash flow of each smallholder, information that is useful for helping banks make credit decisions. Following its successful use in Swisscontact's Sustainable Cocoa Production Programme, CocoaTrace is now being expanded for use with smallholders in other crops, such as coffee, coconut, and oil palm.[31]

3.3 Supporting Legal Land Rights

Some projects may support independent smallholders to obtain government-issued land permits. Doing so both helps smallholders access financing from banks and encourages them to invest more into their plantations. For example, Swisscontact's Sustainable Cocoa Production Programme assists smallholders to register their plantations with the National Land Agency (Badan Pertanahan Negara – BPN) through the national PRONA (Proyek Operasi Nasional Agraria) programme at relatively little cost.[32] In Musi Banyuasin regency, oil palm smallholders with plantations within protected areas are provided with amnesties by the government so that they can receive funding from the Oil Palm Estate Fund.[33]

3.4 Government Participation

Currently, many government bodies at both national and sub-national level in Indonesia lack a clear, complete picture of the locations and characteristics of independent smallholders. This makes the information collected by project implementers during the baseline study stage especially valuable for the government. By incorporating this data into land use and economic development plans, governments can identify and resolve cases of overlapping land claims, allocate land for appropriate purposes, and develop other schemes for engaging with smallholders at the village level.[34]

Some governments have committed to working closely with project implementers either through a jurisdictional approach, which aims to provide all smallholders within a certain jurisdiction with sustainability certification, or through a green growth plan, which aims to provide a model for sustainable development for the jurisdiction. Examples of jurisdictions that have committed to these approaches are East Kalimantan province (green growth plan), South Sumatra province (green growth plan), Seruyan Regency (jurisdictional approach), and Musi Banyuasin regency (jurisdictional approach).

Working closely with government bodies also helps successful models be replicated quickly in other areas. For example, OJK is working to replicate Mercy Corps' AgriFin Mobile programme, which supports corn smallholders to obtain credit,[35] and the Ministry of Agriculture is helping with the socialisation of Musim Mas and IFC's Indonesia Palm Oil Development for Smallholders (IPODS) programme to other companies within the landscape.[36]

Indicator	Sustainable Cocoa Production Programme (SCPP)	AgriFin Mobile Programme	Innovative Financing Scheme
1. Evaluation and Monitoring			
Was a baseline study conducted?	Yes	Yes	Yes
Is data collected in the baseline study regularly updated?	Yes	Yes	Yes
How often is data updated?	Yearly for 10% of participating farmers.	Loan repayment is tracked in real time through monitoring apps. Yield information is tracked 60 and 90 days after planting.	Monthly
What data is collected/monitored?	Environment, demographics, nutrition, labour practices, production and post-harvest practices, financial situation, etc.	Agricultural inputs used, current crop yields, existing access to financial products, mobile phone ownership. Credit assessment is conducted by BPR Pesisir Akbar, a rural bank. Farmers also have to be recommended by grain traders, Syngenta farmer leaders, and field staff to be selected for programme. Loan disbursement and repayment are monitored through real-time AndaraLink online platform. Crop growth and yield increases are monitored using Android-based mobile data collection app (DataHub) and in person.	Monthly
How is the data managed?	Using CocoaTrace, a cloud-based software solution maintained by Koltiva, an agri-tech software company.	Data is collected using DataHub app by officers from BPR Pesisir Akbar and Syngenta, then uploaded onto system managed by 8villages, an agri-tech startup.	By GAR Upstream Operational team

Indicator	Sustainable Cocoa Production Programme (SCPP)	AgriFin Mobile Programme	Innovative Financing Scheme
2. Tracing, Mapping, and Spatial Planning			
Are farmers being traced?	Yes	Yes	Yes
How many farmers have been traced so far?	131,429	2,773	450
Are other actors in the supply chain being traced? If so, which actors?	Yes (local traders, processors, exporter warehouses)	Yes (local traders)	No (farmers supply directly to GAR mills)
What system is being used to conduct traceability?	Information from farmer interviews and sales transactions is input into CocoaTrace software.	Android-based mobile data collection app	-
Are farmers being traced via a mill/other supply chain actors?	Yes, deliveries are monitored along supply chain from local traders to warehouses and processing facilities.	Yes, via the networks of local factories and traders.	Yes, via GAR mills.
Are farmers being mapped?	Yes	Yes	Yes
Is project area being mapped according to risk and crop suitability?	Yes, farmer locations are overlaid with protected forest boundaries and other land use classifications. Only farmers not located in protected areas can participate. However, crop suitability is not mapped.	Yes, Asuransi Central Asia (ACA), an insurance company, assessed the area's risk before crop insurance was implemented.	Yes, potential project areas within 50km of GAR concessions are mapped, then selected for participation in project in compliance with government spatial plans. Conservation areas, existing concession and plasma smallholder areas, High Conservation Value (HCV) areas, and High Carbon Stock (HCS) areas are avoided.

	Sustainable Cocoa Production Programme (SCPP)	AgriFin Mobile Programme	Innovative Financing Scheme
3. Supporting Legal Land Rights			
Are farmers being supported to obtain legal land titles?	Yes	No	Yes
If so, how?	SCPP is facilitating farmers' registration with the National Land Agency (Badan Pertanahan Nasional - BPN) through a national program (Proyek Operasi Nasional Agraria - PRONAS) that allows land registration for a comparably low cost.	-	GAR is facilitating farmers' registration with the National Land Agency (Badan Pertanahan Nasional - BPN).
How many farmers have received legal land titles?	22,369 (only some facilitated by SCPP)	-	246 farmers will be assisted
Are there measures to extend special provisions or amnesties to farmers with regards to land title?	No	Yes, BPR Pesisir Akbar has extended a provision allowing one land certificate to be used as collateral for 3-4 farmers within the same farmer group.	No

Indicator	Sustainable Cocoa Production Programme (SCPP)	AgriFin Mobile Programme	Innovative Financing Scheme
4. Government Participation			
Is the government involved in the project's implementation? If so, what level of government?	Yes (District, provincial, and national)	Yes (District and national)	Yes (District, provincial, and national)
What is the nature of the involvement?	Swisscontact staff and government officials discuss and assess the main cocoa producer villages, and also jointly lead training in the farmer field schools.	Training is implemented in coordination with district government's Agriculture Agency. The Indonesian Financial Services Authority (OJK), the national financial regulator, is promoting the agricultural financing model of AgriFin Mobile and replicating it with commercial banks in other regions under its AKSI PANGAN programme, which was launched in March 2017.	District government's Land Agency, Environment Agency, and regent (bupati) facilitate issuance of environmental permits for farmers, as well as provide socialisation and encouragement to join the programme. National government's Land Agency provides legal land title and national-level Ministry of Agriculture provides a 4% subsidy for loans during the grace period through programmes such as KUR (Kredit Usaha Raykat).
How is information from the project being integrated into government land use and other plans?	Findings from data collected by SCPP are shared with the government for inclusion in future spatial plans.	Model is being promoted by OJK in alignment with its AKSI PANGAN programme. Model was also included by National Committee for Economy and Industry (Komite Ekonomi dan Industri Nasional – KEIN) in policy paper on agricultural financing, which was presented to the President.	-

Stage 2: Community Engagement

3.5 Stakeholder Engagement and NGO Involvement

Once all the necessary information has been gathered, a project moves to the community engagement stage, where independent smallholders are approached to participate in the project. This socialisation process is particularly important for the initial pilot, as farmers tend to be reluctant to cooperate until the benefits of doing so are demonstrated.

It is common for project implementers to engage NGOs to support the socialisation process. Partnering with NGOs can reduce the costs of hiring field staff and allow project implementers to draw on the NGOs' networks, social capital, and existing expertise in conducting socialisation activities in the area. Other organisations, such as agricultural companies and financial institutions, may also be recruited to lend their expertise in areas such as agricultural training and microfinance.

3.6 Forming Farmer Groups and Cooperatives

Once smallholders agree to participate in the project, they are often collectivised into informal groups or formal cooperatives.

Depending on the needs and willingness of the smallholders to collaborate, a farmer group may provide varying levels of services. At the most basic level, an informal farmer group may simply serve as a means to gather smallholders for training or monitoring. Farmers may also pool their resources to form a cooperative, expanding the potential for collaboration. Smallholders under a cooperative may continue managing their plantations individually, meeting only to pool their crops for trading or to fulfil certification requirements. More developed cooperatives may provide their members with access to agricultural inputs such as fertiliser, distribute loans, create funds through member contributions to be used for purposes such as replanting and insurance, or collate and distribute profits to members after crops are sold. Members of a cooperative may also combine their plots and manage them collectively.[37]

Establishing a farmer group or cooperative provides several advantages to a project implementer. It makes it easier to collect and disseminate information, distribute agricultural inputs, and achieve traceability. The formation of cooperatives enables certification, improves profit margins by reducing logistical costs, and provides the scale and financial records necessary for the farmers to obtain loans from a commercial bank.

However, as some cooperatives have fallen victim to mismanagement and graft, project implementers should take care to provide regular oversight over the farmer group's actions and only seek to collectivise smallholders who are ready and willing to do so.

Indicator	Sustainable Cocoa Production Programme (SCPP)	AgriFin Mobile Programme	Innovative Financing Scheme
5. Stakeholder Engagement and NGO Involvement			
Are NGOs/external organisations involved in socialisation and project design?	Yes	Yes	Yes
If so, which organisations?	Rikolto, Migunani, Yayasan Sahabat Cipta (community development NGOs)	BPR Pesisir Akbar, Bank Oke Indonesia, ACA, Syngenta	Social NGOs and technical NGOs; NGOs involved vary according to project
What is the size of the team implementing the project on the ground?	334	5 Syngenta field officers (including agronomists), 10 BPR Pesisir Akbar field officers, 2 ACA staff	67
Are other companies in the landscape being engaged? If so, which?	Yes (Barry Callebaut, Cargill, Ecom, JeBeKoko, Krakakoa, Mars, Mondelēz International, Nestlé)	Yes (Indonesia EXIM Bank, Bank BRI)	No
What is the level of engagement?	Companies partially fund project implementation.	Indonesia EXIM Bank, a non-bank financial institution, provided a 5 billion IDR loan to BPR Pesisir Akbar to implement the project's 4th year. Bank BRI and Syngenta are jointly working to implement an agricultural financing model based on AgriFin Mobile in South Sulawesi province, beginning February 2018.	-

Indicator	Sustainable Cocoa Production Programme (SCPP)	AgriFin Mobile Programme	Innovative Financing Scheme
6. Forming Farmer Groups and Cooperatives			
Are farmers collectivised? If so, are these informal groups or cooperatives?	Yes (Both informal groups and cooperatives)	Yes (Informal groups)	Yes (Cooperatives)
How many farmers are in each group?	25-30	10-15	90 (average)
How many such groups are there?	4,542	100	5
How many villages have been engaged?	2,186	60	16 (14 in Riau, 2 in Jambi)
What percentage of the villages in the landscape is this?	46%	15%	Riau: 38% of the villages within 50km of GAR concessions Jambi: 25% of the villages around specific GAR mill
What inputs are provided through the group?	Training in good business practices	Agricultural inputs (seeds, fertiliser, crop protection packages)	Technical knowledge, financial incentives

Stage 3: Increasing Profitability

3.7 Education and Training

Providing training in good agricultural practices is the first key method for improving the yield and quality of smallholder crops. With higher yields, independent smallholders can become more profitable, making it easier for them to access finance from formal financial institutions. On top of agricultural training, smallholders may also receive training in financial literacy, which may also help them better manage their finances and secure access to loans.

Training can take place in person, through written materials such as guide books, and/or through the use of technology such as cellphones and radio.[38] Topics covered include agronomic calculations, land use planning, fertiliser use, pest control, irrigation, and financial management.

Case Study: Musim Mas and IFC's Indonesia Palm Oil Development for Smallholders (IPODS) Project

The Indonesia Palm Oil Development for Smallholders (IPODS) project is a collaboration between palm oil grower and trader, Musim Mas, and IFC. IPODS is currently working with independent oil palm smallholders in 2 locations in North Sumatra and Riau to improve yields and provide certification, so as to enable these smallholders to access financing from commercial banks.

IPODS conducts training through a team of agronomists and field assistants. Training in each of the two locations is led by Musim Mas and IFC agronomists. These agronomists train a team of field assistants drawn from the local community, who in turn lead training for local smallholders. This allows the local community to take ownership of the programme, improving the local standard of agricultural knowledge and multiplying the programme's reach while reducing costs.[39]

Training materials have been specifically designed by IFC for use in the project. These materials take the form of guidebooks that provide photographs and simple explanations of common agricultural situations and actions to take to maximise outputs. These guidebooks are both used during training sessions and distributed to smallholders for everyday reference.

3.8 Providing Inputs, Productivity, and Extension Services

Access to improved agricultural inputs, such as seed stock and fertiliser, is the other key method of improving yields and crop quality. These inputs may be provided to smallholders in various ways. For example, project implementers may provide inputs to smallholders at reduced prices through cooperatives.

Another way is through an outgrower programme. Under such a programme, a plantation company or financial institution purchases agricultural inputs in bulk and loans them to independent smallholders at the start of the season. In exchange, farmers agree to sell their crops to the plantation company when the harvest is complete. The cost of the inputs is then deducted from the proceeds from the harvest. This form of support has a number of advantages: it increases the likelihood that loans provided to smallholders will be used to improve their plantations, and helps decrease the likelihood that smallholders will fall into debt, as no monetary exchange takes place.[40]

3.9 Providing Certification and Market Access

On top of improving yields, some project implementers also aim to help independent smallholders obtain sustainability certification, through certification bodies such as the Roundtable on Sustainable Palm Oil (RSPO) for oil palm smallholders and Rainforest Alliance for cocoa smallholders. Obtaining certification fits well with independent smallholder financing projects, because many of the agricultural standards and improvements that are required to obtain certification are also required to allow smallholders to access finance. This synergy also helps reduce the costs associated with the certification process.

Obtaining certification can be beneficial to both smallholders and downstream companies. Certification allows smallholders to sell their crop at a premium, improving their profitability. At the same time, helping independent smallholders get certified helps the downstream companies that source from these smallholders meet their time-bound commitments to only source certified raw materials. Because of these benefits, downstream off-takers are often willing to support some of the costs involved in the certification process. Examples of downstream off-takers that are supporting independent smallholders to obtain certification include Unilever in North Sumatra province (with oil palm smallholders) and Mars in South Sulawesi province (with cocoa smallholders).

In other projects, independent smallholders are first supported to improve their yields, without any obligation to become certified. Certification is then presented as an additional option once increased productivity and profits have been achieved. This stepwise approach helps to secure buy-in from smallholders.

To reduce the risk of side-selling, project implementers may require independent smallholders to enter into a contract to sell their crop to specific downstream companies. This is especially common when certification is involved, due to the additional costs this imposes on project implementers. Although entering into a contract reduces independent smallholders' freedom of association, they also stand to benefit through guaranteed market access and a guaranteed selling price. An alternative approach is taken by the IPODS project, which does not require smallholders to enter a formal contract, but guarantees higher-than-market prices to encourage voluntary partnership.

Indicator	Sustainable Cocoa Production Programme (SCPP)	AgriFin Mobile Programme	Innovative Financing Scheme
7. Education and Training			
Is training in good agricultural practices provided?	Yes	Yes	Yes
Who provides the training?	SCPP's field staff together with government extension officers, private sector staff, and key farmers.	5 agronomists from Syngenta. Farmers also provided with access to interactive SMS-based information service (8villages's platform) to which they can send agricultural and financial questions and reports and receive customised answers and guidance. Farmers also receive agricultural tips via mass SMS (Syngenta's SMS Blast).	GAR staff, through cooperatives
Is there a Train-the-Trainer programme?	Yes	Yes	Yes
How much training is conducted?	1,714 master trainers and 3,809 key farmers have been trained. 1.53 million training days have been delivered.	Before each planting season (good agricultural practices) and harvest season (financial literacy).	Training is conducted every 6 months.
What subjects does the training cover?	Good agricultural practices, good financial practices, good nutrition practices, good environmental practices	Good agricultural practices, good financial practices	Good agricultural practices, good financial practices

Indicator	Sustainable Cocoa Production Programme (SCPP)	AgriFin Mobile Programme	Innovative Financing Scheme
8. Providing Inputs, Productivity, and Extension Services			
Are farmers provided with improved seeds?	Indirectly – nurseries are supported to produce superior planting material and conduct top-grafting	Yes	Yes (Dami Mas seeds developed by GAR)
Are farmers supported to conduct replanting?	Yes, farmers are taught to conduct staggered replanting (e.g. 20% of farm per year) to avoid the difficulty of securing long-tenor loans and minimise loss of income during unproductive period.	Yes	Yes
Are farmers supported to obtain fertiliser and other agricultural inputs?	Yes	Yes (a percentage of loans is disbursed in the form of agricultural inputs sourced from Syngenta and distributed in person at village level)	Yes
Are extension and alternative livelihood services provided?	Yes	No	Yes
If so, what kind?	Training in alternative livelihoods (developing food gardens and fish ponds), developing nurseries, developing buying units	-	Food crop planting, financial planning, and non-farming-related skills
What changes in yield and household income have been observed so far?	Farm yields increased 60% compared to start of programme. Net income increased 157 USD net income per farmer per year.	Farm yields increased an average of 11% each year. Income increased an average of 17% each year.	Farm yields increased an average of 120% compared to start of programme.
What changes in company productivity indicators have been observed so far?	Not measured	Downstream off-taking factories report an increase in the quality and quantity of grain sourced from participating farmers.	Better quality oil palm fresh fruit bunches are provided to mills, resulting in double the amount of crude palm oil extracted.

Indicator	Sustainable Cocoa Production Programme (SCPP)	AgriFin Mobile Programme	Innovative Financing Scheme
9. Providing Certification and Market Access			
Is certification a target of the project?	Yes	No	Yes
If so, which certification schemes?	Rainforest Alliance	-	ISPO, RSPO
How many farmers have been certified so far?	23,225	-	0
What is the certification target and timeline?	94,730 farmers certified by 2020	-	Plan to obtain ISPO certification for farmers after 4 years of participation in programme.
What measures are being implemented to work towards certification?	Database used to identify all potentially certifiable farmers. Internal audit is conducted for these farmers: farms are re-visited and certification questionnaires conducted. Audits by certification bodies and access to market for certified cocoa beans are facilitated by SCPP.	-	Compliance with ISPO standard and training in Standard Operating Procedures and Best Management Practices.
Are farmers being helped to directly access mills and downstream off-takers?	Yes	Yes	Yes
If so, is there a formal off-taking contract between farmers and mills/downstream off-takers?	No, most farmers have access to multiple traders. Only certified sustainable farmers have volume contracts with off-takers.	Yes, between farmers and participating grain traders. About 70% of farmers sell to participating grain traders.	Yes, between farmers and GAR mills
If so, does this contract include price and purchase volume guarantees?	-	Yes	Yes

Stage 4: Financing

3.10 Providing Access to Finance

Once the above elements are in place, independent smallholders are ready to obtain and manage financial loans.

Loans for independent smallholders generally fall into three categories: working capital loans, agricultural input financing, and long-term loans for replanting purposes (in increasing order of loan amount and complexity). To maximise their effectiveness, loans are often structured to meet the specific financing needs and cashflow characteristics of a specific group of smallholders.

Banks may also work with microfinance institutions, financial cooperatives, and local credit unions, tapping on their existing network and knowledge of local farmers' cash flows to improve oversight and identify the most creditworthy clients. Banks may also structure loans so that risk is shared among these local, specialist financial institutions.

Alternatively, loans may also be disbursed to smallholders through supply chain actors such as off-taking mills or middlemen. The advantage of doing so is that the existing supply chain can be used as a means to channel finance, rather than having to create a new channel. However, going through supply chain actors will usually require a higher level of oversight, such as a off-taking agreement between smallholders and the supply chain actor so as to guarantee cashflow.

Finally, projects may also make use of mechanisms such as blended finance, through which loans are de-risked by providing grants or development aid. This could allow the participation of a much broader range of financial institutions, including commercial banks, institutional investors, and foreign investors. The objective of such mechanisms is usually to allow farmers to build capacity and a financial track record, so as to make them bankable even when the grant or aid money ceases.

Case Study: Golden Agri-Resources (GAR)'s Innovative Financing Scheme

Golden Agri-Resources (GAR), one of Indonesia's largest palm oil plantation companies, has developed an Innovative Financing Scheme (Skema Inovasi Pembiayaan) that is designed specifically to support independent smallholders to conduct replanting.

One notable aspect of the Innovative Financing Scheme is the provisions it includes to support smallholders during the 4-to-5-year non-productive period following replanting. For example, grants are provided to smallholders to support their daily expenses during the non-productive period; downstream off-taking companies provide some of the support for these grants. During this period, smallholders are also taught non-farming-related skills, such as financial planning and food crop planting, and supported to generate income through alternative means, such as by providing skilled services.[41]

To provide an additional means of external credit enhancement, GAR acts as a go-between for the smallholders to secure replanting loans from banks. The company helps smallholders negotiate subsidised interest rates and obtain extended loan tenor, and also serves as the guarantor of the loan.

Case Study: Tropical Landscapes Finance Facility (TLFF)

The Tropical Landscapes Finance Facility (TLFF) was launched in 2016 as a collaboration between ADM Capital Foundation, BNP Paribas, UN Environment, and the World Agroforestry Centre. The TLFF has mobilised 1.1 billion USD for long-term, investable projects that ensure green growth and sustainable landscape use, including developing renewable energy, reversing land degradation, and financing independent smallholders. This is a combination of a 1 billion USD loan fund provided by BNP Paribas and other international investors and a 100 million USD grant fund, provided by aid agencies such as USAID.[42]

To offset the risks In the early stages of a project, loans are collateralised then de-risked using the grant fund. As the projects mature and begin generating sustainable cash flows, the loans are repackaged into green bonds, which will be sold by ADM Capital to long-term institutional investors such as pension funds and insurance companies. Overall, the loans will have a tenor of 10 to 15 years. Using the mechanism of green bonds will allow the TLFF to tap into international investors who are interested in building a portfolio of sustainable investments or meeting social impact objectives.[43]

Currently, TLFF is still in its pilot stage. The facility has conducted one transaction, a 95 million USD sustainability bond to finance a sustainable rubber plantation in Jambi and Riau provinces, in collaboration with Michelin and Barito Pacific Group.[44] However, there are plans to expand the TLFF to projects such as financing plasma smallholders supplying to the palm oil company Golden Agri-Resources in Riau province and developing off-grid power.[45]

Case Study: Rabobank Foundation

Rabobank Foundation is the social fund of the Dutch multinational food and agriculture bank, Rabobank. In Indonesia, Rabobank Foundation aims to incubate early-stage agricultural projects, such as smallholder cooperatives, so that they can develop to the stage where they are able to secure financing from commercial banks without external support.

Rabobank Foundation does this in a few ways. Firstly, the Foundation provides loans at below-market interest rates. Because the Foundation works with cooperatives rather than individual smallholders, it is able to extend loans that are relatively large, about 2 billion IDR per project. Secondly, the Foundation also provides technical assistance to help farmers scale up their productivity, in the form of training in good agricultural practices, governance, and financial management. In Indonesia, the agricultural commodities that Rabo Foundation invests in include coffee, cacao, padi, and dairy.[46]

Through this process, Rabo Foundation has been able to help smallholders command selling prices that are 50 to 60 percent higher than before.[47]

Indicator	Sustainable Cocoa Production Programme (SCPP)	AgriFin Mobile Programme	Innovative Financing Scheme
10. Providing Access to Finance			
Is increasing farmers' access to finance a part of the project?	Yes	Yes	Yes
If so, which financial institutions are involved?	BRI, Rabobank Foundation, and financial cooperatives; insurance companies also develop micro-insurance products	Bank Oke Indonesia and BPR Pesisir Akbar	Local banks, state owned banks, some international banks (Rabobank)
Are farmers supported to access credit?	Yes	Yes	Yes
If so, how?	SCPP provides financial literacy training and invites officers from financial institutions to present their loans and savings products. Financial institutions are trained about the cocoa sector and cocoa financials, and are supported to develop loan products for cocoa farmers.	Bank Oke Indonesia provides wholesale credit to BPR Pesisir Akbar. BPR Pesisir Akbar field loan officers visit farmers in village to disburse low-interest microfinance loans. Local traders assist in submission of administrative documents for loan disbursement. Loans are given in the form of agricultural input (seed and pesticides) vouchers, as well as money to cover fertiliser and labour costs for land preparation and harvest. Farmers repay loan by selling harvest to local traders, who take a cut of proceeds and repay remainder to BPR Pesisir Akbar. If farmers do not sell to local traders, they can repay in cash through traders or directly to BPR Pesisir Akbar field staff. BPR Pesisir Akbar then repays its loan to Bank Oke Indonesia. Additional production assistance is provided to farmers with outstanding loans.	Interest rates are subsided. Loan tenor is extended to 8-12 years for replanting. GAR guarantees loans.

Indicator	Sustainable Cocoa Production Programme (SCPP)	AgriFin Mobile Programme	Innovative Financing Scheme
10. Providing Access to Finance			
How are collateral and other guarantees for credit provided?	Certificates such as farmers' legal land titles and motorcycle ownership certificates can be used as collateral.	A single land title can be used as collateral for multiple loans. Loans are insured against crop failure of >75% due to drought or cyclone. Loans are disbursed as vouchers for purchasing agricultural inputs to ensure that credit is used for farm investment. Repayments to bank are made by local traders, rather than farmers, to increase repayment rate. Farmers are incentivised to repay loans early with reduced interest rates. Only farmers who have repaid are allowed to continue to next year.	Farmers' legal land title is used as collateral.
Are farmers financially supported in other ways?	Yes	Yes	Yes
If so, how?	SCPP provides grants to support farming infrastructure, such as subsidies for the construction of nurseries and learning centres.	SMS service is used as a platform to disseminate information related to loans, insurance, and financial literacy. Mercy Corps also provides financial literacy education.	Farmers are provided with grants for living expenses during the 4-year non-productive period following replanting. Farmers participate in alternative livelihood schemes such as food crop planting, small business entrepreneurship, and training in skilled services. Farmers are educated in financial planning.

Indicator	Sustainable Cocoa Production Programme (SCPP)	AgriFin Mobile Programme	Innovative Financing Scheme
10. Providing Access to Finance			
How are returns divided among stakeholders?	SCPP receives no financial returns. Financial institutions retain all profits from farmer loans.	Bank Oke Indonesia and BPR Pesisir Akbar receive returns from interest rates charged on loans. ACA receives returns from insurance premiums charged to farmers. Syngenta receives returns from seed and crop protection packages sold to farmers. Mercy Corps receives no financial returns.	Profits are divided among GAR, farmers, financial institutions, participating NGOs, certification bodies, and participating downstream off-takers based on key indicators of project success (e.g. yield).
Have there been significant changes to financial indicators of participating farmers?	Bank account ownership has increased from 32% to 46%. Loan disbursement in 2016 increased by 1,058% compared to 2013.	2,688-3,188 farmers have received loans over 4 years of project implementation.	So far, participating farmers have not needed to take up any additional loans besides those provided through the Innovative Financing Scheme.
What are the expected risk-adjusted returns for private investors/ banks?	Most loans are provided under government's Kredit Usaha Rakyat (KUR) scheme at 9% per annum.	1.8% per month	Interest rate is set by bank but GAR assists in negotiating low rates.
What is the maturity period for these investments?	Working capital loans up to 3 years, investment loans up to 5 years (note: this is too short for replanting)	6 months	13 years
What is the size of each investment?	Average 20 million IDR	10 million IDR maximum	Average 7,000 USD per hectare replanted
How much total investment is required/being solicited?	Working capital for 40% of farmers in the programme is estimated at 50 million USD per year. Land purchasing costs for 20% of farmers in the programme are estimated at 150-200 million USD. (note: figures are estimated based on the percentage of farmers who are bankable)	48.7 billion IDR of loans have been disbursed in 4 years of project implementation (excluding investments made by Syngenta, BPR Pesisir Akbar, and ACA for training farmers and hiring staff).	9.1 million USD, assuming 1,300 ha to be replanted

Stage 5: Monitoring Environmental Impacts

3.11 Ensuring Environmental Protection

Smallholder finance projects may incorporate environmental protection in a number of ways. At the most basic level, environmental indicators are measured during the baseline study, and smallholders with a high risk of committing environmental violations, such as those located within protected areas, are excluded. Another way is by incorporating environmental aspects into the education and training component, such as by teaching smallholders how to use pesticides safely and how to dispose of waste in an environmentally-friendly manner.

Some projects also measure environmental indicators, such as reduction in greenhouse gas emissions and fire incidents. GAR's Innovative Financing Scheme uses drones to monitor the project area for hotspots and enlists smallholders under the scheme in a fire prevention programme. As a result, GAR has been able to prevent any outbreak of fire within the project area since the project's inception.[48]

A second approach is to incorporate conservation targets into the structure of the loans provided to smallholders. This is the approach taken by the &Green (pronounced "and-green") Fund, which was launched by Dutch development agency IDH in July 2017. The &Green Fund follows a "production, protection, and inclusion" model, and aims to provide investments to improve agricultural productivity while protecting existing forests. It does this by setting a criterion that for any project that it finances, the area of land that the project commits to protecting must be 5 times as much as the area of land used for agricultural production.

In return, the fund is able to offer financing with highly favourable conditions. Loan tenor can be up to 15 years, and repayments only need to commence after the 10th year.[49] The fund is able to offer large amounts of capital (up to 200 million USD), with interest rates significantly below the market rate.[50] The de-risking function is carried out by 400 million USD of grants donated by the Norwegian International Climate and Forests Initiative (NICFI), as well as other foundations and corporates.[51] In total, the &Green Fund is targeting 2 billion USD of investments and the conservation of 5 million hectares of tropical forest, with Indonesia as one of the focus countries.[52]

Indicator	Sustainable Cocoa Production Programme (SCPP)	AgriFin Mobile Programme	Innovative Financing Scheme
11. Ensuring Environmental Protection			
Is there an explicit conservation component in the project? If so, what is it?	Yes, education about the links between good agricultural practices and environmental conservation is integrated into farmer training. Farmers are also taught natural resource management techniques and discouraged from encroaching into protected areas and national parks.	No	No
What types of areas are being conserved?	Protected forests and national parks	-	-
What changes in biodiversity indicators have been observed so far?	Carbon stock, area planted by cover crops, and biodiversity of shade trees have increased. Carbon emissions from farms have decreased.	-	-
Does the project have a fire prevention component?	No	No	Yes
Are regular patrols for fire conducted?	-	-	Yes, by GAR
Are hotspots monitored using remote technology?	-	-	Yes, using drones
Are villagers engaged in fire prevention efforts?	-	-	Yes, villagers participate in GAR's fire prevention programme
How has the number of hotspots/fires in the project area changed since the start of the project?	-	-	Zero hotspots have been observed.

Stage 6: Monitoring Social Impacts

3.12 Protecting Gender and Labour Rights

Women are a generally marginalised group among Indonesian smallholder families. Although female farmers constitute a large percentage of the workforce for certain crops – for example, women make up 80 percent of coffee farm labour in North Sumatra province[53] – they are often excluded from extension services and other support programmes. This is because smallholder farms in Indonesia are generally headed and managed by men, meaning that men also serve as the default participants and points of contact in these programmes. However, it is often women who have the responsibility of seeking out loans. Men may be embarrassed to deal with debts, and moneylenders may be more comfortable dealing with women, who are viewed as easier clients from which to collect repayments.[54]

In response, some smallholder financing projects have made providing equal opportunities to women a key component. For example, Swisscontact's Sustainable Cocoa Production Programme (SCPP) actively encourages women to join smallholder cooperatives and training activities, as well as take on leadership positions. Results observed include 80 percent female attendance in certain training sessions and 14 percent of farmer groups having women in leadership roles.[55] Since November 2016, Mercy Corps has been also working with BPR Pesisir Akbar to develop a strategy for reaching female farmers, as well as designing loan and savings products specifically for female farmers, as part of its BRIGE (Building Resilience through the Integration of Gender and Empowerment) programme.[56]

Some projects also explicitly monitor for other social issues. For example, the SCPP explicitly mentions its prohibition on the use of child labour during its training sessions, and regularly monitors the percentage of cocoa plantations within the project area that engage child labour.

Indicator	Sustainable Cocoa Production Programme (SCPP)	AgriFin Mobile Programme	Innovative Financing Scheme
12. Protecting Gender and Labour Rights			
Is there an explicit focus on active participation by women?	Yes	Yes	Yes
If so, how is this carried out?	SCPP provides equal access to women to participate in the programme, and has set percentage targets for the participation of women in trainings and women leadership in farmer groups.	Women grain traders and farmer group heads are engaged to encourage female participation in financial decision-making. A financial literacy module has been developed for both farmer borrowers and their wives. Under its BRIGE (Building Resilience through the Integration of Gender and Empowerment) programme, Mercy Corps is supporting BPR Pesisir Akbar to develop a strategy to reach out to and develop specific loan and savings products for female farmers.	Women are given equal work opportunities when participating in the programme.
Have there been any changes in women-related indicators since the start of the project?	14.2% of farmer groups, 21% of farmer organisations, and 42% of farmer cooperative boards now have women in decision-making positions.	Percentage of women borrowers have increased from 4% in year 1 to 22% in year 4	N/A
Is there an explicit focus on preventing labour violations?	Yes	No	Yes
If so, how is this carried out?	SCPP's training Code of Conduct explicitly prohibits child labour.	-	GAR's Social and Environmental Policy commits to good labour practices, fair labour rights, and no child or forced labour. Regular assessments are conducted to ensure compliance.
Have there been any changes in labour-related indicators since the start of the project?	Child labour participation rate decreased from 4% in 2015 to 2% in 2016.	-	N/A

4. Impacts of Smallholder Financing Projects

Though smallholder financing projects are still largely in the pilot stages, they have already been observed to generate significant positive economic, environmental, and social impacts.

Firstly, smallholder financing projects have been successful in raising productivity and profitability. Over a period of three years, Mercy Corps' AgriFin Mobile programme reported, on average, an 11 percent yearly increase in productivity and a 17 percent yearly increase in income.[57] From 2012 to 2016, Swisscontact's Sustainable Cocoa Production Programme (SCPP) helped smallholders increase their productivity by an average of 60 percent and their income by an average of 157 USD per year.[58]

Smallholder financing projects have also been successful at helping independent smallholders secure loans and access other financial products. From 2014 to 2017, Swisscontact's SCPP helped independent cocoa smallholders receive a total of 9.7 million USD in loans, with the number of loans issued in 2017 having increased 143 percent compared to 2014. The programme also had an impact on savings, which increased by an average of 8.9 percent.[59]

Environmental and social benefits are not as well documented because they are not an explicit objective of many smallholder financing projects. However, projects such as Swisscontact's SCPP have demonstrated reductions in greenhouse gas emissions without any negative impact on productivity, due to the implementation of better soil, fertiliser, and environmental management practices.[60] The mapping process undertaken in the baseline studies of smallholder financing projects also enables the identification of smallholders operating within protected areas; this allows the government to initiate targeted programmes to resolve these smallholders' legality issues. Finally, smallholder financing projects enable greater oversight over the activities of independent smallholders, reducing the risk that encroachment or other illegal activities may occur.

Some of the most tangible social impacts can be observed in projects that explicitly engage women. These have generally seen significant increases in the participation of women in training sessions and leadership roles in farmer cooperatives. Women are also playing a greater role in financial household management: for instance, in Mercy Corps' AgriFin Mobile project, the percentage of female bank loan borrowers increased from 4 percent during the 1st year to 19 percent during the 3rd year.

Overall, despite the short time frame during which smallholder financing projects have been implemented so far, they show a great deal of promise not just in enabling financial access for independent smallholders, but also in meeting other economic, environmental, and social objectives. There is scope for more such projects to be implemented in order to arrive at scalable, replicable models for independent smallholder financing that can be implemented across different locations in Indonesia.

5. Conclusion and Next Steps

The financing of independent smallholders is a nascent field, but Indonesia's experience has demonstrated that it is a promising one. Creating the enabling conditions for independent smallholders to access finance may have significant positive knock-on effects on the economy, the environment, and social welfare. Indonesia's current supportive regulatory environment makes it an ideal time for project implementers and policymakers to analyse and refine the smallholder financing projects currently being piloted, so as to derive models that are applicable across multiple geographical locations and agricultural crops.

The need to take action is urgent. A lack of suitable financing options continues to drive smallholders towards unsustainable practices, causing significant environmental degradation. The upcoming need for replanting presents a crossroads that may lock the Indonesian agricultural sector onto either a sustainable or unsustainable path for several years to come.

Current smallholder financing projects should be seen as only the first step in integrating independent smallholders into the broader financial ecosystem. There are many possibilities for smallholder finance that have not yet been fully explored, including improved access to retail savings accounts, micro-insurance, mobile banking, and greater incorporation of mission-driven financiers such as impact investors and social enterprise lenders into the financing landscape. It should also be noted that loans may not be an appropriate option for many smallholders, who may be either not ready or not willing to take on loans. Providing loans to such smallholders risks causing them to fall into debt. Expanding beyond loans to a broader spectrum of financial products, such as savings and microinsurance, would also allow smallholders to better choose products that fit their needs.

It is now essential for more financial institutions, from both inside and outside Indonesia, to enter the smallholder financing sphere. These institutions should draw lessons from earlier financing projects to design new and ever more effective financing mechanisms for independent smallholders. In particular, uptake from financial institutions within Indonesia has been slow, with only a few banks, largely the state-owned banks, being significantly involved. More needs to be done to realign the incentives and disincentives so that more financial institutions begin to explore smallholder financing as a viable business opportunity.

Only with the combined effort of institutions from all branches of the financial industry can we arrive at a long-term, sustainable solution for financing Indonesia's smallholders and unlock the attendant environmental, social, and economic returns.

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For further information, contact the SIIA at:
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