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Guidance Sheet

Inclusive Agricultural Insurance

Inclusive Agricultural Insurance

This guidance sheet is one of a series of tools written to support SDC staff and partners in designing and implementing projects aimed at financial inclusion. It outlines key issues regarding inclusive agricultural insurance and how to promote this approach within the overall framework of inclusive insurance throughout the design, implementation, monitoring and evaluation of cooperation strategies and project interventions.

Agricultural insurance has strategic importance for poverty alleviation and food security through:

Strengthening resilience
Smallholder farmers in developing countries are generally disproportionally impacted by extreme weather events and have fewer coping capabilities. As climate change impacts are increasingly exacerbating the situation, effective (climate) agricultural risk insurance targeting smallholder farmers is one of the key instruments that can contribute to stable agricultural and food production by reducing smallholder farmers' risk related to low yield or crop losses. Quick claim payouts can be an efficient way to create impact from donor funds in sponsored projects.

Improved production
Food security improvements entail, in addition to enhancing the levels of production and working on other factors impacting agricultural production and nutrition, ensuring access to capital for increased investment in agri-operations. Safeguarding capital, new assets and investments is therefore a required incentive. Insurance is an option for smallholder farmers to transfer part of the additional risk associated with investing into their agricultural activities.

Providing social protection
Agricultural insurance offers a potential for effective and efficient alternative to traditional post-disaster relief approaches by ensuring the basic livelihood of low-income rural populations and by reinforcing their overall capacities to regrow rapidly affected crops, which are often their main source of food and/or revenue.

1. Inclusive Agricultural Insurance

1.1 What is agricultural insurance?

An insurance protects individuals from risk of uncertain outcomes. It is a two-party contract that transfers the risk of financial loss from an individual or business to an insurer in exchange for regular payments. More parties may be included in specific schemes (e.g. re-insurers, governments, mobile network operators, etc.). Agriculture insurance is a type of non-life insurance. It typically covers the loss of livestock (forage/fodders for livestock) or crops and protects against weather risks. For low-income farmers, agricultural insurance offers protection against loss of income and can cover the costs of rebuilding.

In agricultural insurance, traditional indemnity insurance and parametric, or index-based, insurance must be distinguished. Index-based solutions are a type of insurance that covers the probability of a predefined event happening instead of reimbursing actual loss incurred. Whereas traditional insurance reimburses an actual loss triggered by the loss or damage to a physical asset, the index-based insurance pays out an agreed amount triggered by exceeding a parametric threshold. In index-based insurance schemes, settlement is triggered not by a claim but by an event which conforms to a predetermined variable (e.g. a specific flood level, rainfall amount in a specific period, etc.). Indexes do not have to be weather-related, but can also be linked to area yield or vegetation growth.

1.2 What makes agricultural insurance 'inclusive'?

Agricultural insurance are part of 'social safety nets'. Safety net approaches aim to address risks, vulnerability and social exclusion. They help vulnerable households protect themselves from livelihood risks, maintain an adequate level of food consumption, improve food security, and prevent adverse coping strategies and depleting assets. In the context of agriculture, they can also alleviate liquidity constraints for smallholders, boost demand for farm products, foster income-generating and innovation strategies, and create multiplier effects throughout the local economy.

Approaches for inclusive insurance combine insurance and social safety net concepts, accounting at the same time for the overall importance of insurance for development and the limited accessibility of insurance products for farmers and households at the bottom of the pyramid. In this regards, in-

clusive insurance encompasses different approaches to reach the unserved, underserved, vulnerable, or low-income populations in emerging markets with appropriate and affordable insurance products.

2. Why is inclusive agricultural insurance important?

Out of the approximately 1.5 billion individual smallholders in developing countries, only an estimated 198 million have some form of agricultural insurance coverage. There are large disparities in insurance availability between world regions. Around 95% of insured smallholders are concentrated in China and India, thanks to large-scale government programmes that subsidise premium costs, while Africa (1.5%) and Latin America (0.4%) account for only marginal shares of the total number of insured smallholders.[1]

Agricultural insurance covers against the loss of crops and livestock through climatic impacts such as drought, excessive rainfall or flooding. In specific (rare) cases, crop losses due to pests or diseases may also be included. Agricultural insurance has the potential of alleviating rural poverty and facilitating economic stability as it acts as a social safety net needed to increase productivity. In light of escalating climate change, and as part of more complex approaches to enhance smallholder economic resilience, improving smallholder's risk management strategies has become a priority for agricultural development programmes. Programmes implemented by the SDC and other donor agencies have shown that when smallholders insure against risks that affect their agricultural livelihoods, they become more resilient and are able to better manage risks, invest more confidently in their diverse livelihoods, and improve production. Agricultural insurance products, adapted to the needs of the target group and easily accessible (e.g. insurance bundled with inputs), can therefore facilitate access to finance, protect assets and livelihoods as well as provide funds for recovery in case of detrimental shocks.

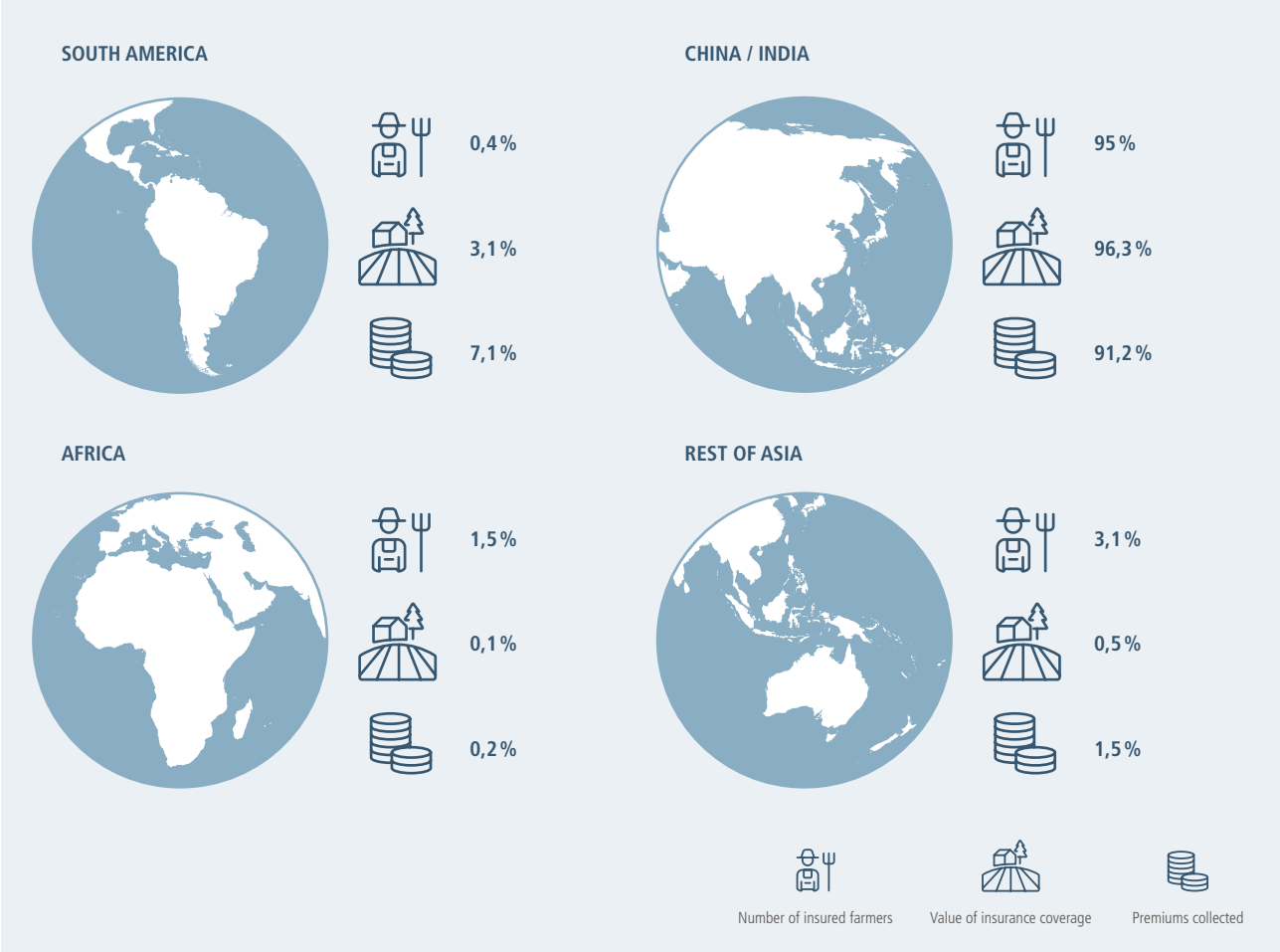

Figure 1 Regional agricultural insurance coverage (percentage share) – giz. (2021)

3. How to plan projects on agricultural insurance?

SDC interventions in agricultural insurance can build on good practices learned through several successful (and unsuccessful) projects both by the SDC and by international organisations aiming at promoting inclusive agricultural insurance. SDC staff involved in planning projects on agricultural insurance can make use of available SDC-internal and external knowledge products and guides.[2]

3.1 Key characteristics:

Agricultural insurance products have to demonstrate high customer value in order to generate demand and projects should put substantial efforts into financial literacy campaigns, educational marketing or similar activities to raise awareness and understanding of insurance, develop an appreciation of the benefits of insurance and create trust. However, because awareness creation and capacity building campaign Share (cost) intensive, they require a sustainable financing concept.

Direct benefits are usually only measured in the event of a loss. The indirect benefits of having insurance are more difficult to assess. Coupling agricultural insurance, where the direct benefits are difficult to see without the event of a loss, with more tangible measures/benefits like additional agricultural advisory services or seminars on risk management, can increase acceptance of the insurance concept. Great care has to be taken in establishing clear result chains and identifying suitable indicators. Indirect benefits may stem from i) peace of mind of the insured and consequently a better planning horizon; ii) access to services which would otherwise not be accessible (e.g., farm credit); iii) facilitation of increased business investments, resulting in higher net income.

3.2 Understanding the target groups

An in-depth understanding of the needs, behaviours, and preferences of target groups can contribute to more relevant and responsible delivery of services/offers to them. In addition to understanding the target group, and in line with the market systems approach, it is important to also identify the social, operational and technical potential of agricultural insurance and overall ecosystem the target group acts in. However, detailed research and individualisation of products entail higher costs, which either have to be borne externally (e.g. by a donor institution) or transferred to the client.

Typically, targeted agricultural insurance clients have low incomes and live in a developing country. They are often self-employed and work in the informal economy. Target groups often live just below or just above the poverty line, commonly defined as earnings of USD1.25 a day, and women constitute a majority, creating a strong case for designing gender inclusive insurance projects and products. They are mainly rural small-scale farmers and produce, process and trade crops and goods. Agricultural business types can differ greatly, including by farm type, main business activity (e.g. cropping, animal husbandry, mixed farming) and agro-ecological conditions (e.g. rainfall distribution, forage cover over time, migration patterns etc.). These conditions together also typically deny poor people access to formal financial/insurance institutions. Poor people in developing countries are especially vulnerable to natural risks, not only because they depend on agricultural production as their major source of income, but also because they are often obliged to settle in risk-prone areas such as hillsides, river basins, or by the shore. Furthermore, studies show that populations in developing countries, particularly in Sub-Saharan Africa, will be especially affected by adverse climatic effects in the future. Taking into account that women and men respond to risks differently, and women are more affected by shocks,

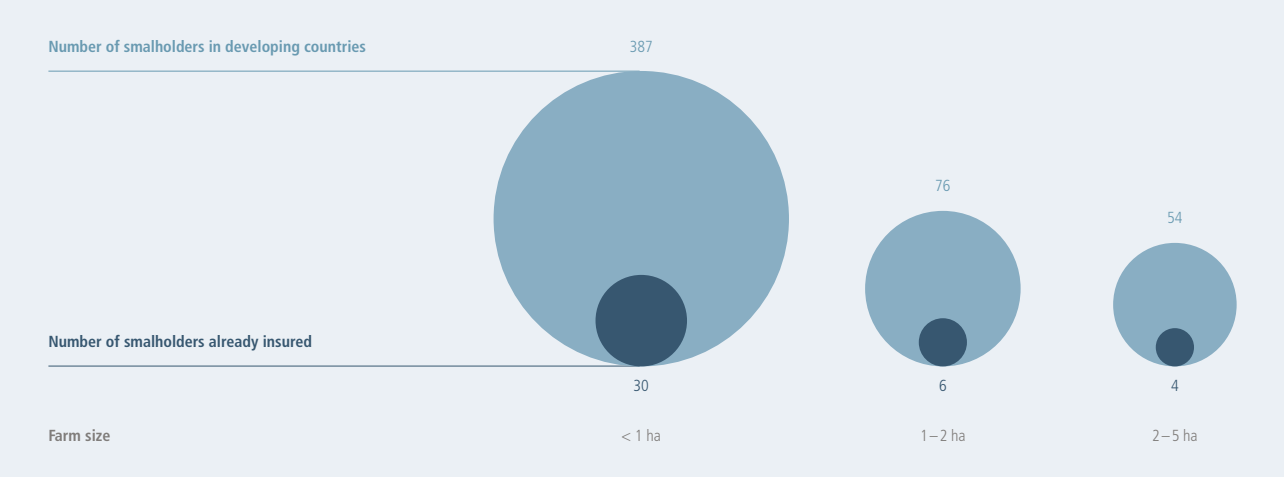

Figure 2 Source: FAO, 2022

1 https://www.giz.de/expertise/downloads/2021%20GIZ_Innovations%20and%20emerging%20Trends%20in%20Agricultural%20Insurance-An%20update.pdf
2 See Annex II

it is important that a gender-responsive, inclusive approach to agricultural insurance ensures that the needs of both women and men are taken into account.

In developing countries, 357 million smallholder farmers, possessing less than one hectare of land, remain uninsured. The major challenge faced by agricultural insurance in the future is associated with the capacity to extend insurance coverage to these smallholder farmers.

4. How to implement projects on agricultural insurance?

4.1 Designing inclusive agriculture insurance interventions with stakeholders

Designing and setting-up an inclusive agriculture insurance intervention can be done along the 'SUAVE'[3] approach: simple, understood, accessible, valuable, efficient. For a sustainable business model, the product and processes need to be engineered to meet the particularities and needs of the low-income market. Interventions must consider the multi-stakeholder environment in which they materialise, including the policy framework, and account for the fact that the intangibility of insurance makes it hard for clients to relate to the product. This is a particular challenge for low-income individuals who are often not even sure what insurance is and how it works. Agricultural insurance products are among the most complex, despite being more effective in meeting the needs of low-income people. A significant obstacle is that they require significant managerial and actuarial capabilities and are a lot more difficult to implement. There is a need to involve a wide range of stakeholders from the supply side (public/private insurers, InsurTechs, financial institutions, etc.) and from actors involved in the enabling environment (particularly regulators).

Private sector engagement is crucial to making agricultural insurance schemes work. Agricultural insurance schemes are often structured as a public-private partnership (PPP) or general collaboration between the public and private sector, with initial role and objectives settings that are not conflictual. In insurance projects, the role of the private insurance companies is 'natural'.

To identify constraints for project implementers to engage with local private and public sector actors who are motivated and have capacity, the Market Systems Development (MSD) approach can offer guidance. In order to implement sustainable provision of insurance, projects may partner with local financial sector actors selling inclusive insurance products. These types of entities have a clear business case to promote financial inclusion so that access can be provided in line with the demand and needs.

4.2 Key approaches to increase reach of agricultural insurance

Traditional indemnity insurance vs. index-based insurance
To be able to successfully design and adapt agricultural insurance products to the needs of the target groups, it is crucial to understand how different products, particularly index-based insurances work. Index-based insurance has become the most common type of agricultural insurance.

Index-based insurance was developed in response to the challenges of traditional indemnity insurance. Contracts are based on aggregated events (like rainfall) or regional events (like area yield) defined and recorded by a single regional index rather than those at the farm or plot level. This data is generally objective and reliable. All buyers in the same region are offered the same contract terms per unit of insurance coverage and pay the same premium rate. When an event triggers a payment, buyers receive the same rate of payment per unit of insurance. Index-based insurance avoids moral hazard and eliminates the need for costly on-farm inspections and individual loss assessments. It also provides a way to insure risks that were difficult to insure in the past with traditional insurance products. Nevertheless, this comes at the price of a basis-risk, as indexes can never display the exact loss-pay-out relation of each individual.

Maize and Cotton Index Insurance for Smallholder Farmers in Mali- SCBF, 2019

Most Malians are unbanked. Four out of five rural Malians do not have access to financial capital to develop economic activities. The lack of data and infrastructure is making it very difficult for financial institutions to target, reach, educate and serve customers. New technologies can solve this issue as satellite data is available in all regions and mobile money is becoming a very common way of collecting payments. OKO Finance Ltd. has been established to create index-based insurance products for farmers and distribute them via mobile to un-banked farmers. OKO Mali expects to reach 15,180 maize and 3,300 cotton farmers who will gain resilience to climate risks and have easier access to micro-loans, which will benefit 15,700 rural users and 5,500 female users.

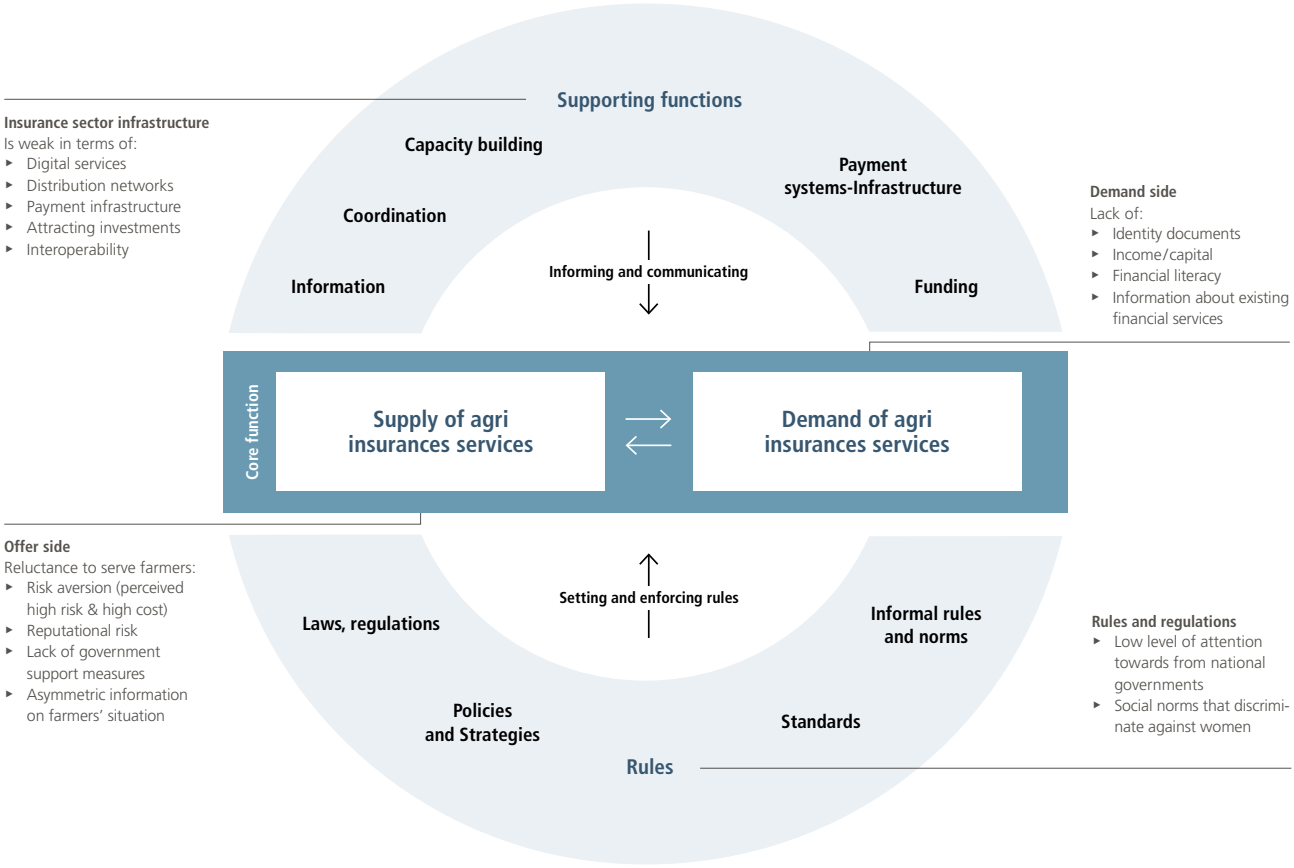

Figure 3 Overview of the constraints with the MSD approach

	Traditional indemnity insurance	Parametric/ index-based insurance
Payment trigger	Payment triggered by actual loss of or damage to a physical asset.	Payment triggered by event occurrence exceeding parametric threshold.
Recovery	Reimbursement of actual loss sustained	Pre-agreed payment structure based on event parameter or index value
Basis risk	Policy conditions, deductibles and exclusions	Correlation of chosen index, the pay-out, and the loss sustained
Claims process	Complex and based on loss adjuster assessment	Complex and based on loss adjuster assessment
Term	Usually annual	Single or multi-year
Structure	Standard products and contract wordings; some customization	Customised product with high structuring flexibility

Table 1 Key differences between traditional and index-based insurance[4]

3 Microinsurance Centre
4 Based on SwissRe. (2022)

There are already examples of quite successful implementation of weather index insurance programmes such as the ACRE Africa,[5] which offers a weather-index microinsurance product to farmers across rural Kenya. In recognition of the difficulty these farmers experience in accessing relevant application documents, enrolment occurs at their agricultural cooperative, where stockists enrol the farmers employing a scanner which is fixed to a smartphone. Instant, paperless registration takes place through a custom-made software and the client's data is transmitted to the insurer for immediate recording. The SDC has a solid record in implementing index-based agricultural insurance projects, for instance a complex insurance scheme combining drought, excessive rainfall and excess wind triggers in Zimbabwe.[6]

Furthermore, the SDC, via the SBCF, supported OKO Finance Ltd in Mali, a micro-finance start-up that designs affordable insurance products for farmers using new technologies. It is registered as a broker in Mali and has conducted initial pilots reaching 450 farmers in total. OKO uses weather-based index insurance products to secure the income of farmers and facilitate access to micro-loans.

Challenges and response

There are, unfortunately, some administrative burdens, such as high costs and the risk of claims based on moral hazard or fraud. It is often difficult to calculate the probability of loss because many factors can influence crop yields, for example. At the same time, premiums that farmers could afford have not usually been sufficient to cover claims and administrative costs. As such, government subsidies have historically been required for viability of such programmes. Index-based insurance has the potential to reduce delivery and transaction costs but depends on the availability and quality of data.

The market is constantly evolving, and new products appear with client needs at the centre and can now facilitated by new technological innovations.

Innovations in index-linked insurance, such as rainfall index insurance and minimum temperature insurance, allow for greater measurability and objectivity because an index triggers pay-outs. The use of technical means like satellite imagery, through which vegetation cover and delayed growth can be detected can become even more relevant in the future, potentially paired with the use of big data. Similarly, micro-chipping of animals has been used to prevent fraud in livestock policies. Approaches that use community risk sharing for livestock insurances have also shown positive results. Technological advances together with the cost saving potential of mobile insurance features can make agricultural insurance products much more affordable for the client and less risky for the provider.

Promoting meso-level insurance products and bundling insurance products with other services

Increasing insurance reach always requires making the product attractive and adapted to the clients, i.e. smallholders and agribusinesses. Index-insurance products can be distinguished according to the level they target:

- Micro-level index insurance covers individuals.
- Meso-level insurance products are sold to intermediaries like agribusinesses, financial service providers (banks, microfinance institutions), and NGOs (i.e., the insurance contract holders), which use the insurance to cover risks in their own aggregate portfolios.
- Macro-level index insurance covers contingent liabilities that the government might face in case of a disaster or a weather-related event.

Insurance reach can be increased by promoting meso-level insurance products. Meso-level insurance is used as an internal risk management tool to cover default risks arising from large and systemic agricultural shocks. It might take the form of a single insurance policy that pays the policyholder a lump sum when an adverse event occurs. The insurance premium in such a case is paid by the financial institution, which may recover all or part of this cost, by charging its borrowers higher interest rates. An interesting aspect of meso insurance is that the lender has full discretion to utilise the insurance payouts. By removing some of the systemic basis risk in the lending portfolio, meso insurance enables lenders such as microfinance institutions or regional rural banks to take on more risk and expand their lending to smallholders. An important feature in this case is that lenders may be incentivised to expand their lending, even though little is done to insure the risks of individual farmers.

Another option to increase insurance reach is product bundling. Bundling products means that two or more products are sold together in one package. For example, some microfinance institutions bundle a loan with a savings account. To be approved for a loan, the client must open a savings account. Loans are often bundled with credit life insurance. Product bundling can also be voluntary. Product bundling can generate cost savings for a provider and increase product affordability but can discourage customers who desire greater freedom to choose which products they use. Making insurance work for the poor has largely involved bundling with credit-based products which are better aligned with the needs of poorer populations such as smallholder farmers. Given the mixed results of bundling with credit products, this option should be made available on a voluntary basis. Particular potential lies in bundling the insurance products with other value chain services, like provision of inputs (fertilizer, seedling etc.) or pre-financing/off-taker services.

Digital technologies like mobile applications or electronic banking are opening access to insurance for smallholder farmers. This can help to improve contracts, strengthen security and distribution channels, and speed up claim payments. Organising farmers into insurance groups can lower costs and reach many more underserved farmers with appropriate insurance products, incling women farmers and poor smallholders.

5. Defining and measuring results in projects on agricultural insurance

Defining project success in agricultural insurance programmes will always vary according to country and programme context. Research shows that payout time and amount is the most decisive aspect on which clients evaluate the success of an insurance. Studies indicate that insurance payout often may only be sufficient to cover costs of seeds or repay a loan, but do little to stabilise overall household incomes. Overall, desired outcomes from a customer, insurance sector and policy perspective include:

- Resilient consumption: one of the core goals of insurance is to streamline production and consumption and make it resilient to external shocks. In good years disposable income is a bit lower than compared to an uninsured status (as premiums have to be paid), but in bad years consumption can be maintained at an acceptable level thanks to claims payments.

- More favourable credit terms: insured clients will be better clients for a lending institution, as their default risk is significantly lower. This should translate into more favourable terms and conditions for insured clients, e.g. reduced interest rates and even allow the lender to extend credit to people considered too risky in the absence of insurance.

- Increased investment and income: insurance may enable individuals to develop new business opportunities that more than compensate for the expense of the insurance.

- Sustainability: financial sustainability is a key indicator of all insurance products. Experience has shown that break-even points for agricultural insurance products can rarely be achieved in less than 5 years of operation. Where subsidies are involved, the focus should be on economic sustainability and efficiency of funds used.

- Risk transfer: policy-backed insurance schemes represent a risk transfer from the individual smallholder to the government, which is especially relevant when linked to social protection models.

- Increased demand for insurance services: over time, clients should become more familiar with the concept of insurance and acknowledge its value. This should lead to repeated renewal of insurance policies, increased demand and ultimately to additional insurance services.

5 See: ACRE Africa: Protecting Rural Africa Through Creative Partnerships and Technology |Index Insurance Forum
6 See: https://scbf.ch/wp-content/uploads/2022/04/2022-04-15-Blue-Marble-zimbabwe-report-compressed_1.pdf

On an insurer-level, business success is measured in terms of (i) number of insured households; (ii) area under cultivation of insured households; (iii) total sum insured; (iv) gross premium written; (v) profit margin; (vi) loss ratio or (vii) expense ratio.

Outcome and impact measurement on household-/smallholder-level will always be more complex, but requires particular attention to avoid unintended negative outcomes in line with the do-no-harm approach. To avoid opportunity and transaction costs outweighing the added value of insurance products for smallholders, project designers and implementers may use guiding questions: Is the product simple enough to allow a time-effort efficient application by the smallholders?

- Are insurance pay-outs sufficient and disbursed in a timely manner to enable clients to immediately restart their business after an event and stabilise a household income?
- Does the insurance product facilitate access also to other services, for which smallholders typically have a high demand (e.g. loans, value chain services, pre-financing etc.)
- Does the insurance product allow the smallholder to invest more into its business?
- Based on such guiding questions, results frameworks can be established. The SDC's best practise experience in M&E[7] proves the power of building-focused results frameworks and indicator plans to track the intervention's performance with full transparency from data collection to reporting.
- Develop results chain with suitable indicators during the project planning phase in order to explicitly describe the project through causality links in terms of insurance;
- Determine gender-disaggregated result indicator baselines and target values to enable realistic planning and analyses (output, outcome and impact indicators);
- Outputs achieved are important to monitor and assess projects, but should not be considered in isolation. Systemic changes take place at outcome level (e.g., percentage of farmers having an insurance);
- Monitor progress through milestones with data collected during implementation.

Annex I. Glossary of Terms

Actuarially fair cost of insurance: The part of a premium that, based on actuarial calculations to determine the financial consequences of risk, the insurer estimates will equate to the average indemnity to be paid over time.

Adverse selection: Situations in which an insurance company extends insurance coverage to an applicant whose actual risk is substantially higher than the risk known by the insurance company. If the insurance company charges an average price for its product, it will attract high-risk buyers who, over time, will cause the insurer to lose money. If the insurer responds by raising the average premium, it will lose more of its lower risk buyers, eventually ending up with an unviable portfolio of high-risk farmers.

Area yield insurance: A type of index-based insurance in which the index is linked to the average crop yield for a region, usually measured through randomised crop-cutting experiments. Remote sensing-based information with satellite data (RIICE) have also been used for area-yield index insurance.

Basis risk: Basis risk arises with index products when there is a mismatch between the index measure that assesses losses for the insured region and the loss experienced by individuals. This happens if an individual farmer experiences crop losses that are too localised to trigger a regionally based insurance payment. The opposite can also occur, and farmers may sometimes receive insurance payments triggered at a regional level even when they have not suffered a serious loss themselves.

Indemnity-based insurance: Insurance that compensates an insured farmer based on the assessed loss or damage sustained. This type of insurance requires individual loss assessments and, in many cases, some monitoring to avoid moral hazard problems. The most common forms are multiple peril crop insurance (MPCI) and specific or named peril insurance. Personal insurance like life, health, and accident insurance are also examples of indemnity insurance.

Index-based insurance: Insurance that compensates for losses measured by an index defined at a regional level, sometimes called a unit area of insurance (UAI), rather than for the losses of individual clients. A UAI might be a district, community, or GIS-defined area. When an insured event occurs (e.g., rainfall at a weather station or the average yield for the UAI falls below a defined level), all insured clients in the area receive the same payment per unit of insurance.

Loss function: The statistical relationship between the possible outcomes of an insured event and their probability of occurrence, which is used to establish the appropriate premium rate to cover the actuarially fair cost of the insurance.

Macroinsurance: Macroinsurance is sold to public entities like disaster assistance programmes (DAPs) and government departments to transfer some of their aggregate risk exposure to the International market rather than to the government's budget.

Meso-level insurance: Meso-level insurance is sold to intermediaries like agribusinesses, financial service providers, and NGOs (i.e., the insurance contract holders), which use the insurance to cover risks in their own aggregate portfolios.
Microinsurance: With microinsurance, the policyholder is an individual, household, smallholder or micro/small enterprise. They may be insured under an individual policy or a group policy. This is the most common approach in agricultural and climate risk insurance. Examples include individuals who purchase insurance to cover their production risks or farmer groups that insure their members directly under a group policy. In the development community, microinsurance has increasingly come to mean the development of microproducts to insure the most vulnerable individuals in low-income countries, similar to the concept of microfinance. This type of insurance is a subset of the more general concept of microinsurance used in this report.

Moral hazard: The problem that arises if the behaviour of an insured party can affect whether an insured event occurs and/or the amount of damage it causes. For example, a farmer with an MPCI contract may be less diligent in managing their crop if they know they will be compensated by insurance for yield loss.

Multi-peril crop insurance (MPCI): A type of indemnity insurance that provides coverage against a w ide range of natural hazards that affect crop yields. MPCI is particularly prone to moral hazard.

Premium: The amount of money that an individual or business pays for an insurance policy. It typically consists of the actuarially fair cost of insurance plus administration costs plus risk loading, less any subsidy amount provided by the government or other stakeholder.

Reinsurance: When the total exposure of a risk or group of risks presents a hazard beyond the limit that is prudent for an insurance company to carry, the insurer may purchase reinsurance, i.e. insurance for the insurance. Reinsurance has many advantages, including (i) levelling out the financial outcomes of the insurance company over time; (ii) limiting the exposure of individual risks and restricting losses paid out by the insurance company; (iii) potentially increasing an insurance company's solvency margin (percentage of capital and reserves to net premium income), hence the company's financial strength; and (iv) the reinsurer shares the profits of the insurance company, but also contributes to the losses, with the net result being a more stable loss ratio over the insurance period.

Risk loading: An addition to an insurance premium that an insurer charges to help compensate for limited information or uncertainty about the relevant loss function, for example, one that arises with a new type of insurance or because of climate change.

Risk pooling: One of the basic functions of a financial system in which the risk of providing financial services to one customer is pooled or intermingled with those of other customers. The objective is to reduce the overall risk to the institutions offering the services.

Sum insured: The amount of money that an insurance company is obligated to cover in the event of an insured loss. The sum insured amount is dependent upon the premium price being paid for the insurance coverage.

Tail-end risk: The chance of a significant loss occurring due to a low-probability event, as predicted by a probability distribution.

Annex II. Selected Readings

SDC publications:

Swiss Capacity Building Facility, Blue Marble Microinsurance, Old Mutual Zimbabwe. (2022). Iterating for Climate Resilience. Designing digitally-enabled agriculture insurance that works for smallholder farmers in Zimbabwe. Available at: https://scbf.ch/wp-content/uploads/2022/04/2022-04-15-Blue-Marble-zimbabwe-report-compressed_1.pdf

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