Understanding the Demand for Financial, Agricultural, and Digital Solutions from Smallholder Households:
Insights from the Financial Diaries and Household Survey in Mozambique
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BACKGROUND
Financial innovation for smallholder families

This deck is part of a series which explores the research that CGAP and partners have conducted to explore the financial needs and behaviors of smallholder households.

Research was conducted as a basis for guiding financial solution providers, mobile network operators, donors and governments to design, improve, and scale solutions that address the needs of smallholder families.
To build the evidence base on smallholder households, 2 methodologies were utilized:

**Financial Diaries with Smallholder Households:**
Mozambique, Tanzania, and Pakistan

**National Surveys of Smallholder Households:**
Mozambique, Uganda, Tanzania, Côte d’Ivoire, Nigeria, and Bangladesh

Photo by Erin Scronce
Data sources

Six countries have data from National Surveys of Smallholder Households

Mozambique, Tanzania, and Pakistan utilize an additional data source: Financial Diaries
Agriculture is the foundation of the economy in Mozambique. It contributes 40% of the GDP and 75% of the population is involved in agricultural activities.

Smallholder farmers in Mozambique rely not only on income from agricultural activities but also other off-farm activities such as casual labor on other farms, trading, and remittances from relatives.

Smallholders in Mozambique have very few tools to manage their irregular and volatile household cash flows, and thus have difficulty in planning and expanding their livelihood activities.

In 2015, CGAP and FSD Moçambique, in coordination with the Instituto Nacional de Estatística Moçambique, conducted a nationally representative household survey to explore the financial needs and behaviors of smallholder farmers as a basis for guiding financial institutions, mobile network operators, donors, and government partners to design, improve and scale solutions that address the needs of farmers.

In 2014-2015, CGAP also conducted financial diaries with smallholder households.

This presentation highlights the key insights from both the survey and financial diaries.
National Survey of Smallholder Households

Sample Design
The smallholder household survey in Mozambique is a nationally representative survey with a target sample size of 3,000 smallholder households.

Sampling Frame
The sampling frame for the smallholder household survey was the 2009–2010 Census of Agriculture and Livestock (Censo Agro-Pecuário, CAP II) conducted by the Instituto Nacional de Estatística Moçambique and based on the 2007 Census of Population and Housing (2007 RGPH).

Questionnaire Implementation
To capture the complexity of smallholder households, the questionnaire consisted of three parts, with certain questions asked of all relevant individuals in the household, not just one household member.

Data Collection
The questionnaire was translated into five languages—Portuguese, Changana, Macua, Ndau, and Sena—and then pretested and validated in all five languages to ensure that the integrity and appropriateness of the questions in line with social and cultural customs. Data collection took place from 23 July to 7 September 2015, using computer-assisted data collection tools that regularly yielded data for analysis and quality control to provide timely feedback to field staff. The survey was implemented by Ipsos Mozambique, InterMedia’s local field partner.
National Survey of Smallholder Households

Identification of relevant smallholder households to sample

Listing criteria for the national surveys of smallholder households

**LAND AND LIVESTOCK MEASURES**

Households with up to:

- 5 HECTARES OF LAND
- 50 HEADS OF CATTLE
- 100 GOATS, SHEEP, AND PIGS
- 1,000 CHICKENS

**MEASURES OF SELF-PERCEPTION**

Agriculture provides a meaningful contribution to the household:

- LIVELIHOOD
- INCOME
- CONSUMPTION

CGAP conducted national surveys of smallholder households in Mozambique, Uganda, Tanzania, Côte d’Ivoire, Nigeria, and Bangladesh. Care was taken to use an approach in the listing exercise that would encompass the wide variety of smallholder families across all 6 countries.
National Survey of Smallholder Households

Three questionnaires to capture household information and perspectives

Demographics
- General
- Livelihood
- Other

Gender: For many questions, we capture the perspectives of both male and female members of the household

Household economics
- Income sources
- Expenses
- Vulnerability
- Planning
- Economic mgmt philosophies

Agricultural practices
- Farmographics
- Practices vs. other household activities
- Decision-making
- Philosophies

Mobile phones
- Awareness
- Usage
- Demand
- Relevance
- Interest
- Ability to access
- Impetus for trying
- Use it
- Impact on life

Financial services
- Awareness
- Usage
- Demand
- Relevance
- Interest
- Ability to access
- Impetus for trying
- Use it
- Impact on life

Household questionnaire

Multiple respondent questionnaire

Single respondent questionnaire
Financial diaries with smallholder families

Methodology
The Diaries methodology combines in-depth quantitative and qualitative research. Research teams met participating families about every two weeks to collect granular data on their cash flows in and out of the household, financial tools, assets, major life events, and attitudes toward agriculture and financial services.

Sample Design
The Financial Diaries, conducted between June 2014 and June 2015, captured the financial and in-kind transactions of about 270 total households in impoverished northern Mozambique, the fertile farmlands of western Tanzania, and the Punjab province, the breadbasket of Pakistan.
Financial diaries with smallholder families

Sample locations and key characteristics

**MOZAMBIQUE**
- Sample households: 93
- Monthly p.c. net income: $5.50
- Major crops and livestock: Cassava, beans, peanuts, poultry

**TANZANIA**
- Sample households: 86
- Monthly p.c. net income: $10
- Major crops and livestock: Maize, potatoes, rice, beans, poultry

**PAKISTAN**
- Sample households: 94
- Monthly p.c. net income: $25.99
- Major crops and livestock: Wheat, rice, cotton, buffalo, goats
Financial diaries with smallholder families

Three initial questionnaires inform ongoing biweekly questionnaire

### QUESTIONNAIRE 1:
Household roster and living standards

### QUESTIONNAIRE 2:
HH members’ income sources and physical assets

### QUESTIONNAIRE 3:
HH members’ income sources and physical assets

Data from three initial questionnaires generate ongoing Smallholder Diaries questionnaires

- Open and close financial instruments and income sources as needed
- Qualitative modules: Risk, labor decisions, agriculture, financial tools, aspirations

- Acquisition, loss, or sale of physical assets
- Major household events: Births, weddings, deaths, etc.
- Crop tracker records harvests, sale, consumption, and loss of each crop

ONGOING SMALLHOLDER DIARIES QUESTIONNAIRES
WHY IT MATTERS
Smallholder families are important to Mozambique.

Smallholders in Mozambique represent a significant portion of the population. Efforts to increase financial inclusion must target the various profiles of smallholder households.

Moreover, in the current economic situation, more than ever, Mozambique needs smallholders to increase production, reduce reliance on imported food, and boost exports.
Smallholder agriculture is important to Mozambique.

Agriculture in Mozambique represents:

- 75% Population
- 25% GDP
- 20% Export revenues

Agricultural production from the smallholder sector represents 93% of total agricultural production in Mozambique.
What does the data tell us about advancing financial inclusion among smallholder households?

6 insights
1 Demographics
Most smallholders in Mozambique have limited education and are over 40.

More than half of smallholders are over 40, in a country where life expectancy is only 54.1 years.
Levels of poverty are high, especially in rural areas.

URBAN

- <$2.50 a day: 65%
- >$2.50 a day: 35%

RURAL

- <$2.50 a day: 84%
- >$2.50 a day: 16%
More than half of smallholder households report inadequate income.

How adequate is your current income?
Sample: Smallholder households, n=2,574.

- Not enough money for food: 58%
- Enough money for food and clothes only: 23%
- Enough money for food and clothes and can save a bit, but not enough to buy expensive goods: 12%
- Afford to buy certain expensive goods: 1%
Women are influential in decision-making.

Who decides?
Sample: Smallholder households, n=2,574.

<table>
<thead>
<tr>
<th>Decision</th>
<th>Husband / boyfriend</th>
<th>Wife / girlfriend</th>
<th>Both husband and wife</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>When to harvest</td>
<td>25%</td>
<td>28%</td>
<td>22%</td>
<td>25%</td>
</tr>
<tr>
<td>When and where to sell crops</td>
<td>29%</td>
<td>23%</td>
<td>26%</td>
<td>24%</td>
</tr>
<tr>
<td>Purchase of farm inputs</td>
<td>32%</td>
<td>24%</td>
<td>25%</td>
<td>25%</td>
</tr>
<tr>
<td>Planting time</td>
<td>29%</td>
<td>25%</td>
<td>24%</td>
<td>24%</td>
</tr>
<tr>
<td>Quantity of crops to sell</td>
<td>24%</td>
<td>19%</td>
<td>20%</td>
<td>26%</td>
</tr>
<tr>
<td>When to sell livestock</td>
<td>21%</td>
<td>19%</td>
<td>25%</td>
<td>24%</td>
</tr>
<tr>
<td>Where to borrow money to support</td>
<td>20%</td>
<td>20%</td>
<td>25%</td>
<td>25%</td>
</tr>
<tr>
<td>agricultural production</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quantity of livestock to sell</td>
<td>24%</td>
<td>19%</td>
<td>26%</td>
<td>24%</td>
</tr>
</tbody>
</table>

Among smallholder families in Mozambique, 25% of the heads of household are female. And even in households headed by men, women have an important voice.
There are various profiles of smallholder households in Mozambique, and some clear opportunities.

- **16%** of smallholders are in periurban areas and therefore easily accessible and linked to markets.
- **3%** are categorized in segments that indicate openness and ability to benefit from formal financial services, with a further 4% close behind.
- **7%** of the smallholder sector in Mozambique represents nearly 800,000 potential customers.
Over 70% of landholdings are 2 ha or less.

Size of agricultural holdings in Mozambique

- **Less than 1 ha**: 34%
- **1-2 ha**: 37%
- **2-5 ha**: 25%
- **5 ha or more**: 3%

Working with these very small plots, most smallholders produce primarily for consumption, with little available for sale or for trading.
Access to water is a challenge.

Which of the following best describes your water situation?
Sample: Smallholder farmers who participate in household’s agricultural activities, n=3,979.

- 12% I always have water available, and it is enough for the needs of my agricultural activities
- 22% I have intermittent water supply, but this does not affect my agricultural activities
- 23% I always have enough water available, but if I had more water, I would be able to grow my agricultural activities faster
- 43% I have intermittent water supply, which does affect my agricultural activities
Growing largely staple crops, with little integration in value chains.

Which of the following crops do you grow?
Sample: Smallholder farmers who participate in agricultural activities, n=3,979.

<table>
<thead>
<tr>
<th>FOOD AND STAPLES CROPS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize</td>
<td>88%</td>
</tr>
<tr>
<td>Cassava</td>
<td>55%</td>
</tr>
<tr>
<td>Beans</td>
<td>47%</td>
</tr>
<tr>
<td>Groundnuts</td>
<td>41%</td>
</tr>
<tr>
<td>Sweet potatoes</td>
<td>37%</td>
</tr>
<tr>
<td>Cowpea</td>
<td>36%</td>
</tr>
<tr>
<td>Rice</td>
<td>28%</td>
</tr>
<tr>
<td>Sorghum</td>
<td>27%</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>20%</td>
</tr>
<tr>
<td>Bananas</td>
<td>17%</td>
</tr>
<tr>
<td>Onions</td>
<td>11%</td>
</tr>
<tr>
<td>Pigeon pea</td>
<td>9%</td>
</tr>
<tr>
<td>Millet</td>
<td>9%</td>
</tr>
<tr>
<td>Irish potatoes</td>
<td>4%</td>
</tr>
<tr>
<td>Avocado</td>
<td>1%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CASH CROPS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sugar cane</td>
<td>12%</td>
</tr>
<tr>
<td>Sesame</td>
<td>11%</td>
</tr>
<tr>
<td>Mango</td>
<td>7%</td>
</tr>
<tr>
<td>Coconut</td>
<td>6%</td>
</tr>
<tr>
<td>Cashew</td>
<td>5%</td>
</tr>
<tr>
<td>Tobacco</td>
<td>3%</td>
</tr>
<tr>
<td>Cotton</td>
<td>3%</td>
</tr>
<tr>
<td>Tea</td>
<td>0%</td>
</tr>
</tbody>
</table>

Food and staples are grown mainly for own consumption, but some are also sold or traded.
Selling crops and livestock as a source of income...

Who do you sell your crops / livestock to?
Sample: Smallholder farmers who grow and sell crops, n=2,718. Multiple responses allowed.

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct to the public</td>
<td>68%</td>
</tr>
<tr>
<td>Wholesaler</td>
<td>29%</td>
</tr>
<tr>
<td>Retailer</td>
<td>27%</td>
</tr>
<tr>
<td>Processor</td>
<td>14%</td>
</tr>
<tr>
<td>Cooperative</td>
<td>7%</td>
</tr>
<tr>
<td>Middleman</td>
<td>4%</td>
</tr>
<tr>
<td>Other</td>
<td>8%</td>
</tr>
</tbody>
</table>

Only 5% of smallholder farmers in Mozambique have a contract to sell any of their crops or livestock. Better infrastructure and market linkages could improve income levels.
Why do you not get the current market price?

Sample: Smallholder farmers who do not get current market price for crops and livestock sold, n=973. Multiple responses allowed.

- Too few customers: 57%
- No transport to access market: 39%
- My customers take advantage of me: 39%
- Pay high commission to intermediaries: 17%
- Poor crop quality: 14%
- Corruption: 6%
- I don’t know: 12%

Smallholders in loose value chains have little bargaining power. Organized in well-managed groups, the situation could be very different.
Do you currently store any of your crops after the harvest?
Sample: Smallholder farmers who participate in household’s agricultural activities, n=1,753.

Why do you store crops after the harvest?
Sample: Smallholder farmers who currently store any crops after harvest, n=1,115. Multiple responses allowed.

- To consume later: 68%
- To minimize risks: 39%
- To get a better price later: 27%
- To have money later: 26%
- To pay for other expense: 23%
- To pay for school fees: 17%

There are a mixture of motivations: for insurance, to maximize income, saving for the future. Of those who don’t, most (60%) said that they had nothing left to store, while 22% said that there was no facility nearby.
3

Income and expenses
Smallholders see agriculture as driving household income...

**What is your primary job?**
Sample: Smallholder farmers, n=4,456.
- Farmer: 80%
- Business owner: 6%
- Laborer: 3%
- Professional (e.g. doctor, teacher): 3%
- Shop owner: 1%
- Other: 8%

**Do you generate income from any of the following sources?**
Sample: Smallholder farmers, n=4,456. Multiple responses allowed.
- Growing something and selling it, such as crops, fruits, or vegetables: 58%
- Earning wages from occasional job: 35%
- Getting money from family or friends: 33%
- Rearing livestock, poultry, fish, or bees and selling it or its byproducts: 22%
- Running own business by providing services: 14%
- Running own business in retail or manufacturing: 12%
- Earning wages or salary from regular job: 11%
- Getting a grant, pension, or subsidy of some sort: 7%
- Other: 3%
...but agriculture may not be the main source of cash income.

Mozambique Smallholder Diaries: Household income from agricultural and non-agricultural sources

<table>
<thead>
<tr>
<th></th>
<th>Agricultural production income</th>
<th>Non-agricultural production income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median number of household cash income sources</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Median proportion of total household net cash income</td>
<td>7%</td>
<td>93%</td>
</tr>
<tr>
<td>Median number of household income sources, with in-kind consumption</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Median proportion of total household income, with in-kind consumption</td>
<td>49%</td>
<td>51%</td>
</tr>
</tbody>
</table>

After a year of fortnightly data collection with the Smallholder Diaries sample in Mozambique, the median proportion of household income (i.e. revenue less expenses) from agricultural production was very low. Most families in the sample were non-commercial households, neither earning income nor incurring expenses related to agriculture. Their agricultural output played a key role in household consumption.
A quarter of smallholder farmers receive remittances.

Do you receive income from these sources?
Sample: Smallholder farmers, n=4,456 Multiple responses allowed.

- Remittances: 24%
- Pension or other government payment: 2%

The relatively large percentage of smallholder farmers who receive remittances could provide an in-road for digital financial services.
### Household income needs vary.

**What is the minimum amount your household needs to survive per month (for personal expenses)?**

Sample: Smallholder households who gave a minimum amount for households’ survival n=1,829.

<table>
<thead>
<tr>
<th>Income Range</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000MZN or less</td>
<td>31%</td>
</tr>
<tr>
<td>1001MZN - 2000MZN</td>
<td>27%</td>
</tr>
<tr>
<td>2001 - 4000MZN</td>
<td>24%</td>
</tr>
<tr>
<td>4001 - 6000MZN</td>
<td>12%</td>
</tr>
<tr>
<td>More than 6001MZN</td>
<td>7%</td>
</tr>
</tbody>
</table>

**What is the minimum amount your household needs to survive per month (for personal expenses) by household’s average monthly income across all sources of money that your household receives?**

Sample: Smallholder households, n=2,574.

<table>
<thead>
<tr>
<th>Income Range</th>
<th>Don't make enough</th>
<th>Break even</th>
<th>Surplus</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000MZN or less</td>
<td>18%</td>
<td>20%</td>
<td>62%</td>
</tr>
<tr>
<td>1001MZN - 2000MZN</td>
<td>43%</td>
<td>11%</td>
<td>46%</td>
</tr>
<tr>
<td>2001 - 4000MZN</td>
<td>48%</td>
<td>13%</td>
<td>39%</td>
</tr>
<tr>
<td>4001 - 6000MZN</td>
<td>63%</td>
<td>14%</td>
<td>23%</td>
</tr>
<tr>
<td>More than 6001MZN</td>
<td>87%</td>
<td>3%</td>
<td>10%</td>
</tr>
</tbody>
</table>
Irregular incomes don’t always cover regular expenses.

Mozambique Smallholder Diaries: Net income and household expenditures all sample level

On average, smallholders had 2 harvests per year that provided peaks of income, but expenditures were relatively smooth. Insufficient income is a challenge, and so is this mismatch in the timing of income and expenses.
Most income is in-kind, and peaks at harvest time.

Mozambique Smallholder Diaries: Monthly average value of crops (self-reported)

Participants in the Smallholder Diaries were asked to put a value on the crops they harvested, consumed, sold or traded, and lost for each month of the year. Most of their agricultural income was in-kind.
The problem with the ‘hungry season’ was less the lack of food, and more the lack of variety in the diet, leading to lack of resistance to disease in the season when illness is rife. Reduced income from casual work results in lack of access to medical treatment.
Imagine that you have an emergency and you need to pay 1,000 meticais. How possible is it that you could come up with 1,000 meticais within the next month?

Sample: Smallholder farmers, n=2,209.
Cash management strategies

So what financial instruments are potentially available to smallholders to manage?

- Income – casual labor, sale of crops or assets, loans from friends or neighbors
- Stored food crops as a form of savings
- Informal savings: mainly with family and friends, but also through savings groups
- Formal savings

Financial tools available are limited and advancing financial inclusion implies a gradual journey from informal to formal and savings, not credit, is the priority. Key drivers for the use of formal services tend to come from outside – i.e. the smallholder is required to have an account to receive payments.
Smallholder families are using very few financial tools...

Mozambique Smallholder Diaries: Use levels and other data for common financial devices
n=93 households.

<table>
<thead>
<tr>
<th>Top 5 Savings Instruments</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Savings in the house</td>
<td>87%</td>
</tr>
<tr>
<td>Lending to family and friends</td>
<td>41%</td>
</tr>
<tr>
<td>Credit given</td>
<td>18%</td>
</tr>
<tr>
<td>ROSCA</td>
<td>12%</td>
</tr>
<tr>
<td>ASCA</td>
<td>9%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Top 5 Credit Instruments</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Borrowing from family and friends</td>
<td>59%</td>
</tr>
<tr>
<td>Credit at a store</td>
<td>22%</td>
</tr>
<tr>
<td>Borrowing from an informal group</td>
<td>5%</td>
</tr>
<tr>
<td>Pawn</td>
<td>5%</td>
</tr>
<tr>
<td>Act as Money Guard</td>
<td>5%</td>
</tr>
</tbody>
</table>

In line with results from the National Survey of smallholder households, the sample of smallholder families in the Financial Diaries used very few financial tools. Saving was more prominent than credit, though this meant largely saving at home. Only a fraction of the sample was engaged in informal savings and credit groups, and all participants in ASCAs were women.
How important is it for your household to save for each of the following?
Sample: Smallholder farmers, n=2,209.

- Save money for a future purchase: 68% Very Important, 18% Somewhat important, 7% Not important
- Save money for school fees: 61% Very Important, 17% Somewhat important, 12% Not important
- Save money for an unexpected event: 56% Very Important, 25% Somewhat important, 11% Not important
- Save money for regular purchases: 53% Very Important, 23% Somewhat important, 15% Not important

How important is it for your household to invest in each of the following?
Sample: Smallholder farmers, n=2,209.

- Invest money in a home/home improvement: 73% Very Important, 14% Somewhat important, 5% Not important
- Invest money in a future educational opportunity: 58% Very Important, 17% Somewhat important, 13% Not important
- Invest money in a farm: 46% Very Important, 21% Somewhat important, 18% Not important

Data Source: CGAP National Survey of Smallholder Households in Mozambique
Weather shocks and pests drive crop loss.

Have your agricultural activities been seriously affected by any of the following events in the past three years?

Sample: Smallholder farmers who participate in household's agricultural activities, n=1,753.

- Weather: 73%
- Pests: 50%
- Accidents / thefts: 21%

Data Source: CGAP National Survey of Smallholder Households in Mozambique
When facing a shock, smallholders often have no specific coping mechanism.

How did you mainly cope when this happened?
Sample: Smallholder farmers who say their agricultural activities been seriously affected by each category, n=2,209.

Many smallholder households have no specific response to these shocks. This signals a lack of tools with which to cope and/or that the household did not find the shock severe enough to respond.
Few smallholders use non-bank financial institutions or informal savings tools.

<table>
<thead>
<tr>
<th>Service</th>
<th>Use (Sample: Smallholder farmers, n=2,209)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Money guard or savings collectors</td>
<td>8%</td>
</tr>
<tr>
<td>Xitique or savings and credit group</td>
<td>17%</td>
</tr>
<tr>
<td>Microcredit institution</td>
<td>7%</td>
</tr>
</tbody>
</table>

Use of NBFI and informal financial services is very limited. But experience shows that, presented with a mechanism for saving, such as an ASCA, people do save.
Accumulating Credit and Savings Associations (ASCAs): A proven positive boost to savings

A study of the impact of ASCAs in neighboring Malawi indicated that, compared with a control group, membership in an ASCA resulted in significantly improved outcomes. These include:

- Higher level of savings
- Better nutrition, measured by the number of meals consumed
- Increased income from non-agricultural business activities
- Increased house size
- Increased use of fertilizer
Few smallholders have a bank account...

Do you personally have a bank account that is registered in your name?
Sample: Smallholder farmers, n=2,209.

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>10%</td>
<td>90%</td>
</tr>
</tbody>
</table>

What is the main reason you do not have a bank account?
Sample: Smallholder farmers who don’t have a bank account, n=1,941.

- I don’t know what it is: 23%
- I don’t have (enough) money: 22%
- I don’t know how to open one: 18%
- There are no banks close to where I live: 18%

Banks, working alone, can only make a limited contribution to financial inclusion.
To open a bank account, you need ID. Banks prefer an official identity card. They can accept a voter’s card, but often don’t. They also want proof of residence, but an address in rural areas is rare.
5
Digital financial services
Lack of awareness and capability
The National Survey showed the low penetration and lack of awareness of digital financial tools. Even in urban areas, digital services have been slow to take off. Successful take-up will require high quality and sustained financial education.

Agent Network
A sine qua non is the development of a network of sound, profitable, liquid agents. Frequently an afterthought, the absence of a well-functioning agent network has been one of the key factors in stymieing the growth of digital financial services.

Interoperability
The largest mobile money operator has limited coverage in rural areas; the mobile phone operator with the best rural coverage is only just launching its mobile money product.
Promising for financial inclusion, but a long way to go.

Lack of access to a mobile phone

46% have one or more mobile phone
49% say they don’t have the money to buy a mobile phone
56% have ever used a mobile phone

Lack of experience with mobile money

95% recognize the importance of a mobile phone for communication
12% recognize the importance of mobile phones for financial transactions
2% were paid for their crops via mobile money

Data Source: CGAP National Survey of Smallholder Households in Mozambique
The initial inventory of assets in the Smallholder Diaries, identified that almost half of the 93 families had mobile phones, but over the year of data collection, some 20 purchases of a mobile phone were recorded. This represents a substantial increase in access.

Many initiatives in Mozambique promote technical assistance for farmers via mobile phones, and some outgrowers even supply their farmers with phones.

M-Pesa is increasing its promotional activities in rural areas, and Movitel has launched its mobile money service. Pressure will increase for interoperability.

Apps are being developed to help ASCAs manage their savings. And some groups are using DFS to link to banks.
High potential solutions

- Mobile wallet to store value
- Applications to assist the management of ASCA funds
- Payment solution for crops sold to commodity traders and outgrowers
- Solutions to receive remittances and pensions, and their adoption by providers
- And over the medium term, weather insurance and credit

**DFS, whether provided by a mobile money operator or a bank, will not be a silver bullet.**
6
Segmentation
Smallholder households are not homogeneous.

<table>
<thead>
<tr>
<th>Six key variables driving financial inclusion among smallholder households</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EDUCATION</strong></td>
</tr>
<tr>
<td>1. Education</td>
</tr>
<tr>
<td>up to primary</td>
</tr>
<tr>
<td>12%</td>
</tr>
<tr>
<td>secondary or more</td>
</tr>
<tr>
<td>3. Access to emergency funds</td>
</tr>
<tr>
<td>4. Mobile phone ownership</td>
</tr>
<tr>
<td>46%</td>
</tr>
<tr>
<td>have at least one mobile phone in their household</td>
</tr>
<tr>
<td>5. Attitudes</td>
</tr>
<tr>
<td>agree the future will take care of itself</td>
</tr>
<tr>
<td>34%</td>
</tr>
<tr>
<td>6. Experienced an unexpected event</td>
</tr>
<tr>
<td>39%</td>
</tr>
</tbody>
</table>
Five segments of smallholder households in Mozambique

- **Farming for sustenance**: Quintessential farming household that struggles to support its needs.
- **Battling the elements**: One level above subsistence. Has accessed and benefited from some financial services.
- **Diversified and pragmatic**: The realities would lead them to diversify out of something they enjoy if given the choice.
- **Options for growth**: Stable, optimistic for the future and has options for the future within and outside of farming.
- **Strategic agricultural entrepreneurship**: Actively engaged in agriculture, and growing their agricultural activities.

Degree of integration into the value chain:

- **NONE**
- **MORE**
**Five segments of smallholder households in Mozambique**

Five segments of smallholder households in Mozambique: Subsistence farming households are the largest profile

<table>
<thead>
<tr>
<th>SEGMENT</th>
<th>PROPORTION IN MARKET</th>
<th>PROFILE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farming for sustenance</td>
<td>77%</td>
<td>Key interventions likely to be non-financial until income increases</td>
</tr>
<tr>
<td>Battling the elements</td>
<td>15%</td>
<td>Already accessing some financial services; promote community-based organizations: ASCAS and Farmers Associations</td>
</tr>
<tr>
<td>Diversified and pragmatic</td>
<td>4%</td>
<td>Good level of education, high mobile phone ownership, markedly better-off than first 2 groups</td>
</tr>
<tr>
<td>Options for growth</td>
<td>2%</td>
<td>Best-educated of all the groups, wealthiest and owning a mobile phone – a key target group</td>
</tr>
<tr>
<td>Strategic agricultural entrepreneurship</td>
<td>1%</td>
<td>Also well-educated, relatively wealthy and most committed to farming</td>
</tr>
</tbody>
</table>
## Implications for financial inclusion by segment in Mozambique

### Which services are most appropriate for each segment?

<table>
<thead>
<tr>
<th>SEGMENT</th>
<th>KEY FINANCIAL TOOLS</th>
</tr>
</thead>
</table>
| **Farming for sustenance** | • Graduation and other approaches to build livelihoods and resilience  
 • Savings products for shocks and consumption smoothing  
 • Informal savings and lending groups |
| **Battling the elements** | • Need for risk mitigation strategies, including improved seeds and extension services  
 • Financial products for family needs: Health, education, energy, etc. |
| **Diversified and pragmatic** | • Savings, layaway, and credit products for inputs  
 • Aggregation services  
 • Financial products bundled with information and extension services |
| **Options for growth** | • Formalized connections value chains to increase access to financial services  
 • Post-harvest storage and financing solutions |
| **Strategic agricultural entrepreneurship** | • Digitize engagement with value chains to build credit and facilitate access to formal FSPs  
 • Credit for investments in assets to increase productivity |

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Data Source: CGAP National Survey of Smallholder Households in Mozambique
Five segments of smallholder households in Mozambique

- **77%** Farming for sustenance
- **15%** Battling the elements
- **2%** Options for growth
- **4%** Diversified and pragmatic
- **1%** Strategic agricultural entrepreneurship

**Data Source:** CGAP National Survey of Smallholder Households in Mozambique
The scope for increasing financial inclusion is greatest in the lower segments. The higher-income, less vulnerable segments are smaller, but offer wider opportunities for a range of financial solutions.
Advancing financial inclusion: Key players

Increasing income through better practices and tighter market linkages

Photo by Erin Scronce
Advancing financial inclusion will require collaboration between many players and in all kinds of combinations. No one player can make significant advances on their own. Mobile technology and DFS will be a key enabling factor in these interventions.

- Promotion of ASCAs and Farmers’ associations by Donors/NGOs
- Link ASCAs to banks/NBFIs via mobile money
- Farmers’ Associations enable better negotiation with contractors and commodity traders.
- Payment to farmers via DFS
No one stakeholder can effect the necessary changes: Strategic alliances are required

- Improve productivity to create more surplus to sell, through market linkages/outgrower schemes.
- Improve farmer information – multiple channels, including via mobile phones.
- Reduce post-harvest losses to create more surplus to sell: Explore warehouse receipt systems and treated storage bags.
- Increase options to save, through promotion of ASCAs.
- Introduce mobile money, initially through the ASCA group.
- Use mobile phones to store value.
- Expand financial services through mobile money and agent banking, but investing in the ecosystem.

AND

- Don’t forget women as a target market
  - 25% of heads of household
  - Most active members of ASCAs
  - Consulted on important decisions
  - But lower levels of literacy can impede access to financial services
No one stakeholder can effect the necessary changes: Strategic alliances are required

- Government provides the enabling environment and infrastructure. It can also play a role in developing the DFS ecosystem by, for example, paying government workers in rural areas via DFS.

- Outgrowers and commodity traders can work more closely with NGOs, FPS, Farmers’ Associations and insurance companies.

- NGOs can strengthen Farmers’ Associations and promote ASCAs.

- Development organizations can support the introduction of warehouse receipts, better crop storage technologies and services which provide technical and market information to farmers.

- Mobile money operators can work with outgrowers and commodity traders for payment systems, with insurance companies in the development of new products, with ASCAs in the development of appropriate apps.

- Banks and mobile money operators can support the development of agent networks.
Focus on noncommercial smallholder households

Improve agronomic practices and agricultural risk management
(e.g. water catchment, drought-tolerant crop varieties)

The role of the outgrowers and commodity traders is key in improving the lot of the smallholder. They can:

- Encourage the formation of community-based organizations – ASCAs and farmers’ associations.
- Provide technical training and inputs.
- Encourage diversification into more profitable crops.
- Either sign contracts with a guaranteed fair market price or at least recognize the long-term advantage to themselves of paying a fair price.
- Encourage the use of digital financial services by paying farmers via their mobile phone.
- Encourage farmers and intermediaries to use certified warehouses which issue warehouse receipts.
Focus on noncommercial smallholder households

Improve crop storage

- Secure agricultural output in a more resilient form of storage (e.g., reinforced or treated plastic bags, small metal grain silos) could be an improvement for non-commercial smallholders.

- Warehouse receipt schemes, currently being piloted in Mozambique, are also a promising addition to the portfolio, though with geographical limitations.

A range of financial tools and service providers could support the uptake of improved storage methods, including targeted layaway products from retailers and commitment savings plans and, possibly, tailored credit products from FSPs.
Promote and support community-based organizations

**ASCAS**
are undoubtedly the single most effective way of providing informal financial services to rural populations. Recent research identified 25 organizations promoting ASCAs in Mozambique and at least 300,000 members, but the numbers may well be much higher. ASCAs can also be an important way of introducing digital financial services, through initiatives to digital the process and link ASCAs to formal financial institutions.

**FARMERS’ ASSOCIATIONS**
vary in quality, when they are well-organized, they are important engines for linking farmers to the market. They can and in many cases do play an important role in dealing with commodity trading companies, and other offtakers, and they can facilitate technical training, access to credit and financial literacy.

**UNAC**
the National Smallholder Union says they had 2200 member associations in 2010.
Resources

National Surveys and Segmentations of Smallholder Households:
Bangladesh: [Paper | User Guide | Data]
Nigeria: [Paper | User Guide | Data]
Uganda: [Paper | User Guide | Data]
Tanzania: [Paper | User Guide | Data]
Côte d’Ivoire: [Paper: Fr En | User Guide: Fr En | Data]

Financial Diaries with Smallholder Households
- Executive summary
- Full paper
- User Guide
- Video
- Data
  - Tanzania: Data
  - Mozambique: Data
  - Pakistan: Data

Designing Digital Financial Services for Smallholder Families: Lessons from Zimbabwe, Senegal, Rwanda, and Cambodia
Segmentation of Smallholder Households: Meeting the Range of Financial Needs in Agricultural Families
Serving Smallholder Farmers: Recent Developments in Digital Finance
Digitizing Value Chain Finance for Smallholder Farmers
Smallholder Households: Understanding Demand, Driving Innovation
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