



Boosting Agriculture and Food Security

DFS Ecosystem Assessment for Smallholder Farmers in
Sierra Leone

Launch Presentation

16 August 2018

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ACKNOWLEDGEMENTS

A strong collaborative effort aimed at assessing the DFS ecosystem for smallholder farmers in Sierra Leone



*Ministry of Agriculture, Forestry
and Food Security*



ASSESSMENT OBJECTIVES



ASSESSMENT OBJECTIVES



VISION

Identify key areas and intervention points for DFS that can lead to the greatest improvement in the lives of smallholder farmers in Sierra Leone



OBJECTIVES

- Define typical personas for women and youth farmer involved in agriculture
- Identify payment needs and behaviours in the farming communities
- Establish mobile ownership patterns among farming communities
- Establish mobile money usage behaviour
- Financial and technical literacy and capacity for embracing DFS solutions
- Identify current coping mechanisms for payment related challenges

WHAT DID WE CONSIDER?

A systematic **value chain** approach and a **regionalization** lens were employed for this study



- Rice
- Cocoa
- Cashew
- Poultry
- Vegetables

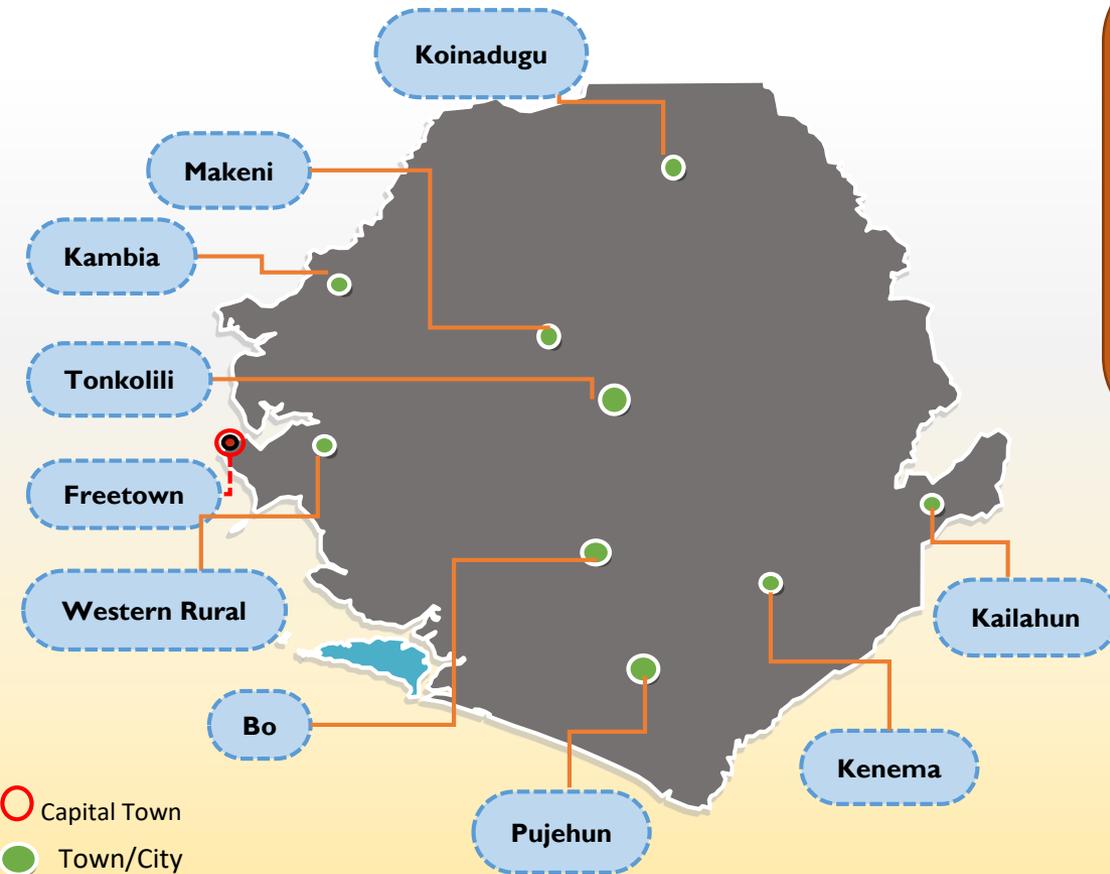


- Importance to the national economy
- Employs critical mass of rural population (especially women, youth)
- Existence of supportive structures (e.g ABCs)
- SMEs with potential for Agribusiness

Groundnut, cassava & palm-oil were unofficially considered

HOW DID WE DETERMINE SITES AND SAMPLES?

Study site selection and sampling framework

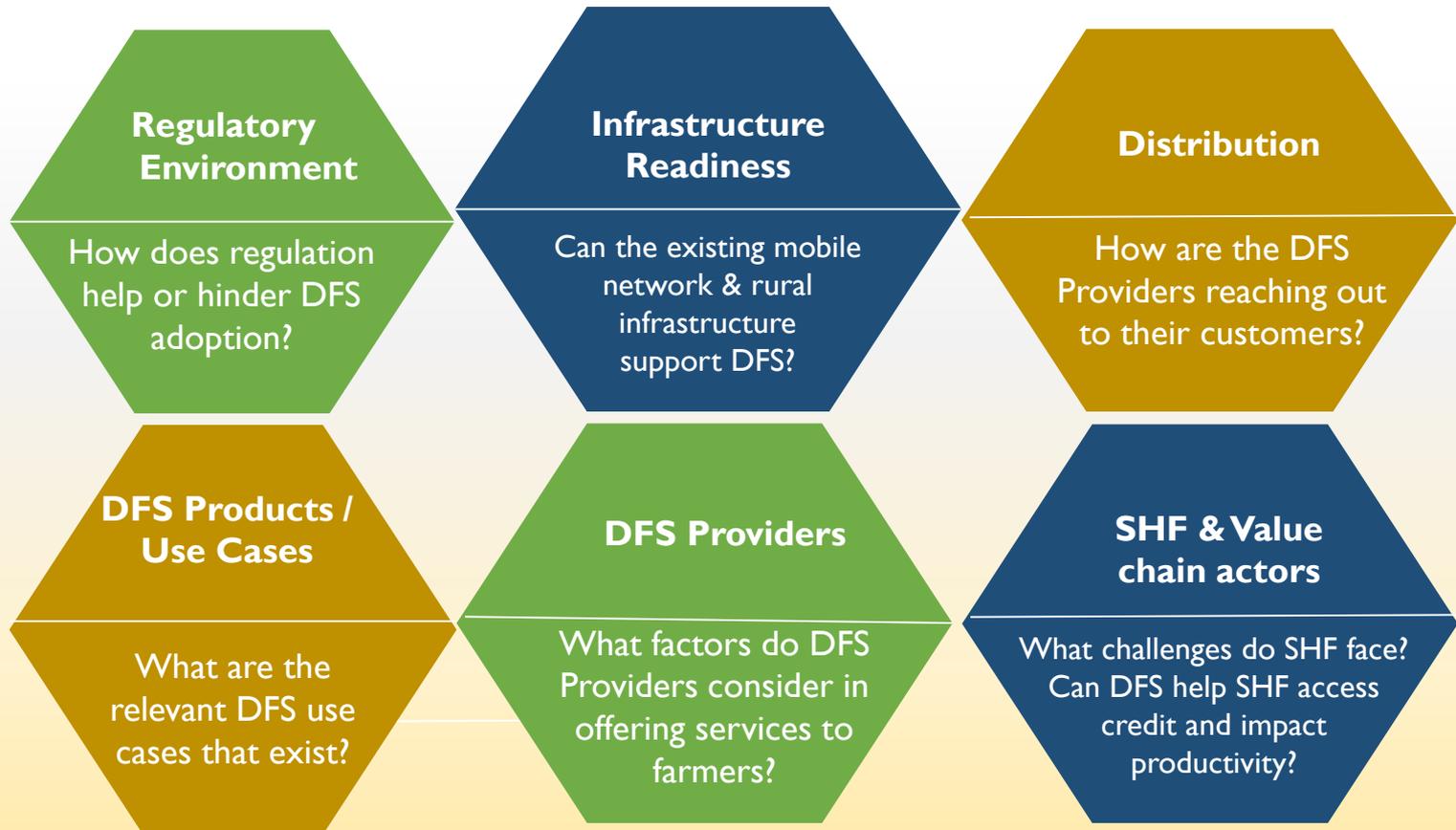


Stratified random sampling led to:

- Total # HH Reviewed = 704
- Total # HH survey = 609 (Interviewed)
- Participation rate = 86%

WHAT CORE THEMES DID WE LOOK AT?

Research framework for the DFS assessment considered a variety of core themes



A SNAPSHOT OF THE DFS ECOSYSTEM FOR FARMERS

609 farmers interviewed in **5** regions across 5 agricultural value chains

15+ supply side interviews across multiple sectors



SMALLHOLDER FARMERS



WOMEN GROUPS



TRADERS/AGGREGATORS



INPUT SUPPLIERS



PRODUCE TRANSPORTERS



COOPERATIVES/ABCs



PAINPOINTS

- Limited access to credit for farmer groups and traders
- Need for input subsidies
- Lack of price transparency/discovery
- Poor household resilience in withstanding financial shocks
- Outdated farming methods (rain-fed)
- Substandard inputs
- Inadequate storage facilities
- Poor governance structures for cooperatives/ABCs

DEMAND SIDE



DIGITAL SERVICE PROVIDERS (eg. Energy providers)



INFORMAL FSPs (e.g. Osusu)



3rd PARTY TECHNICAL PROVIDERS/FINTECHS



Formal FSPs



MNOs



CHALLENGES

- Costly and underdeveloped distribution channels
- Weak business case for DFS
- Insufficient clarity on MM regulation: KYC, limits, etc.; lack of clarity on agent banking modalities
- Undeveloped rural infrastructure
- Limited options for rural agric financing

SUPPLY SIDE



REGULATORY BODIES



DONORS

MACRO ACTORS

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KEY RESEARCH FINDINGS

Demand Side Insights

VALUE CHAIN

Farming activities are unstructured and mainly subsistence

PROFILING

Digital profiling of farmers and their agricultural activities is an important first step to understanding the farmer's needs

FARMER GROUPS

ABCs are moving beyond basic provision of agricultural services and are transitioning into informal financial centres

GROUP CONCEPT

Groups are foundational in the farmer's life: in the purchase of agricultural inputs and home commodities, in selling of agricultural produce and in accessing financial services

MANUAL PROCESSES

ABC and FBO processes are fraught with a high degree of manual intervention and error prone processes

WOMEN & YOUTH

Women and youth prefer cultivating crops that have a quick growth-to-harvest cycle (eg. vegetables)

GENDER AND AGE CONSIDERATION

Women are 48% of smallholders and youth represent a significant segment of smallholders at 43%

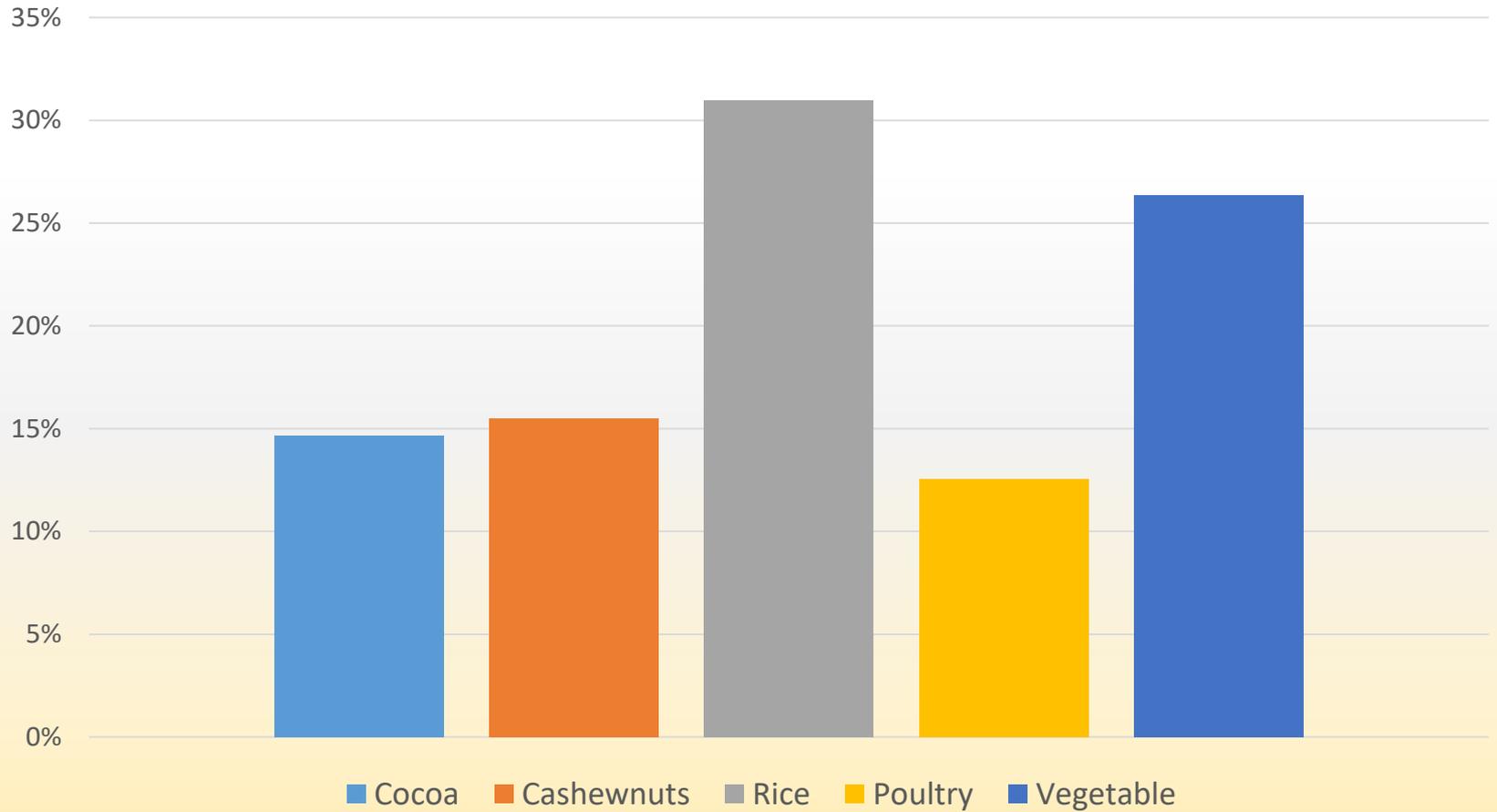
Gender		Age		
Male	Female	18-35 (YOUTH)	35-50	50+
52%	48%	43%	45%	12%

Participation:

- Women showed more in rice and vegetable
- Youth are involved in the non-farming segments of the value chain, focusing on quick income generation engagements like transport services

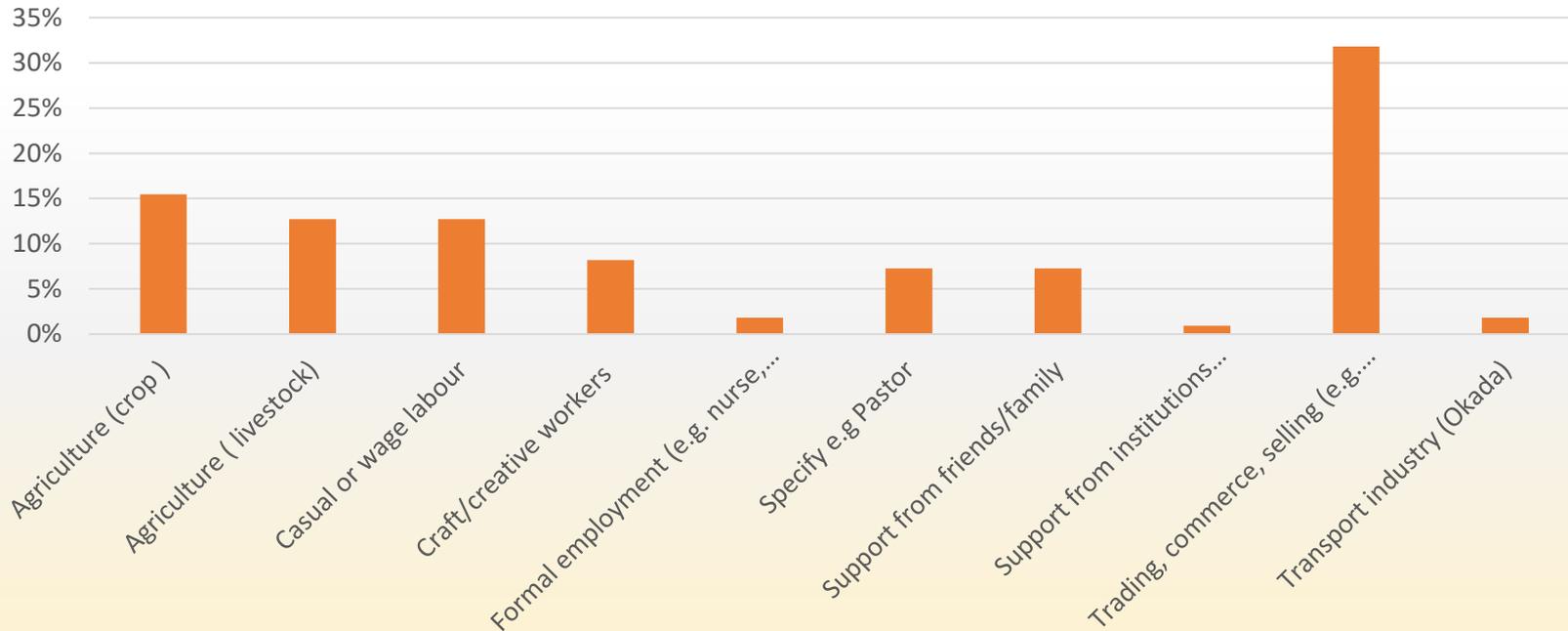
WOMEN PARTICIPATION

Women were more engaged in short-term crops



SOURCES OF INCOME

Smallholders have to supplement their incomes with other jobs -

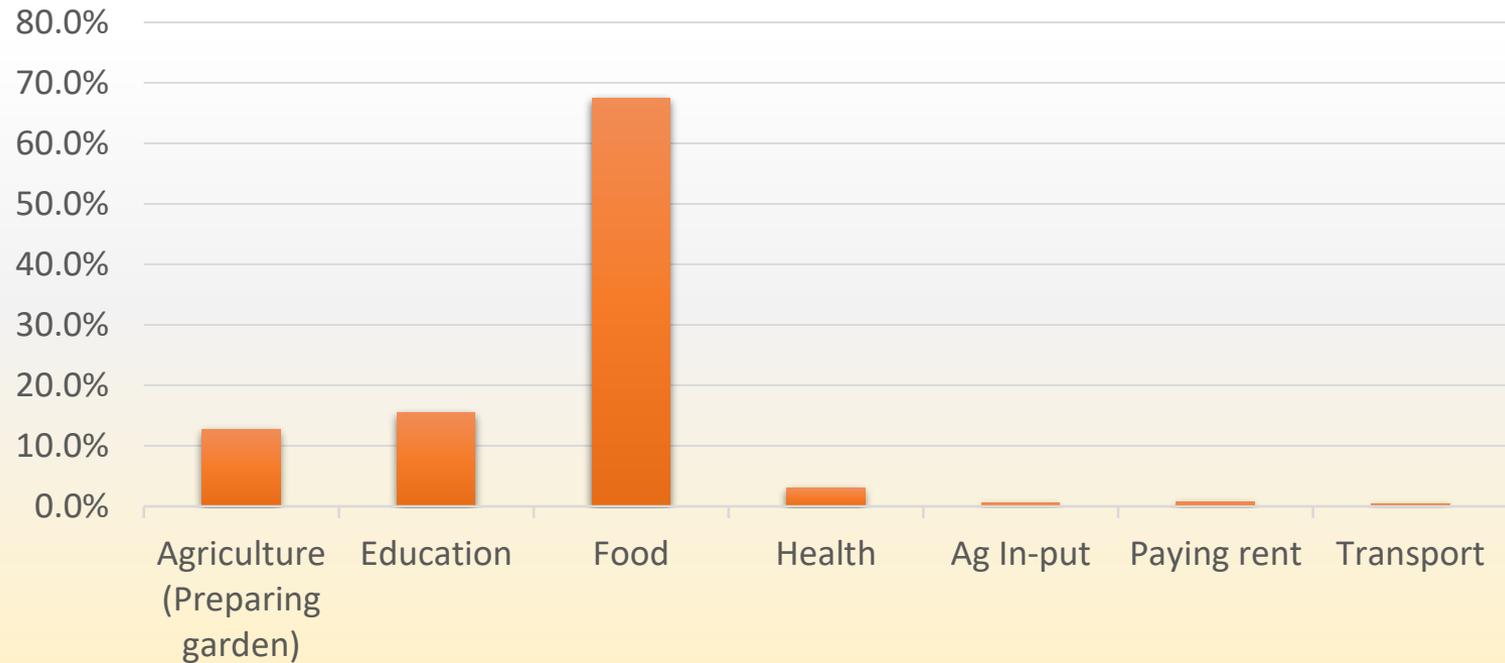


Important sources of income

- ~ For over 50% of the smallholder we engaged, trading was considered most important source of income
- With the exception of vegetable, for all the value chains assessed, agriculture ranked 2nd most important livelihood

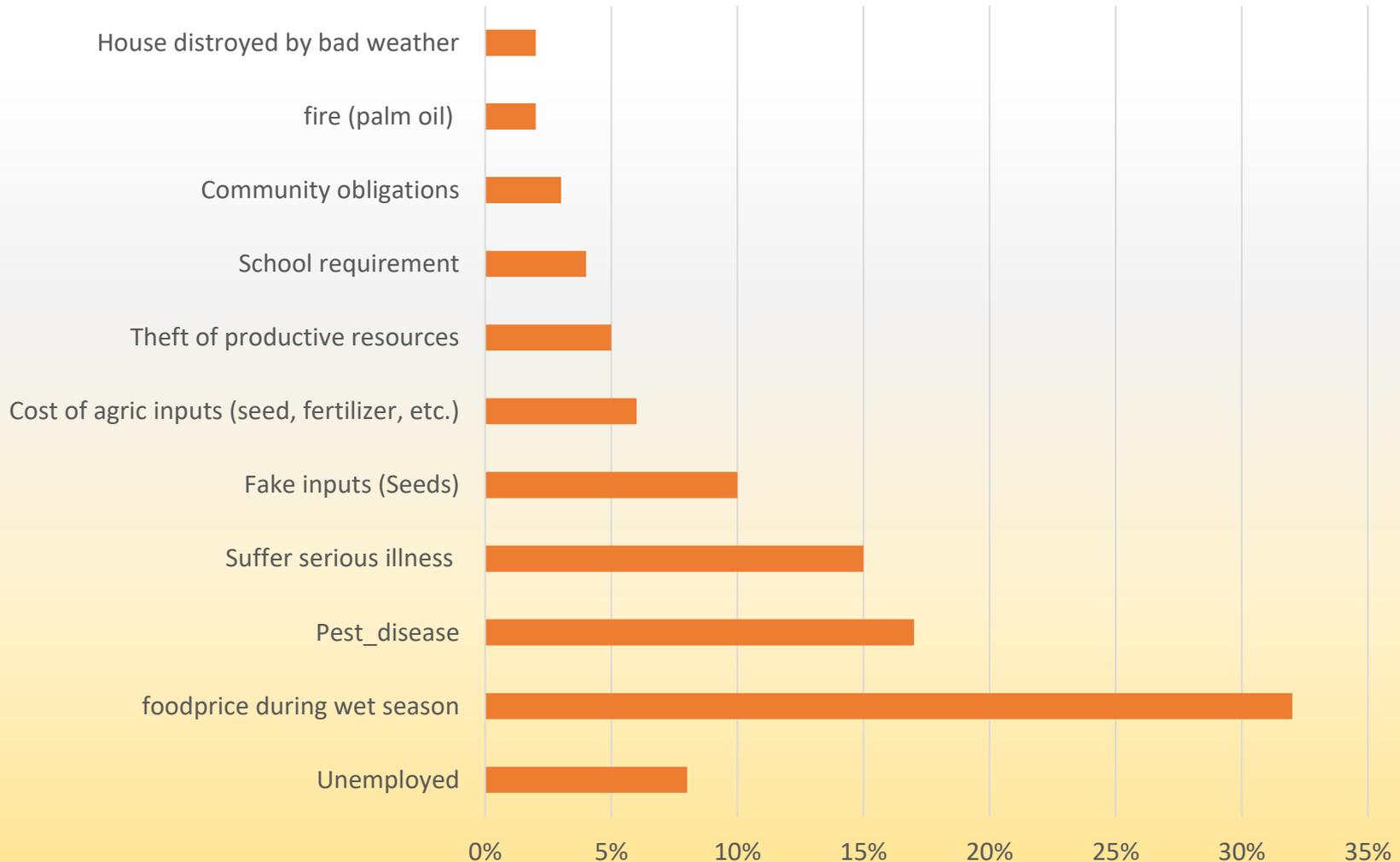
MAJOR EXPENDITURE

Food, paying for labor at planting phase as well education of children considered major expenditure buckets by many smallholders



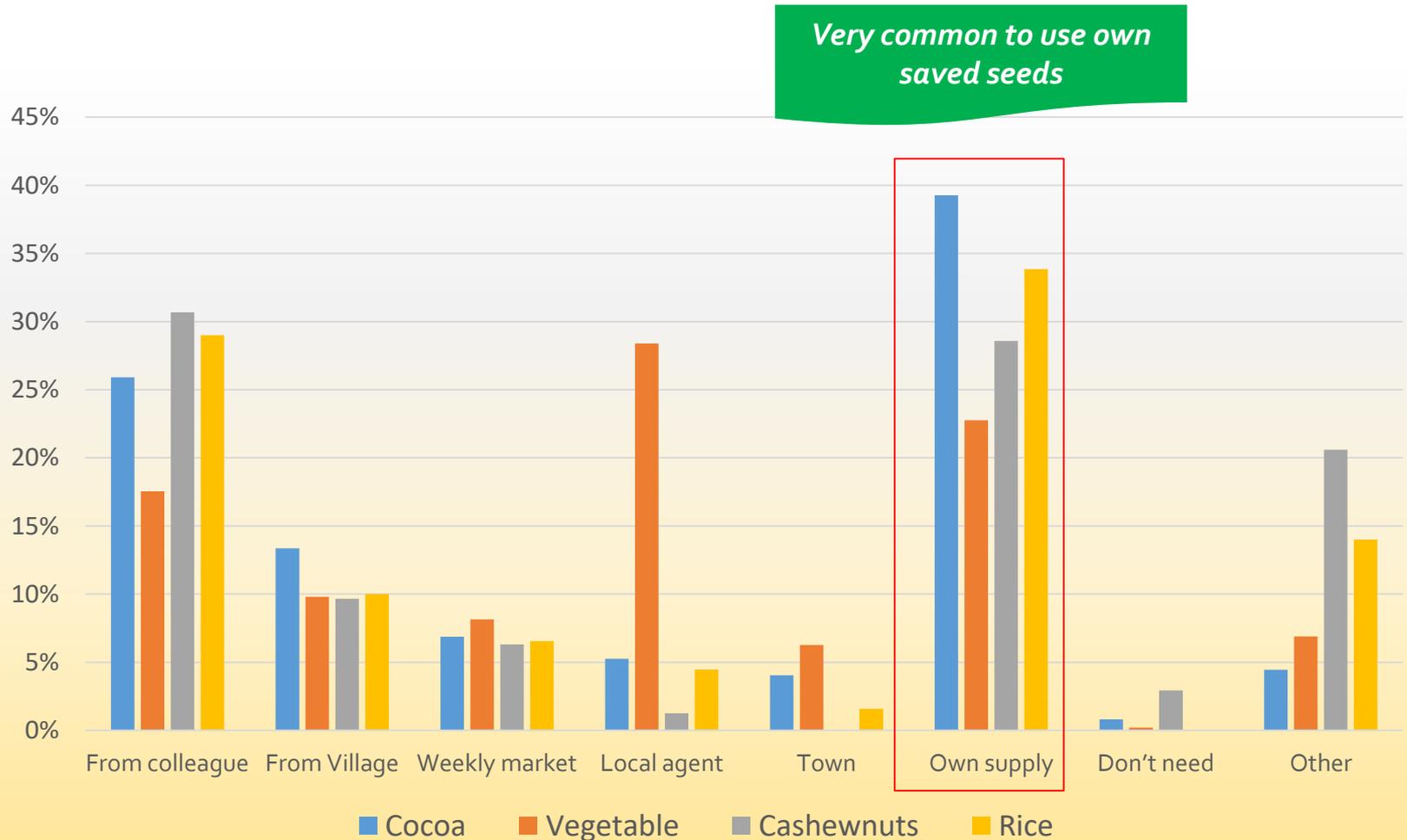
STRESS CONDITIONS FOR FARMER

Food prices especially during wet season, are consider a big burden alongside cost in puts, crop pests and sickness in a home



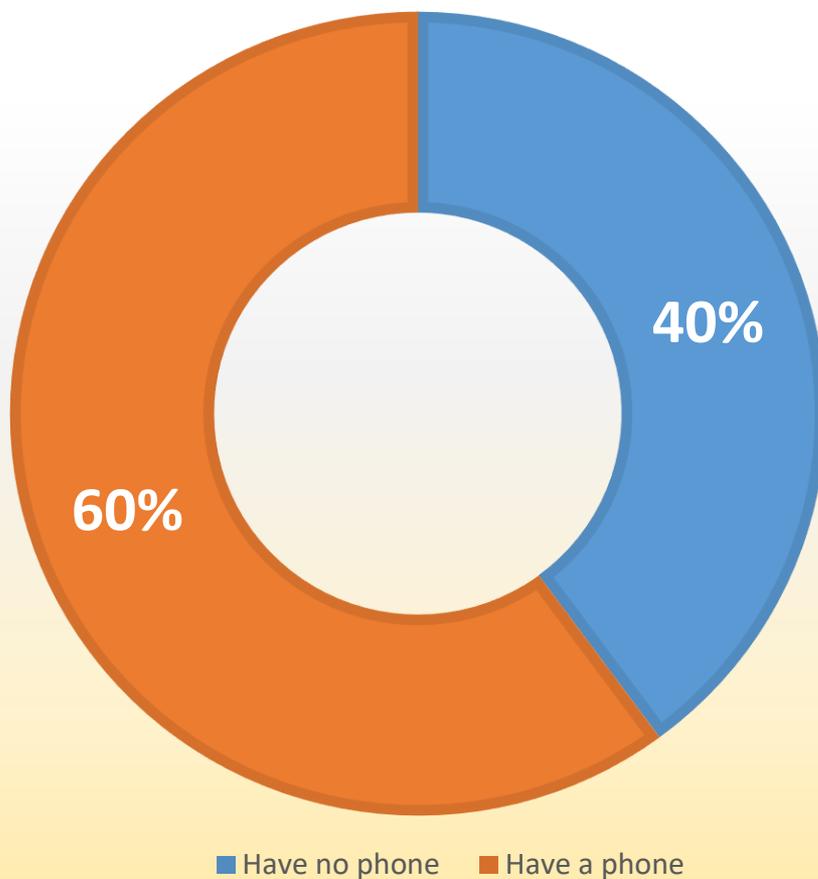
ACCESSING INPUTS IS STILL A HUGE CHALLENGE

Source of inputs used by Smallholder farmers



PHONE OWNERSHIP AMONG RESPONDENTS

Most farming households have access to a phone



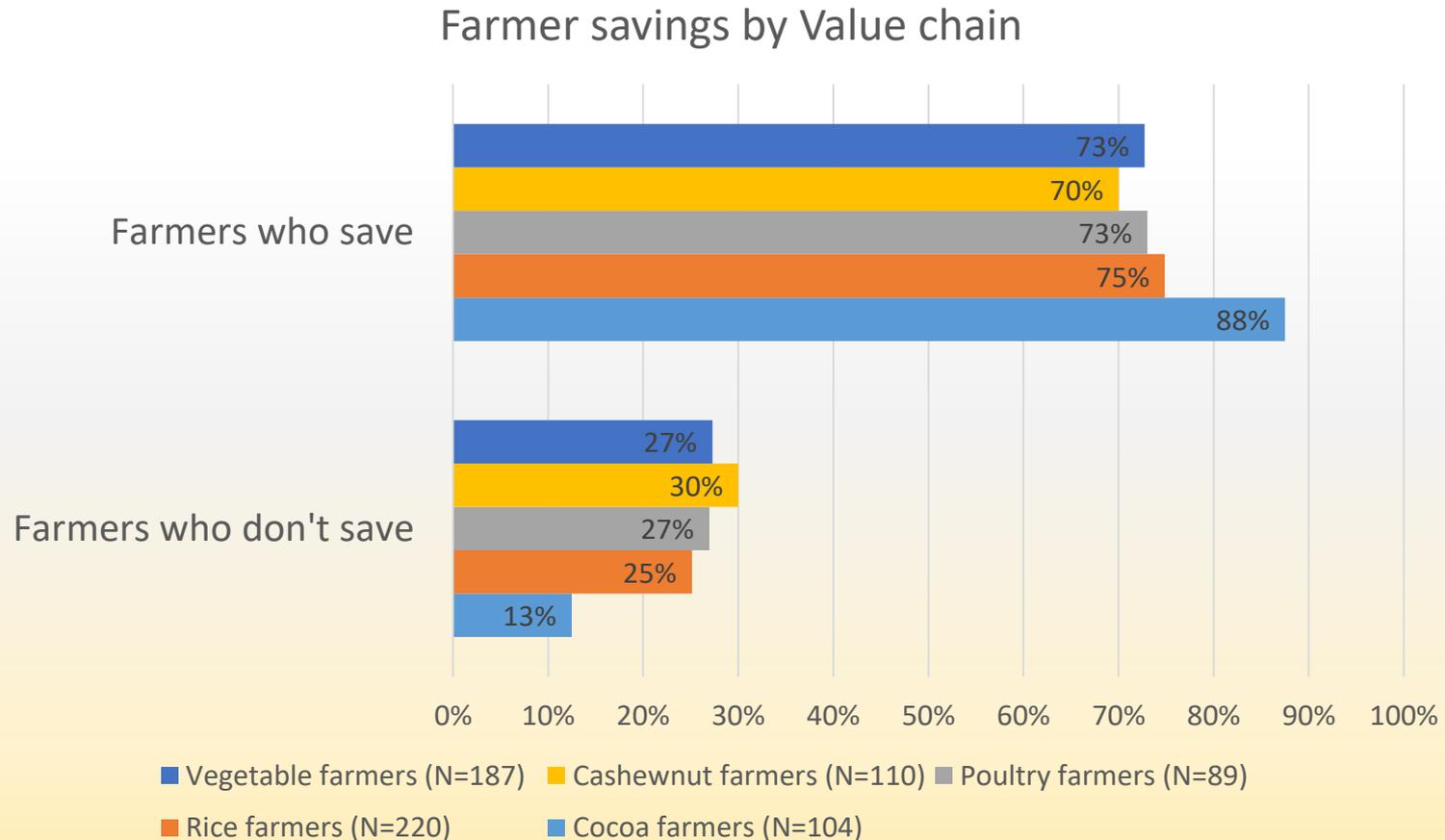
Mobile phone a catalyst for the smallholder farmer in accessing DFS

Mobile phone penetration:

- ~60% own or have access to a phone in the household
- Over 60% of those without access to a phone cite cost as the primary barrier
- About 25% more males reported to be in possession of an active SIM card than women. Inactive SIMs were also most popular among women
- Active SIM cards were also most popular among rice and vegetable farmers

A 25% gender gap exists in SIM card ownership in farming communities surveyed

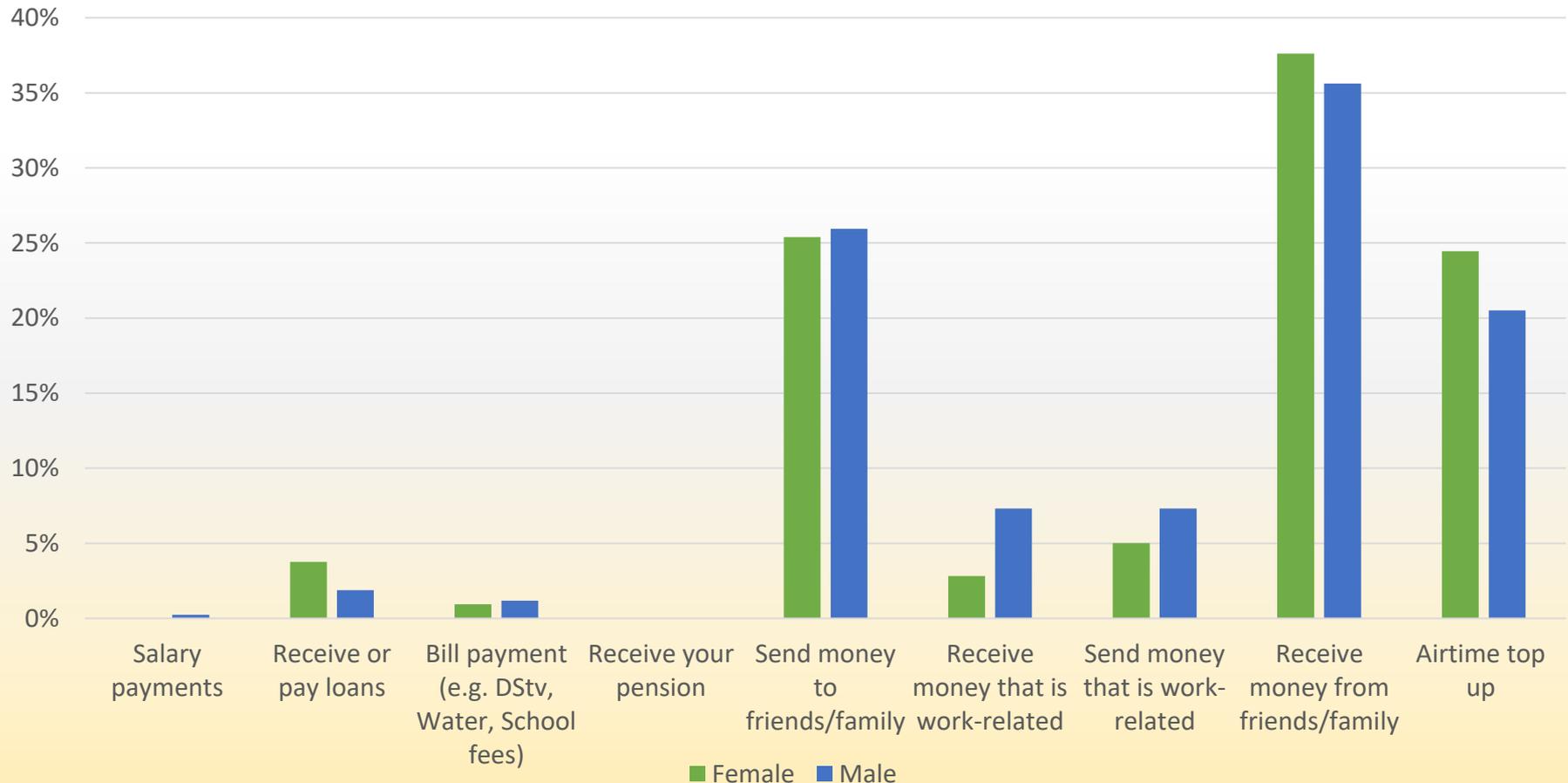
FARMER SAVINGS WITH FINANCIAL INSTITUTIONS



Almost all smallholders saved with Osusus, representing an important avenue to formalize access to finance, leveraging the group network and trust

MOST POPULAR MOBILE MONEY USE CASES BY GENDER

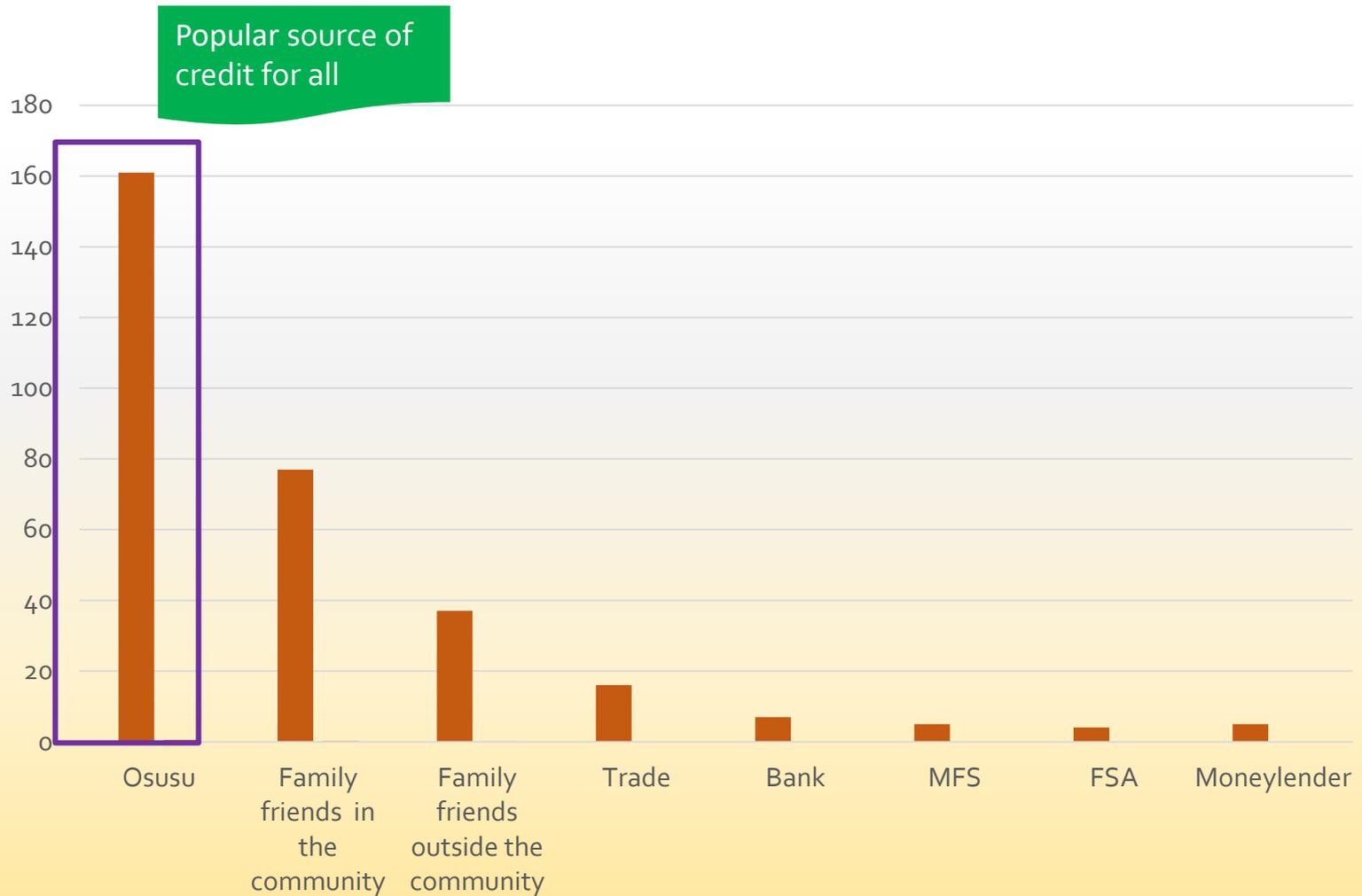
Remittances and airtime top up are popular use cases



- With the exception of cashew nuts, **over 40% of farmers** in all value chains have used mobile money to send and receive at one time
- Most popular mobile money transactions revolve around **remittances and airtime top up**, indicative of an undeveloped ecosystem

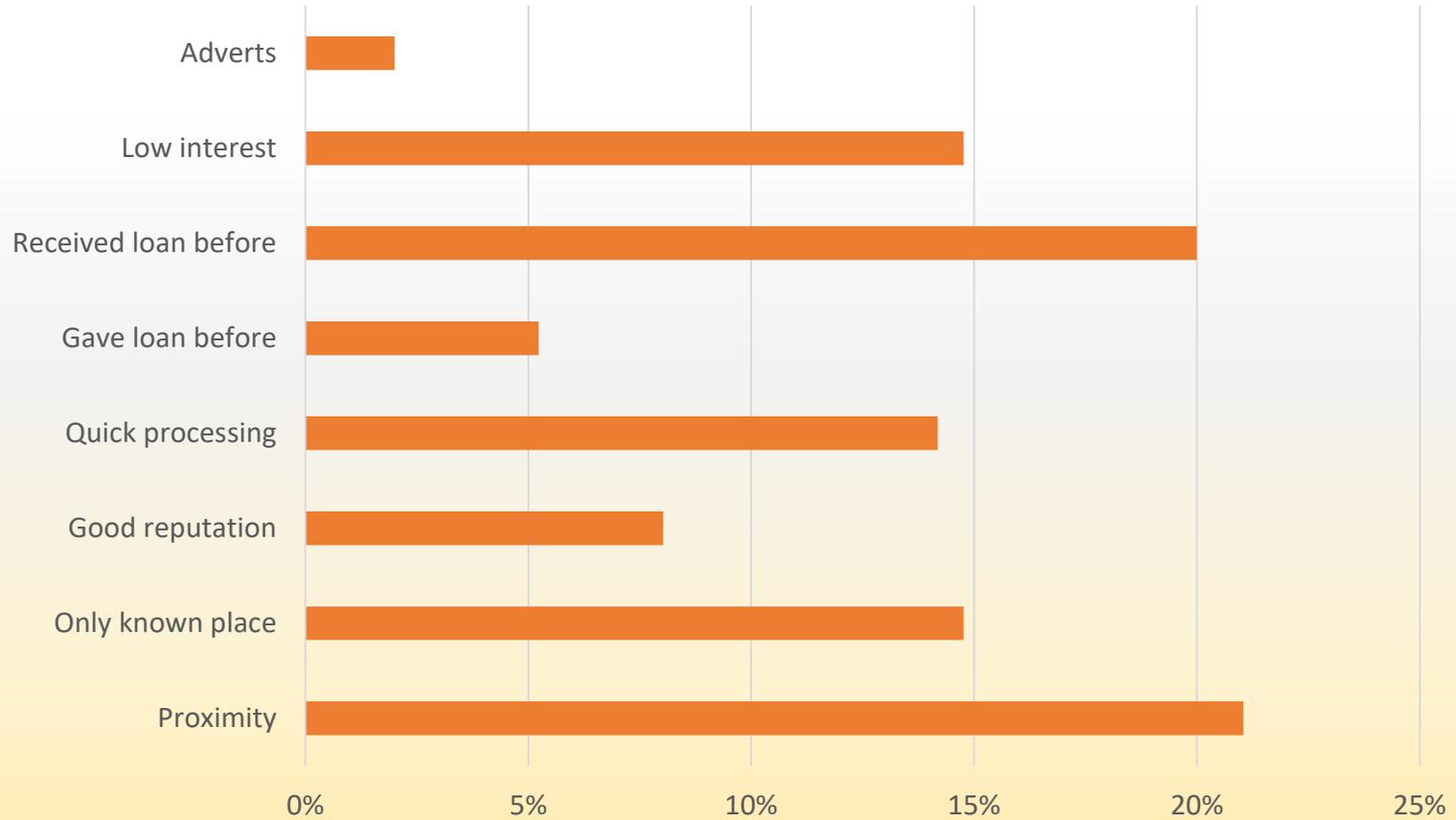
SOURCES OF CREDIT

Osusu is the choicest source of credit for farming households



SOURCES OF CREDIT

Proximity and relationship considered key in choosing where to access a loan



MACRO ACTORS AND SUPPLY SIDE PROFILING

Over 20 market actors profiled across the Regulatory, Financial Services, Technology and Int'l Development sectors

Financial Institutions



Regulators, Donors



Technology Providers



Agriculture Value Chain Players



KEY RESEARCH FINDINGS

Ecosystem Insights

PARTNERSHIP APPROACH

Innovative business models involving partnerships, product bundling and de-risking capital required to sustainably serve the smallholder segment

BUSINESS CASE

Improving the business case for DFS is fundamental to private sector involvement; however it starts by identifying popular use cases in the farmer's environment that offer greatest value

CROSS-MARKET COLLABORATION

DFS market can benefit from best practices in agency banking, interoperability and agent network management in mature economies in East Africa and Latin America

DRIVERS AND LEVERS

Influencing DFS Drivers requires regulation and Devt Partner involvement; industry partnerships and business model fine-tuning will make the greatest impact on DFS levers

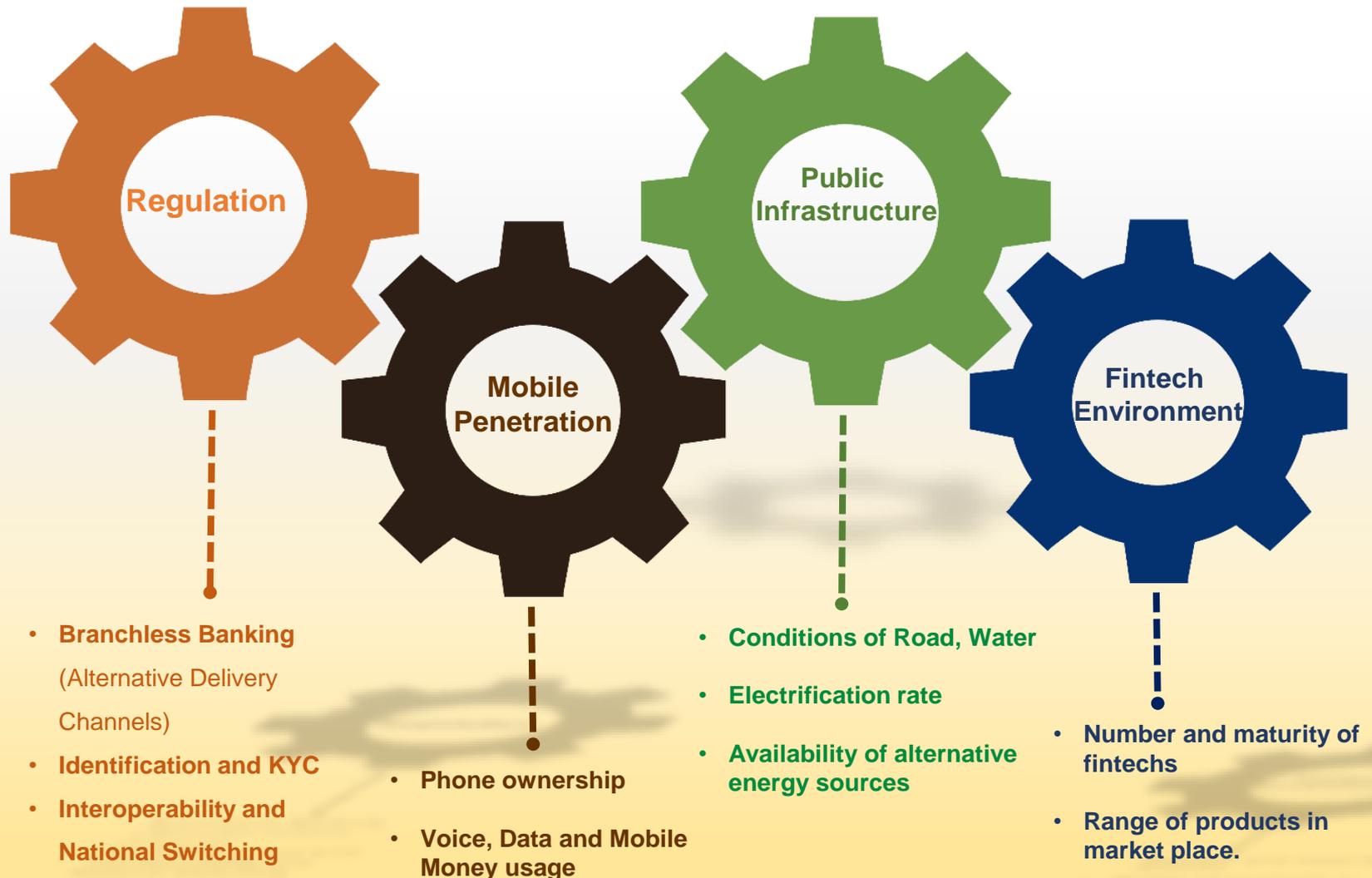
PUBLIC INFRASTRUCTURE

Improvement in the condition of rural public infrastructure like roads and power will lower FSP cost of branch setup and attract rural youth to agriculture

DRIVERS AND LEVERS AFFECTING DFS ADOPTION

A range of external factors impact DFS provision

- **Drivers** are external factors beyond the control of the Provider community



DRIVERS AND LEVERS AFFECTING DFS ADOPTION

A number of areas available to Providers to exert pressure to influence DFS uptake

- **Levers** are factors that are internal to the Provider environment with which they have influence over

Infrastructure and Capacity

- **MNO network infrastructure**
 - Coverage, quality
- **Distribution network**
 - Agent presence, liquidity, support and training
- **Farmer technology literacy**
 - MM knowledge and usage
- **Farmer financial literacy**
 - Willingness to try new technologies to manage finances and access credits

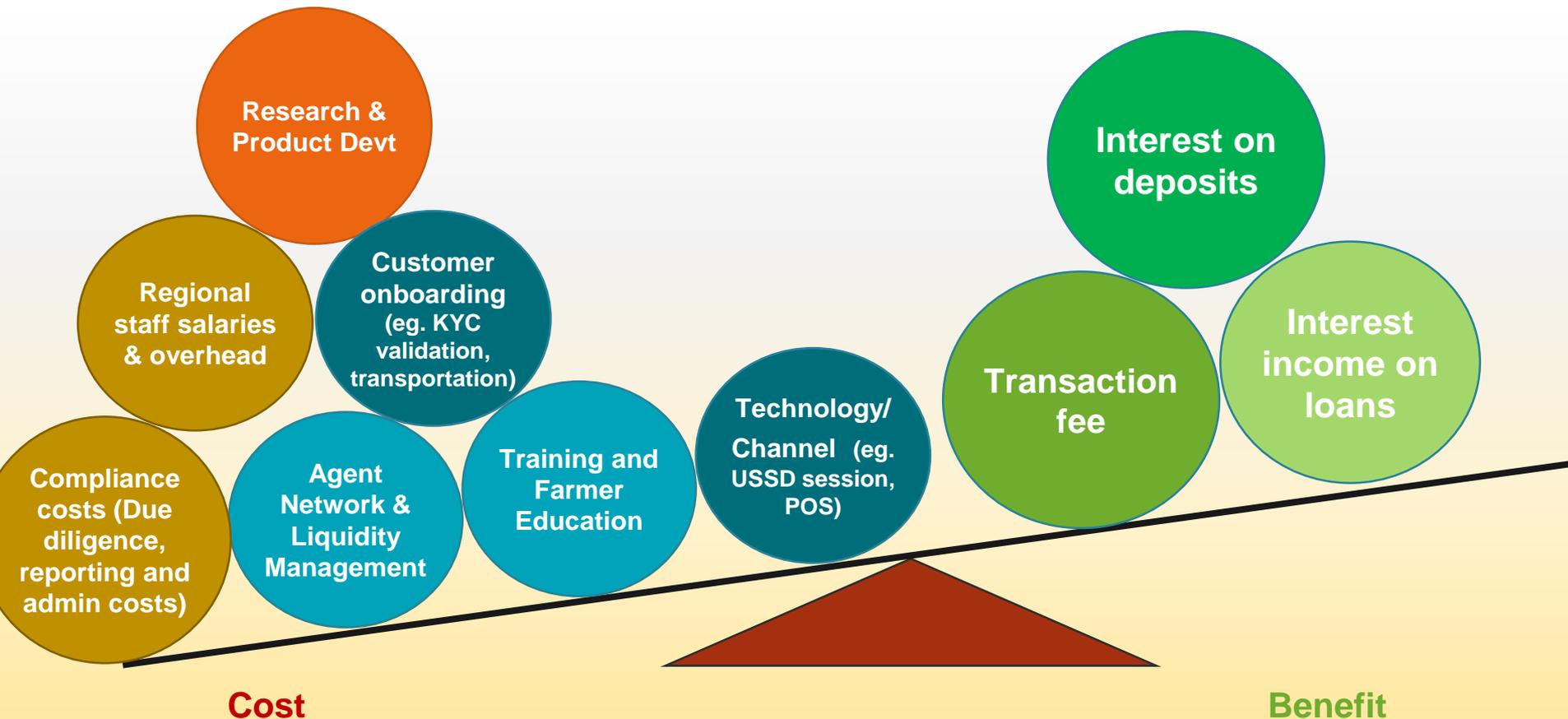
Innovation

- **Tailoring DFS products to farmers' needs**
 - Use HCD methods to inform product development process
 - Digitize popular, existing use cases
- **Value chain financing**
 - Leverage indirect value chain financing to connect formal FSPs to agriculture value chain actors
 - Employ digital disbursement methods

DFS Adoption

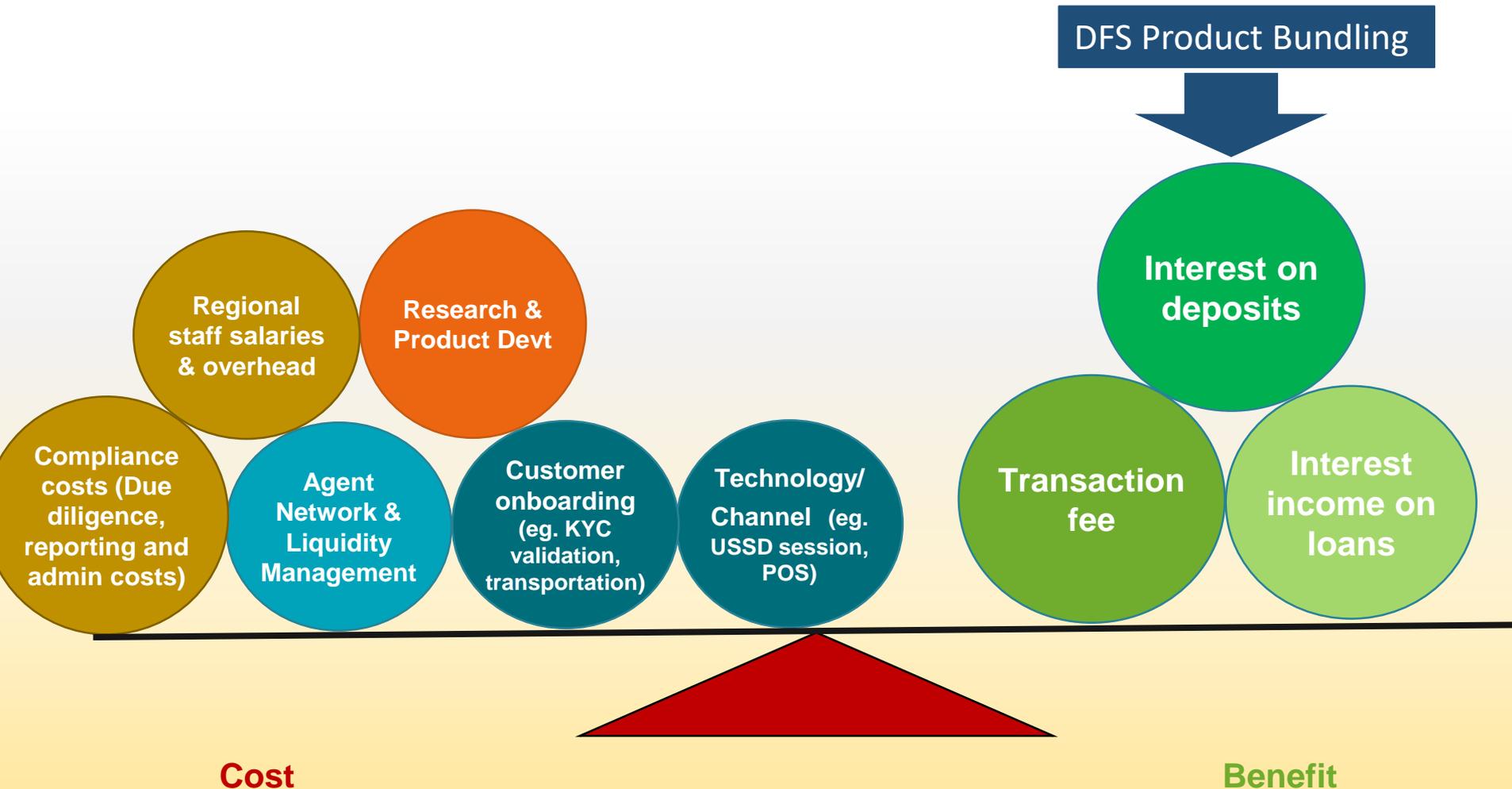
DRIVERS AND LEVERS AFFECTING DFS ADOPTION

The myriad of costs and limited revenue streams result in a net negative business case



DRIVERS AND LEVERS AFFECTING DFS ADOPTION

Bundling products can reduce operating costs and expand revenue streams, resulting in a net positive business case



KEY DRIVERS AND LEVERS AFFECTING DFS ADOPTION

Partnerships can integrate formal FSPs into traditional value chain partnerships

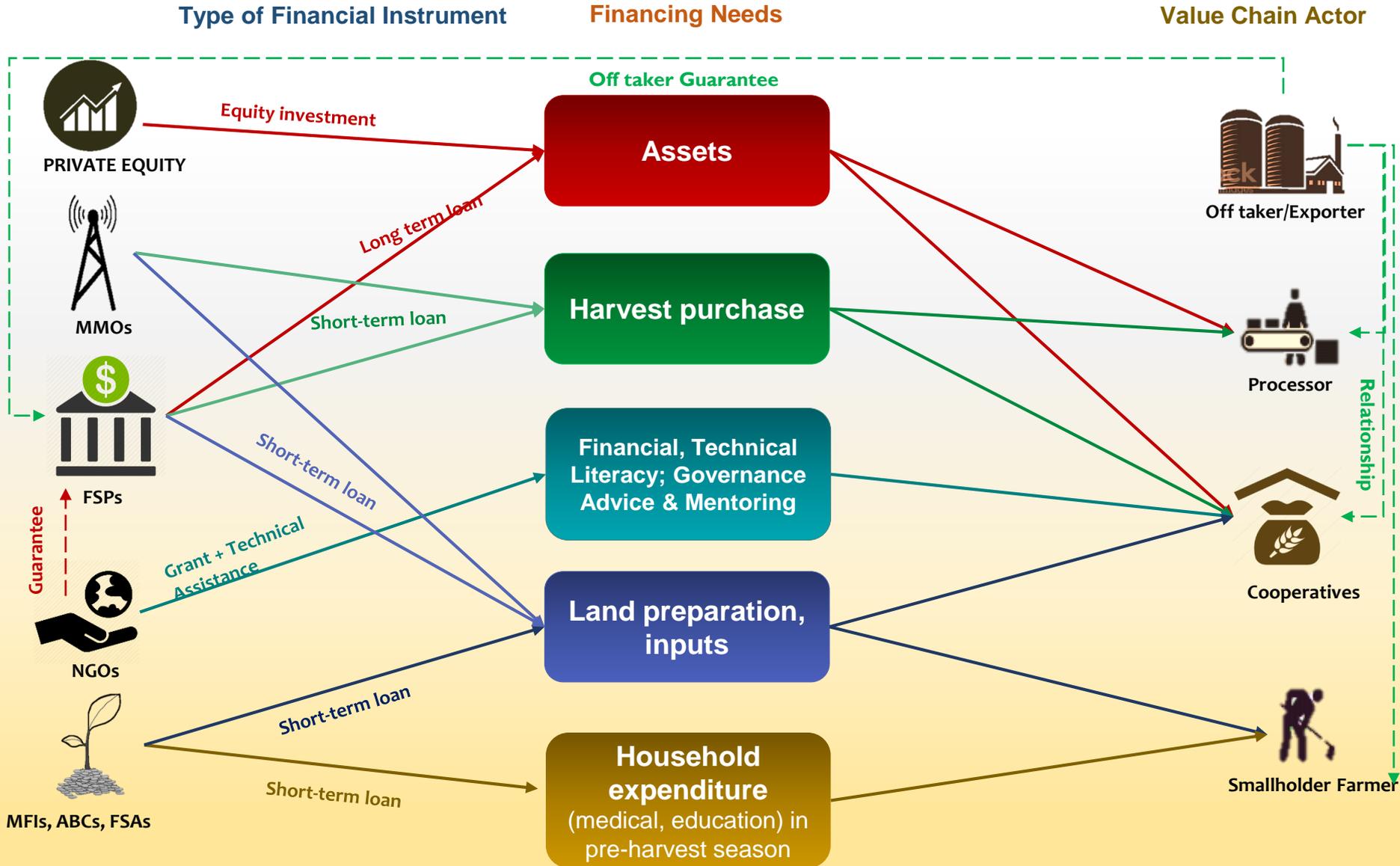


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RECOMMENDATIONS: THE ROLE FOR THE PRIVATE SECTOR

PRIVATE
SECTOR

GOVT

DONORS

BUSINESS CASE

- **MNOs, FSPs:** Pilot test DFS products based on popular and established use cases (eg. savings, input purchases) to guarantee volumes
- **MNOs:** Share towers to improve the business case for network expansion
- **MNOs, FSPs:** Lower service delivery costs by bundling products and services and leveraging existing agric services (eg. delivering financial and technical education via agric extension agents)

DATA & INNOVATION

- **MNOs, FSPs:** Leverage farmer transaction data in the pro-poor product development process. Profile farmers to gather sufficient behavioural, transactional and productivity data that can be analyzed to understand farmer needs
- **MNOs, FSPs:** Explore avenues by which farmer transactional and productivity data can be used to potentially meet collateral requirements
- **FSPs:** Explore indirect value chain financing opportunities and how to structure lending/financing arrangements between value chain actors

PARTNERSHIPS

- **MNOs:** Consider forming strategic partnerships with providers of key service providers in rural areas like alternative energy suppliers (solar, clean fuel) and explore ways to mobile-money enable them to enrich the rural use case

RECOMMENDATIONS: THE ROLE FOR GOVERNMENT

REGULATION

PRIVATE
SECTOR

- **Leverage Regulatory Sandbox to design enabling regulation for DFS:** Use Sandbox to develop evidence-based DFS regulation for core issues such as agent banking, tiered KYC and interoperability, - all great candidate themes for the framework
- **Encourage knowledge sharing and best practices:** Organize and participate in Peer learning exchanges and workshops with governments of mature DFS countries such as Rwanda, Kenya and India. Leverage relationships with BTCA in this area
- **Rethink identity process, flex ID requirements:** Explore the possibility of using voter ID cards as admissible KYC documentation; consider tiering accounts as done in Mexico and Nigeria

GOVT

CAPACITY BUILDING

- **Strengthen local institutions:** Modernize internal operations and processes of ABCs and FBOs by digitizing the many highly-manual activities and processes. Offer technical assistance and mentoring to their leadership and governance team
- **Support development of farmer technical and financial literacy:** Encourage the bundling of agric extension services with basic financial and technology services and explore ways of tracking and linking progress with agric financing

DONORS

IMPLEMENTATION

- **Digitally enable inputs distribution process:** Conducting a pilot that leverages mobile money in inputs distribution to farmers is an excellent way to influence mobile money adoption at scale with farmers. Subsidies can be offered only to farmers who elect to pay for inputs with mobile money while those who pay in cash buy at the full price.

RECOMMENDATIONS: THE ROLE FOR DONORS

PRIVATE
SECTOR

GOVT

DONORS

FUNDING

De-risk initial capital outlay of DFS investments: Donor funding may be needed to de-risk the initial cost of investment through grants, guarantees, and technical assistance. CAPEX items such as tower setup, agency banking operationalization and obtaining USSD licenses for small fintechs become less of a barrier when donor funding is structured to absorb these cost items.

IMPLEMENTATION

Encourage pilot testing within ecosystem: Work with private sector and Government to identify core use cases for farmers that can be digitized to achieve high volumes. Pilots with closed user groups are great vehicles for learning with little deleterious impact.

Focus on refining business models: It is important that overwhelming effort is made to develop business models together with private sector entities serving this market to guarantee sustainability of approach.

KNOWLEDGE SHARING

Facilitate knowledge and best practices sharing: International development partners and donors have a unique opportunity to share lessons learned from international DFS-mature markets with key stakeholders in Sierra Leone to inform approach, policy and design decisions. The DFS Working Group is an excellent starting point for donors to discuss ways of facilitating workshops between market actors in different geographies and fine-tuning ideas to meet Sierra Leone's unique circumstance.

Thank you

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GAP ANALYSIS

Low Impact Medium Impact High Impact



Gap	Current State	Impact	Severity
Value Chain Structure	<ul style="list-style-type: none"> Loose and unstructured meaning that farming is predominantly subsistence with a few occurrences of organized groups Farmer Based Organizations have highly manual and error prone processes; governance structures are immature and undeveloped; decision making not transparent Very weak relationship between smallholder farmers and exporters or off takers. Most farmers sell to middlemen 	<ul style="list-style-type: none"> Farmers are unable to leverage the power of groups to influence market prices; Production costs are high per farmer and incomes from sales are low Farmers are easily exploited by middlemen w.r.t. prices and quality Exporters and off takers miss out on valuable information related to direct sourcing and traceability of produce because of weak linkages with farmers 	Medium to High
Business Case	<ul style="list-style-type: none"> Current total cost of serving rural farmer community is high because of key variables: <ul style="list-style-type: none"> Prohibitively high initial investment (profiling farmers, laying technical infrastructure and distribution network, understanding farmer needs, onboarding, training and capacity building) Current pricing is not pro-poor and will produce volumes that do not support an operating profit Breakeven period for farmer products is long and overall profitability is based on high volumes; provider community however largely comprises publicly traded institutions that have short-term review periods 	<ul style="list-style-type: none"> The range of financial products on the market are largely skewed towards the mass market and urban areas Smallholder farmers resort to informal financial products and services that are sachet-sized and lack transformative potential 	High
Public Infrastructure	<ul style="list-style-type: none"> Rural Sierra Leone is fraught with underdeveloped infrastructure in an off-grid electricity environment that does little to motivate FSPs and MNOs to expand there. Most FSPs and MNOs favour a cautious roll out strategy that transitions from peri-urban to rural and then deep rural 	<ul style="list-style-type: none"> Poor roads prevent farmers from transporting ready produce to the market especially during bad weather Establishing FSP branches with bank staff in such areas is costly and operational costs are high as amenities are largely absent; the end result is the low bank penetration rate (15%) that is characteristic of Sierra Leone Poor infrastructure also limits MNO agent network spread, as more resources must be spent to put up an agent outlet in a far flung area compared to an urban area 	High

GAP ANALYSIS (cont'd)

Low Impact Medium Impact High Impact



Gap	Current State	Impact	Severity
Agri-Financing	<ul style="list-style-type: none"> Informal finance options dominant among smallholder farmers and few to no sources of long-term capital exist Financing for agricultural activities is done either by value chain participants or by small informal groups that are usually undercapitalized 	<ul style="list-style-type: none"> Informal finance options (savings, credit) are limited in their effectiveness due to high concentration risk in the event of an external shock (disease outbreak, drought) Rural informal finance unable to provide long-term capital for agriculture investment. Funding capacity of smallholder farmers to expand operations and transition out of subsistence level is severely constrained 	High
DFS Ecosystem	<ul style="list-style-type: none"> Infrastructure challenges include: <ul style="list-style-type: none"> Poor and spotty GSM network in rural areas Agency (presence, quality and calibre of agents) is underdeveloped and ANM expensive Agents are non-exclusive to parent MNOs and permitted to serve competitors' customers Low phone access Unclear regulation around the legality of agent banking in the banking sector and KYC identification No interoperability 	<ul style="list-style-type: none"> Unstable network connectivity either affects the user experience of mobile money and weaken trust in the system or completely rule out mobile money as an option Trust in mobile money is hampered by negative agent experiences (liquidity shortfalls, poor customer service, agent fraud, etc.) as the agent is seen as the face of the MNO Agent non-exclusivity mandates can affect MNO expansion of agent networks; MNOs may also not go beyond providing basic support and training to non-exclusive agents thereby affecting service quality Lack of payments interoperability impacts costs of transactions Banking sector unable to fully launch out into serving rural customers with low-cost innovative channels 	High
Farmer Fin and Tech Literacy	<ul style="list-style-type: none"> Many farmers unable to perform actions beyond making and receiving calls; a few are able to text. Farmers use monolithic, undercapitalized products and tools to manage their finances 	<ul style="list-style-type: none"> A fear of or lack of understanding of how to use critical phone functions like USSD interaction and texting poses a major barrier to mobile money use. Some farmers who grapple with technology approach agents for help and are sometimes defrauded leading to further distrust in the mobile money service Financial tools available to smallholder farmers are not robust enough to weather financial shocks and not transformative enough 	High

RECOMMENDATIONS

QUICK WIN # 1*

Action: Facilitate ABCs and FBOs to improve their operations, processes and governance structures in order to achieve operational efficiency and develop credibility

Potential steps to follow:

A deep and focused investigation into the operations, processes and organizational structure of ABCs & FBOs – to understand cause for inefficiencies

Invest in tools that facilitate process improvement at these organisations

Pilot test the engineered process with select ABCs before scaling

Desired Goal: Stronger and more effective farmer cooperatives that support increase in farmer productivity

*For more detail: Read Recommendations section in DFS Ecosystem Assessment for Smallholders Report (Aug 2018)

RECOMMENDATIONS

QUICK WIN # 2*

Action : Support the development of a Digital Market Information System for value chain actors

Potential steps to follow:

Conduct a thorough needs assessment focused on identifying potential customers and their needs

Design of the MIS along sustainable business model and specify appropriate partners

Pilot test solution and monitor usage and uptake before scaling

Desired Goal: A centralized digital agricultural information portal that improves price transparency between farmers and the buyers and empowers the smallholder farming community

* For more detail: Read Recommendations section in DFS Ecosystem Assessment for Smallholders Report (Aug 2018)

RECOMMENDATIONS

QUICK WIN # 3*

Action : Develop and implement a training curriculum that combines critical agricultural extension services information with basic financial and technical education for farmers and farmer groups

Potential steps to follow:

Foster collaboration between Agric bodies and DFS service providers to provide joint education services

Develop a viable training plan and approach

Share curriculum broadly with key agricultural development agencies and programmes

Desired Goal: Farmers able to develop key capacities in financial and technical literacy in order to fully take advantage of DFS opportunities

* For more detail: Read Recommendations section in DFS Ecosystem Assessment for Smallholders Report (Aug 2018)