SDM Case Report:
E-Granary Limited (EGL), Kenya

Service Delivery Model Assessment

June 2020

Public report

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Service Delivery Models (SDMs)

SDMs are supply chain structures, which provide services such as training, access to inputs and finance to **farmers**, to improve their performance, and ultimately their profitability and livelihoods.

Service providers offer the services; they can be a trader, processor, farmer organization, NGO, public extension scheme, etc.

Investors tend to be (final) buyers of the product, looking to secure their supply and / or for reputational reasons are interested to invest in the farmer.

Processors, traders and other value chain players in agri-commodities are beginning to see service delivery as part of their business, rather than something the buyer requested or only as a way to create farmer loyalty.

This results in value chain players establishing a relationship with the farmer as a client, being interested to gain a better understanding of the structure of their existing SDMs, what services are being delivered, to which farmers, and the impact on their business.

Companies are also gaining a clearer understanding of how to fund such services and are exploring ways to make their model less dependent on external funding, i.e commercially viable.

Service delivery models and the stakeholders that shape them are evolving

Processors, traders and other value chain partners - see service delivery as part of their core business

Financial institutions, development banks and social investors – show an increased risk-taking appetite

Donors - focus on how to create the largest leverage and return on investment

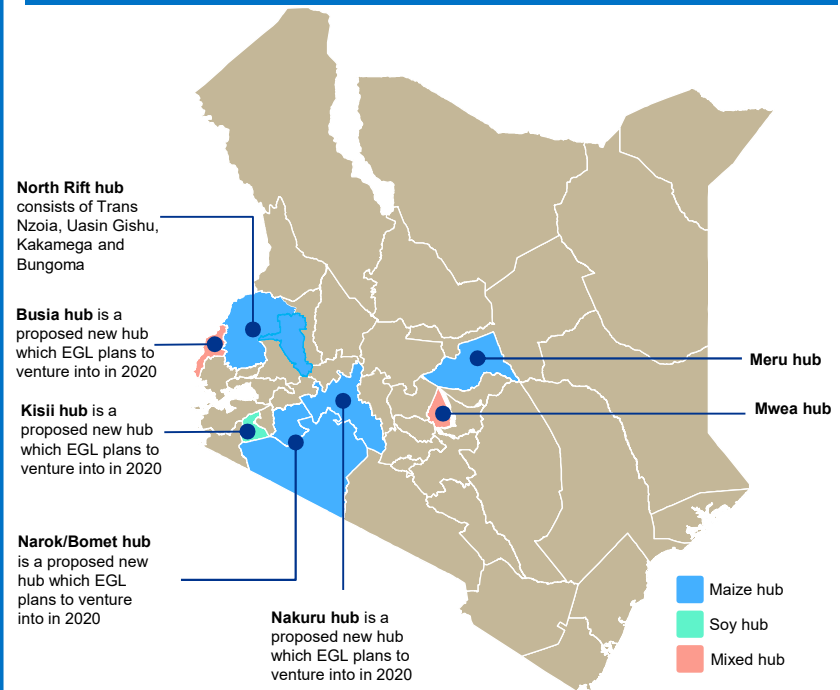Innovative businesses emerge that develop solutions for optimizing service supply

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EGL background and context

SDM Operator

e-GRANARY
aggregating farmers for markets

- E-GRANARY Limited (EGL) is a mobile and web based platform through which challenges of market access, affordable financial services and market oriented agricultural extension services are addressed.

- The platform achieves this by facilitating the meeting of demand and supply of agricultural produce and inputs, reducing cost to serve and risks to enable financial institutions gainfully invest in smallholder farmers[1].

- EGL was established by the Eastern Africa Farmers Federation (EAFF), an apex organization of all farmers in Eastern Africa. EAFF's role is to voice legitimate concerns and interests of farmers in the region with the aim of enhancing regional cohesiveness and social-economic status of the farmers[2].

- EAFF registered a limited liability company, EAFF LTD, in 2015 to run the operations of EGL which started in 2016.

- In Kenya, 170,000 farmers have already been registered on the platform of which 136,832 (80%) farmer details have already been verified. Further, EGL has registered 118 farmer groups onto the platform[3].

- In 2019, EGL sourced maize from 790 farmers, which is expected to grow to c. 22,000 farmers by 2025. From 2020, EGL will also source soya[1].

- EGL has signed an offtake contract with ETG for a minimum order of 10,000 MT of maize and 1,500 MT of soy(this can be increased if EGL can meet its current target). EGL is looking to expand its operations in the coming years, with all their product sold to domestic processors.

EGL hubs

North Rift hub consists of Trans Nzoia, Uasin Gishu, Kakamega and Bungoma

Busia hub is a proposed new hub which EGL plans to venture into in 2020

Kisii hub is a proposed new hub which EGL plans to venture into in 2020

Narok/Bomet hub is a proposed new hub which EGL plans to venture into in 2020

Nakuru hub is a proposed new hub which EGL plans to venture into in 2020

Meru hub

Mwea hub

Maize hub
Soy hub
Mixed hub

- EGL's activities are currently centred around three main hubs within Kenya: North Rift and Meru both of which are maize growing hubs and Mwea which is a soy growing hub[3].

- EGL is looking to increase the number of hubs as well as their geographical footprint by venturing into neighbouring countries including Uganda and Rwanda[3].

- Mixed hubs produce both maize and soy.

Executive summary

e-GRANARY Limited (EGL) sources, sorts and sells maize and soybean crops in Kenya. EGL sources most of the maize and soybeans from smallholder farmers and operates an SDM to be able to better engage with them. In order to grow their business and fulfill the maize and soybean crop needs of the region, EGL intends to grow this program and expand the number of farmers they work with.

EGL has a positive business case for investing in the SDM

- The study reveals that the SDM is profitable when commercial (sourcing, processing and sales) activities are taken into consideration. The initial SDM operations will see a loss. However, by 2020, the SDM is expected to generate a positive net income and to achieve the breakeven in 2022. The profits per farmer improves over time and by 2025 a Segment 4 maize-high SDM farmer contributes about US$ 100 of annual profits to EGL.
- Sourcing from smallholder farmers is a critical element of EGL business strategy and the SDM contributes towards making their engagement with smallholder farmers effective and efficient. The SDM investments are relatively small compared to the sourcing costs (less than 10%) and most are operational costs (no significant capex costs) and hence do not significantly up EGL's business risk. On the other hand, it contributes in a significant way towards increasing farm yields plus providing access to markets and growing EGL's sourcing base.

Maize and soy farmers can receive significant benefits from participating the SDM

- A maize-high farmer who has been in the SDM for five years and receives all its services (including finance and market access) can earn up to US$ 1,914 net income per year. Soy farmers can earn up to about US$ 782 per year from soybean crop. However, most soy farmers also have other sources of income (70% of income from other than soybean) and so this can be an attractive supplementary income to them.
- Being able to access loans for inputs and providing assured market access at better price than local traders is a key element of the model. Farmers who do not have access to market access and inputs see significantly lower net incomes

Note: All figures in this report are based on projections. Assumptions behind these projections can be found in the appendix section of this report.

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Reflection on SDM learning questions (1/3)

In this SDM study, a set of tailored learning questions were analyzed:

1. Who are the key actors in this SDM and what is the relationship between them?	• **EGL is the lead actor in the SDM and plays a dominant role**. All services in the SDM are **facilitated by EGL and financed** by EGL. • Other key actors are ETG, local traders, input providers, Vision Fund (provides loans) and Acre Africa (insurance). However, EGL play the lead role in integrating these actors into the services delivered by the SDM.
2. What are the costs to EGL for delivering the SDM? Can these costs be recovered?	• The SDM is well linked and integrated into EGL sourcing operations. Most services are focused on supporting production and the offtake of maize and soybean, which are directly provided to individual farmers. • The SDM can support growing EGL's farmer base from 790 Segment 4 farmers in 2019 to 24,000 farmers by 2025 and nearly 4,100 farmers each in Segment 2 and 3. • Commission on inputs, interest share on farmer loan, mechanization and subscription fee for accessing platform (from 2021) generate revenue. Of all the services, commission from input and output provision is profitable at scale followed by platform subscription fees. Mechanization is marginally profitable, providing loans to farmers loses money for EGL.
3. Is the SDM financially viable and what are the key factors influencing this?	• Except for training, other services have associated revenue with them (even if they are not profitable). Market access and post-harvest services are closely linked to sourcing and trading of maize/soybean. • Maize/soy volumes aggregated, and quantity of inputs purchased by farmers are key factors driving the revenue and hence the profitability of SDM. • The SDM is asset-lite and of low operating leverage (ie majority of its costs is variable). Even if the volume of maize/soy aggregated by EGL falls by 50%, the **cumulative SDM profit from 2020-2025 remains positive** (with a decline of 51%).

Reflection on SDM learning questions (2/3)

In this SDM study, a set of tailored learning questions were analyzed:

4. Spot payments increase loyalty, is it feasible to make spot payments and estimate working capital required? What is the business value for EGL in doing so?	• Spot payment reduces side-selling from farmers particularly maize farmers. • Under the EGL's procurement and selling model, the average working capital requirement comes to **12% of trade value (value of output sold to buyers) for maize and 10% of trade value for soybean.** • Making of spot payments (Scenario 3) earn EGL a **cumulative commission** (net of finance cost for working capital) from 2020-2025 which is 42% higher than in the best-case deferred payment scenario and more than twice (86%) compared to the base-case deferred payment scenario.
5. Is there a business case for farmer mobilizers in the current model?	• Farmers mobilizers working with Maize-high farmers earns a net income of $2,122 in 2024 from his/her farmer mobilizer activities – **which is 17% higher** than Segment 4 maize-high farm income of $1,810 (**maize-mid farmer mobilizer earns $1,242**, 87% higher than maize-mid farm income whereas **soy farmer mobilizer earns $582** which is 36% lower than Segment 4 soy farm income). • The income of soy farmers from soybean is just 30% of total income and soy farmer mobilizers making less than this will not incentivize a soy farmer mobilizer. • EGL can consider strengthening the income of soy farmer mobilizers by doubling the commission per bag **thereby increasing soy farmer mobilizer income to $1,242** in 2024.
6. Which segment of farmers are most profitable for EGL? How should this inform their farmer segment strategy?	• On per farmer basis, **Segment 4 soy farmers** are most profitable for EGL. **Segment 4 maize-high farmer** is next best profitable segment for EGL and Maize-mid farmers are much less profitable to EGL. • EGL can increase its profitability per farmer by focusing their efforts and resources into increasing the productivity and loyalty of Segment 4 soy and maize-high farmers.

Reflection on SDM learning questions (3/3)

In this SDM study, a set of tailored learning questions were analyzed:

7. What is the optimal strategy for central warehouse operations? Costs and benefits associated with it?	• Our estimates indicate a total cost of KES350 per bag for storage of crop output in central warehouse for a period of 3 months - KES100 for transport from aggregation center to warehouse, KES200 for warehouse rent, KES50 for staff and equipment. • EGL may consider storage of a small proportion (10% or 20%) of total output that provides strategic buffer against price fluctuations. Storage of larger quantities might increase the cost and complexity of logistics plus exposing EGL to adverse market price risks.
8. How does the SDM contribute to farmer income and cashflow?	• **The impact of the SDM on Segment 2 maize and soy farmers is small**. Segment 2 farmers have almost the same productivity as Segment 1 (baseline farmers), however Segment 2 farmers net income is higher than Segment 1 (sells to local traders) primarily from better price received for their produce by selling to EGL. • Segment 3 farmers benefit from raising their crop productivity like Segment 4 farmers because of their similar usage of inputs and access to GAP training. The net income of Segment 3 maize-high, maize-mid and soy farmers is 288%, 207% and 272% higher respectively, 5 years into SDM participation. • Segment 4 maize and soy farmers benefit significantly more from the SDM. **Segment 4 Maize-High net income in the fifth year of participation is over 252% higher than Segment 2 (**Segment 4 Maize-Mid 5th year net income is over 182% higher than Segment 2, Segment 4 Soy 5th year net income is 450% higher than Segment 2). This is primarily because of higher productivity from application of GAP training, access to loans to procure good quality inputs and higher selling price through market access by EGL. • Segment 4 maize and soy farmers also have more favorable cash flows. Their net cash outflow is small since they receive all inputs and mechanization services on credit which only needs to be paid back after harvest.
9. Is there a business case for monetizing farmers data?	• The revenue potential is minuscule of total EGL's 2025 revenue. • Farmers data can be better served as the strategic asset for EGL's business than monetizing value realized in selling of data.

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SDM Objectives

Outcomes per Stakeholder

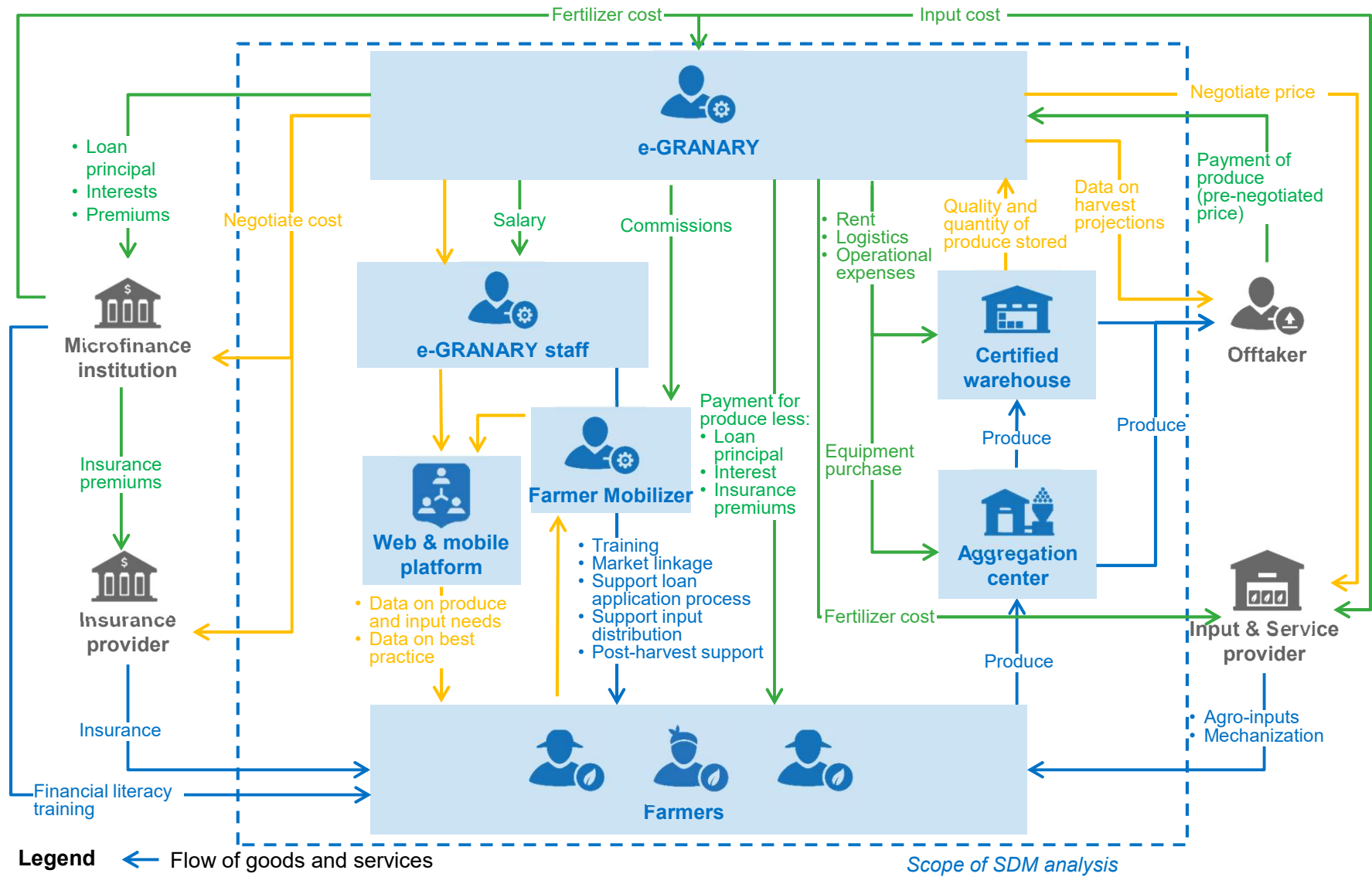|	Farmer	EGL
Sourcing maximization: **1** Increased production of quality produce through access of farmers to high-quality inputs and services	• Increased maize and soy yields from high-quality inputs • Increased household income from higher quality and volume of maize or soy • Improved food security	• Secure quality and quantity of produce to meet the market demand • Increased efficiencies via economies of scale
Access to market: **2** Improved access of smallholder farmers to markets through signing of purchase contracts with farmer	• Guaranteed markets for produce • Higher financial and food security • Increased income	• Increased profitability through secured supply • Predictable quantity and quality of supply • Secure supply to meet demand targets • Increased loyalty of farmers

OBJECTIVES

SDM services and revenue flow

Fertilizer cost — **Input cost**

e-GRANARY

- Loan principal
- Interests
- Premiums

Negotiate cost

Salary

Commissions

e-GRANARY staff

- Rent
- Logistics
- Operational expenses

Quality and quantity of produce stored

Data on harvest projections

Negotiate price

Payment of produce (pre-negotiated price)

Certified warehouse

Offtaker

Insurance premiums

Payment for produce less:
- Loan principal
- Interest
- Insurance premiums

Equipment purchase

Produce

Produce

Web & mobile platform

Farmer Mobilizer

- Data on produce and input needs
- Data on best practice

- Training
- Market linkage
- Support loan application process
- Support input distribution
- Post-harvest support

Aggregation center

Fertilizer cost

Produce

Microfinance institution

Insurance provider

Insurance

Financial literacy training

Input & Service provider

- Agro-inputs
- Mechanization

Produce

Farmers

Scope of SDM analysis

Legend

← Flow of goods and services

→ Financial / payment flows

→ Information flows

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Overview of SDM services

Farmer training

- EGL provides GAP training to farmers in two ways: online through text and voice messages and offline through lead farmers.
- Field officers train farmer leaders who in turn train farmers on GAP.
- EGL conducts two farmer training session each season.

Post harvest services

- EGL relies on ACs owned by farmer groups to provide storage for farmer produce prior to collection by the off-taker.
- EGL plans to lease warehouse facilities to be used to store produce when the market prices are low. Produce will be sold once the market prices improve.

Access to inputs

- EGL supports farmers to access high-quality agro-inputs as part of the services they can hire.
- The input bundle includes high-quality seeds, agrochemicals and fertilizer bought from well recognized input providers.
- Farmers receive the inputs on credit through a partnership with a Microfinance Institution.

Market linkage

- EGL provides farmers with access to markets by aggregating the produce and linking them to an offtaker.
- EGL negotiates contracts with large offtakers at the beginning of the season before contracting farmers through their farmer groups.

Access to finance and insurance

- EGL connects farmers to a Microfinance Institution to provide them with access to finance through a bundle of services. The bundle includes credit for seeds, fertilizer, agro-chemicals, insurance, mechanization and irrigation (for soy farmers).
- Farmers must be part of a farmer group to benefit from the loans.

Technology

- EGL has developed a web & mobile platform through which the various value chain players can interact.
- The platform allows for collection of farmer and farm data, inputs ordering, payment and information sharing.
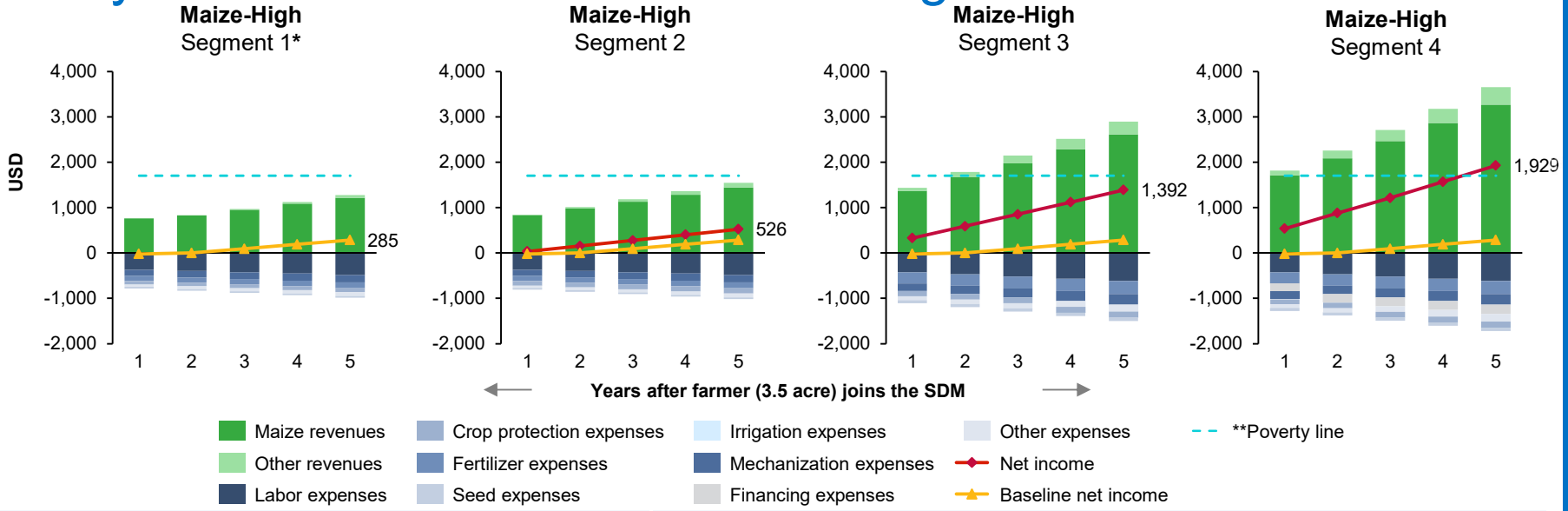
Mechanization

- EGL plans to provide mechanization services including tractors for land preparation and a mobile dryer for drying maize in the future.
- EGL plans to purchase own dryers for use. However, tractor services will be provided through working with external partners..
- EGL plans to charge farmers a fee to use the tractors and mobile dryer.

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Farm P&Ls | Maize-High farmers have high potential provided they can transition towards becoming S3 and S4 farmers

Maize-High Segment 1*

Maize-High Segment 2

Maize-High Segment 3

Maize-High Segment 4

Years after farmer (3.5 acre) joins the SDM

Legend: Maize revenues, Other revenues, Labor expenses, Crop protection expenses, Fertilizer expenses, Seed expenses, Irrigation expenses, Mechanization expenses, Financing expenses, Other expenses, Net income, Baseline net income, **Poverty line

Economic sustainability at farm level

The above graphs show the P&L for S1,S2,S3 and S4 Maize-High altitude farmers. The S1 Maize-High farmer could earn up to a net income of USD 285 from a 3.5-acre farm, whereas a S4 farmer could earn up to 8 times more (USD 1,929).

S3 and S4 farmers are expected to earn much more than a S1 or S2 farmer due to increased earnings stemming from improved yields (by adopting GAP and applying high-quality seeds & agrochemicals). As SDM farmers (both S3 and S4 farmers) buy the same products in the input bundle, they realize similar yields. However, as S4 farmers sell their maize to EGL and S3 farmers sell to local brokers, revenues for S4 farmers are up to 25% higher.

After 4 years participating in the SDM S4 farmers could surpass the poverty line and generate more net income while the S1, S2 and S3 farmers remain below the poverty line. Therefore, EGL should seek to transition these farmers into S4 farmers. However, it is important to note that while these higher income levels can provide a buffer against negative events, farmers' income remains highly sensitive to external factors such as prices and weather conditions.

Main cost drivers

- **Labor:** Hired labor is the largest cost category across all four farmer segments and accounts on average for 42% of total costs and 31% of revenues.
- **Mechanization:** Mechanization costs, representing on average 15% of total costs, are higher for Segment 3 and Segment 4 farmers as they hire a shelling service.
- **Inputs:** Fertilizer is the second largest expense for S3 and S4 farmers representing on average 19% of all costs, whereas fertilizers are only the third largest expense for S1 and S2 farmers with 13%. In total, the purchase of inputs accounts for over 31% of all costs and about 22% of all revenues.
- **Finance:** This service, only hired by S4 farmers, represents their third largest expense with 13% of all costs.
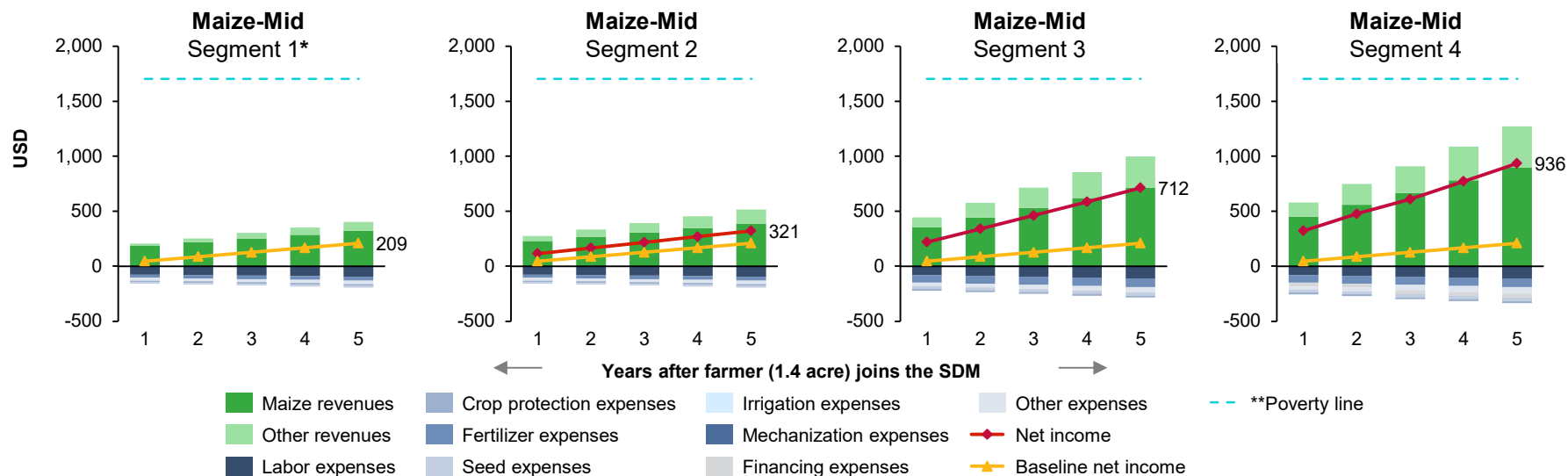
Main revenue drivers

- **Production:** S3 and S4 farmers have significantly higher average yields (3.1MT/acre/year) than S1 and S2 farmers (1.6MT/acre/year) which is a key driver of higher revenues. The higher yields can be attributed to adoption of GAP and high-quality agro-inputs.
- **Farm-gate price:** In addition to higher yields, both S2 and S4 farmers receive an average EGL farm-gate price 20% higher than the local trader price S1 and S2 farmers receive as EGL seeks to negotiate better prices for their farmers. The EGL farm-gate price for high-grade maize is KES 31/kg, whereas the local trader price is KES 24/kg.

*Segment 1 can be interpreted as a baseline farmer, see slide on customer segmentation.
**Source: World Bank (2018), Online PPP database, private consumption. The poverty line adjusted for purchasing power is estimated at USD 341/individual/year. For a HH consisting of 5 members (average HH size based on PDC collected), this equates to USD 1,705/HH/year.

Farm P&Ls | Maize-Mid farmers will struggle most to justify continued service adoption

Maize-Mid Segment 1*

Maize-Mid Segment 2

Maize-Mid Segment 3

Maize-Mid Segment 4

Years after farmer (1.4 acre) joins the SDM

Maize revenues	Crop protection expenses	Irrigation expenses	Other expenses	**Poverty line
Other revenues	Fertilizer expenses	Mechanization expenses	Net income	
Labor expenses	Seed expenses	Financing expenses	Baseline net income	

Economic sustainability at farm level

The above graphs show the P&L for S1 ,S2 ,S3 and S4 Maize-Mid altitude farmers. Although the farmers all have the same farm size, S1 and S2 farmers earn small, positive incomes due to depressed productivity. S3 and S4 farmers have increased earnings stemming from improved yields (by adopting GAP and applying high-quality seeds & agrochemicals). SDM farmers (both S3 and S4 farmers) realize similar yields as they buy the same products in the input bundle. However, they have distinct revenues from maize sales as S4 farmers sell their maize to EGL and S3 farmers sell to local brokers, resulting in higher prices for the former.

Although the average net income for a S3 and S4 farmer increases substantially compared to baseline farmer, the net income would not be enough for the farmer to be above the poverty line for the entire HH. To bridge this income gap, the SDM farmers would need to rely on additional income generated from other off-farm activities.

Although still below the poverty line, there exists a case for EGL to mobilize farmers into S4 as revenues for these farmers are 5, 3 and 1 more times higher than that for S1, S2 and S3 farmers respectively.

*Segment 1 can be interpreted as a baseline farmer, see slide on customer segmentation.
**Source: World Bank (2018), Online PPP database, private consumption. The poverty line adjusted for purchasing power is estimated at USD 341/individual/year. For a HH consisting of 5 members (average HH size based on PDC collected), this equates to USD 1,705/HH/year.

Main cost drivers

- **Labor:** Hired labor is the largest cost category across the four farmer segments. This accounts for 49% of total costs for S1 and S2 farmers, 38% for S3 farmers and 33% for S4 farmers.
- **Inputs:** Fertilizer (average 27% of total costs) and seed (average 10% of total costs) inputs are the second and fourth largest expenses for the S3 and S4 farmers, respectively. As compared to S1 and S2 farmers, S3 and S4 farmers use more fertilizer and seeds inputs per acre. These costs however average 14% and 11% of total S3 and S4 farmer revenue, respectively.
- **Finance:** Finance costs are incurred only by S4 farmers. This cost represents 12% of all costs incurred by the farmer segment.
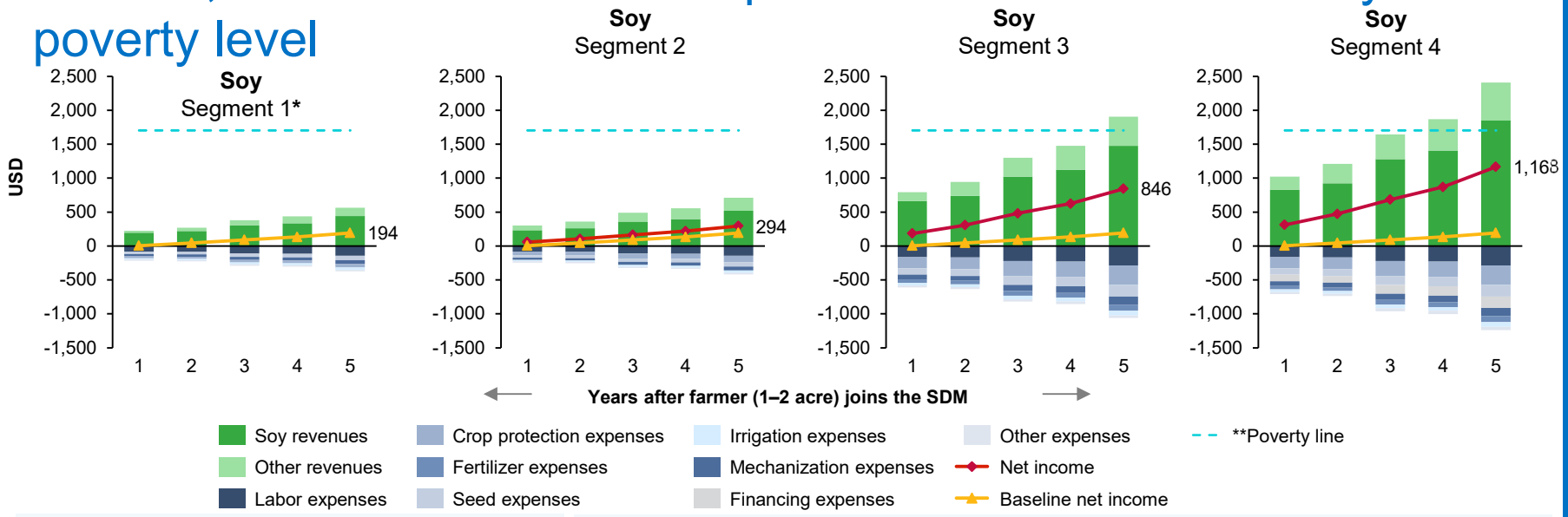
Main revenue drivers

- **Production:** S3 and S4 farmers have significantly higher average yields (1.9MT/acre/year) than S1 and S2 farmers (1MT/acre/year) which is a key driver of higher revenues. The higher yields can be attributed to adoption of GAP and high-quality agro-inputs.
- **Farm-gate price:** Both S1 and S3 farmers receive an average farm-gate price 20% lower than S2 and S4 farmers as they sell to local traders.
- **Second season:** Maize-Mid altitude farmers grow maize twice a year resulting into higher revenues. EGL only sources from Maize-Mid farmers during the main season.

Farm P&Ls | Becoming S4 soy farmers is advantageous for Soy farmers, however an additional push is needed to reach beyond the poverty level

Soy Segment 1*

Soy Segment 2

Soy Segment 3

Soy Segment 4

Years after farmer (1–2 acre) joins the SDM

Legend:
- Soy revenues
- Other revenues
- Labor expenses
- Crop protection expenses
- Fertilizer expenses
- Seed expenses
- Irrigation expenses
- Mechanization expenses
- Financing expenses
- Other expenses
- Net income
- Baseline net income
- **Poverty line

Economic sustainability at farm level

The above graphs show the P&L for S1, S2, S3 and S4 Soy farmers. The S1 and S2 Soy farmers have an annual average net income of USD 94 and USD 168 respectively from a 1-acre farm versus an average net income of USD 488 and USD 702 for the S3 and S4 farmers respectively from a 2-acre farm. The main economic benefit to SDM farmers is the larger farm size coupled with adoption of GAP and high-quality inputs.

Even with the financial benefits of the SDM, on average, S2 and S3 farmers continue to earn less than the poverty line. EGL should look into optimizing the SDM for its farmers to ensure conversion to active customers and continued adoption and loyalty of its current S4 farmers.

It is key to note that soy farming represents only 30% of the farmers' income with rice being the main crop cultivated by the Soy farmers - except those in Mwea.

Main cost drivers

- **Labor:** Hired labor is the key cost category and accounts for averagely 36% of total costs and 27% of revenues for the S1 and S2 farmers versus 25% of total cost and 13% of revenue for the S3 and S4 farmers. S3 and S4 farmers incur twice the labor cost as S1 and S2 farmers to accommodate the larger farm size.
- **Inputs:** Crop protection is the second largest cost driver for all farmers representing on average 20% of all expenses for S1 and S2 farmers, 27% of all expenses for S3 farmers and 23% for S4 farmers. Seed inputs represent on average 16% of all costs.
- **Mechanization:** Mechanization costs, representing 15% of total costs for baseline farmers versus 11% for SDM farmers, are higher for Segment 3 and Segment 4 farmers as they have larger farms.
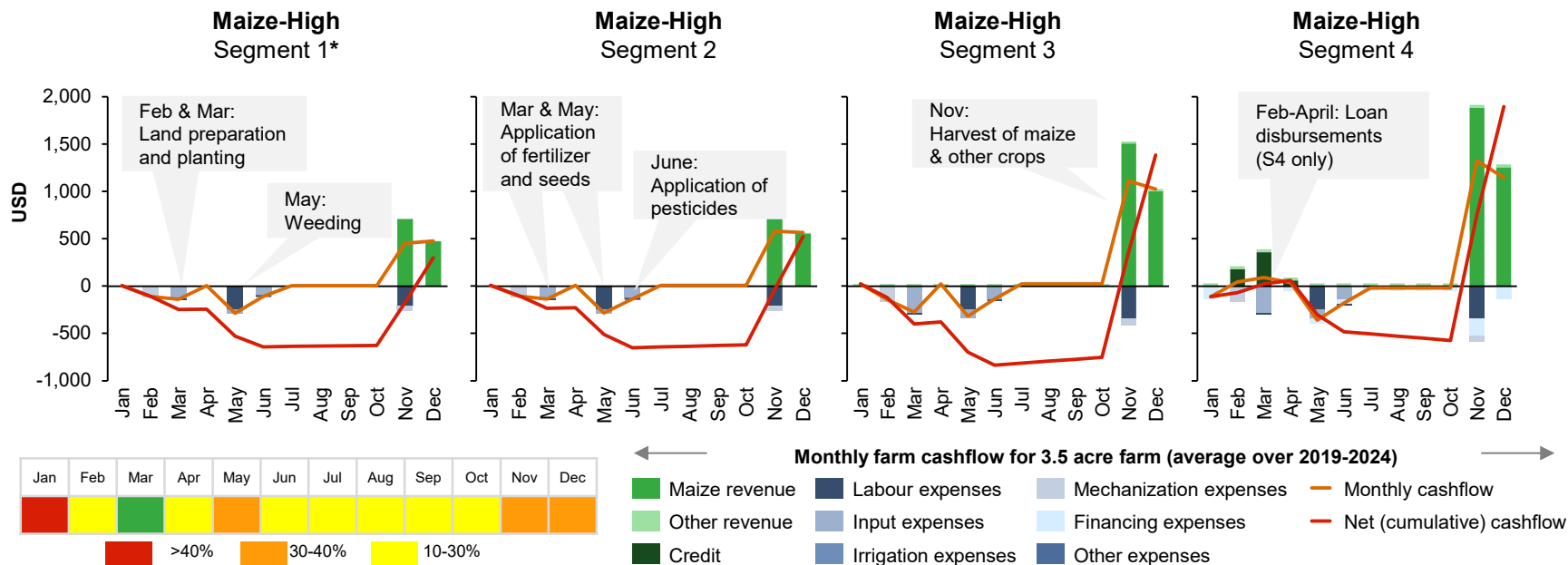
Main revenue drivers

- **Production:** SDM farmers have significantly higher average yields (1.1MT/acre/year) than baseline farmers (0.6MT/acre/year) which is a key driver of higher revenues. The higher yields can be attributed to adoption of GAP and high-quality agro-inputs.
- **Farm-gate price:** In addition to higher yields, S4 and S2 farmers receive an average EGL farm-gate price of KES 52/kg and KES 44/kg for high-grade and low-grade soy respectively, whereas S1 and S3 farmers receive a price of KES 42/kg and KES 39/kg as they sell their produce to local traders.
- **Second season:** Soy farmers can produce soybeans 2 times a year due to irrigation.

*Segment 1 can be interpreted as a baseline farmer, see slide on customer segmentation.
**Source: World Bank (2018), Online PPP database, private consumption. The poverty line adjusted for purchasing power is estimated at USD 341/individual/year. For a HH consisting of 5 members (average HH size based on PDC collected), this equates to USD 1,705/HH/year.

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Maize-High Cashflow | Financial products are key to reducing the volatility of farmer cashflow

Maize-High Segment 1*   **Maize-High Segment 2**   **Maize-High Segment 3**   **Maize-High Segment 4**

Feb & Mar: Land preparation and planting
May: Weeding
Mar & May: Application of fertilizer and seeds
June: Application of pesticides
Nov: Harvest of maize & other crops
Feb-April: Loan disbursements (S4 only)

USD axis: 2,000 / 1,500 / 1,000 / 500 / 0 / -500 / -1,000

Months: Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Monthly farm cashflow for 3.5 acre farm (average over 2019-2024)

Legend:
- Maize revenue
- Other revenue
- Credit
- Labour expenses
- Input expenses
- Irrigation expenses
- Mechanization expenses
- Financing expenses
- Other expenses
- Monthly cashflow
- Net (cumulative) cashflow

Calendar legend: Jan (>40%, red), Mar (green), May–Oct, Nov, Dec (orange); with >40% / 30-40% / 10-30%
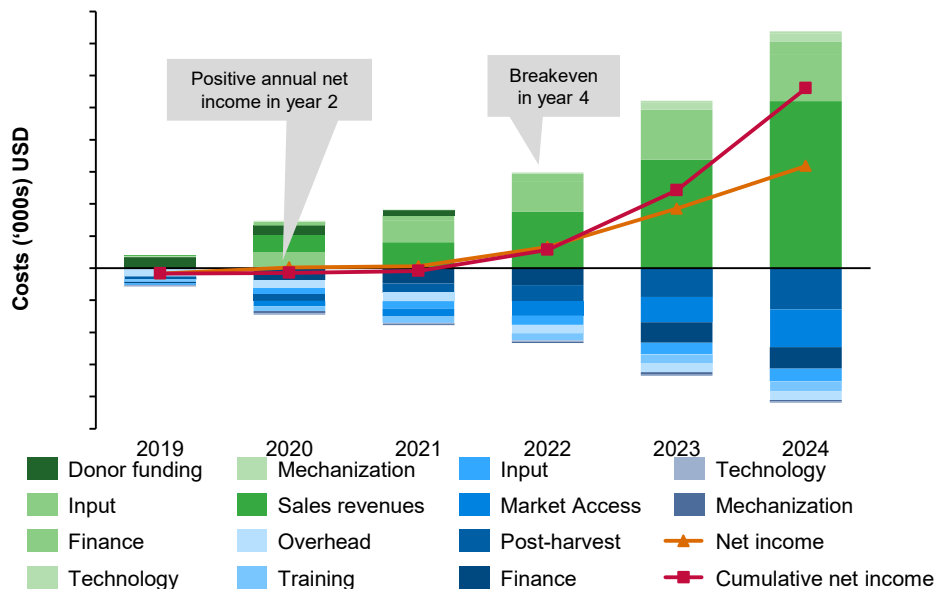
Discussion

- Both baseline farmers (S1 and S2 farmers) have lower labor and input purchases as compared to SDM farmers (S3 and S4 farmers) as they hire less labor and purchase low-quality inputs. Highest total monthly expenses accounts for USD 290 in May. As a result of their relatively low expenses their cashflows aren't significantly negative in any month of the year. Harvest of maize and other crops is planned in November and maize sales run from November through December.

- S3 SDM farmers show a similar pattern in their monthly cashflows, however due to higher yields their cumulative net cashflow at the end of they year shows a much more positive picture.

- Since farmers will grow maize every year, we can expect positive cash from the end of one year to carry over to the next. This financial buffer could allow the farmers to reduce their financial distress during January and February – traditionally months with cash-constraints due to the investments needed for the new farming cycle. However, both a lack of access to financial products as well as inadequate financial literacy can inhibit the saving that is necessary to smooth out the sizeable fluctuations in cash flow.

- EGL tries to address these issues through training and the access to finance. S4 farmers receive all services on credit (agro-inputs and mechanization services) in due time to support them in preparations for the new crop cycle. The loan is disbursed roughly in three monthly installments (February through April) towards payment to the input providers. Since all services are received through credit, the credit balances out the supposed cash outflows to purchase the services (as seen in the graph). The access to the credit clearly reduce the volatility of the farmer's cashflow.

- Repayment of loans take place over the course of the crop cycle (i.e. for maize grown in a high-altitude region 12 months). Farmers are allowed a grace-period of one month which entails they start repaying from April onwards and they are required to have repaid a minimum of 40% before harvest.

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SDM P&L including sourcing: service costs and revenues

Overall SDM P&L by service (('000s USD)

Positive annual net income in year 2

Breakeven in year 4

Costs ('000s USD) USD

2019 2020 2021 2022 2023 2024

- Donor funding
- Input
- Finance
- Technology
- Mechanization
- Sales revenues
- Overhead
- Training
- Input
- Market Access
- Post-harvest
- Finance
- Technology
- Mechanization
- Net income
- Cumulative net income

Number of farmers in the SDM and net costs per farmer (USD/farmer)

farmers

USD

2019 2020 2021 2022 2023 2024

Net income/ MT sourced: -544 -5 4 17 23 24

- Number of farmers
- Overhead cost per farmer
- Training cost per farmer
- Input cost per farmer
- Finance cost per farmer
- Mechanization cost per farmer
- Sourcing-related cost per farmer

Discussion

- Providing market access to farmers is a key service offered by EGL. Therefore, sales revenues and sourcing expenses need to be considered when looking at the SDM business case. The first graph clearly shows that increasing sourced volumes of maize and soy result in higher revenues and net income to EGL.

- 2019 is a particular year for EGL as the start of their operations involves high acquisition and operational expenses, while EGL can only source from very few farmers. Therefore, EGL starts off with a negative net income.

- However, the annual net income is expected to be positive from year 2020 onwards and grows substantially yearly to cover the negative result from year 2019, enough for EGL to reach breakeven in 2022.

- Total SDM net income increases from negative in 2019 to positive net income in 2024 due to two factors:
  - Increase in scale of SDM
  - Increase in produce sourced from each farmer – contributed by higher loyalty rates of S2 and S4 farmers and increased yield per acre of S4 farmers

- The scale increase allows EGL to increase sourcing while gaining efficiencies (growing from a negative net income per MT sourced to earning a positive net income per MT of maize and soy sourced).

- Aside from receiving donor funding from EAFF throughout the first three years of operating, EGL receives revenues for the delivery of the following services: Input (commission on agrochemicals and fertilizers), Finance (% of interest paid by farmers on their loan), Technology (subscription fee paid by regular S4 farmers) and Mechanization (mobile dryer fee charged to farmers).

- Overhead, training, mechanization and input provision services costs per farmer decrease due to economies of scale, whereas sourcing related costs (Post-harvest, Market linkage and Financing) increase more rapidly as these are linked to the increased volumes sourced.
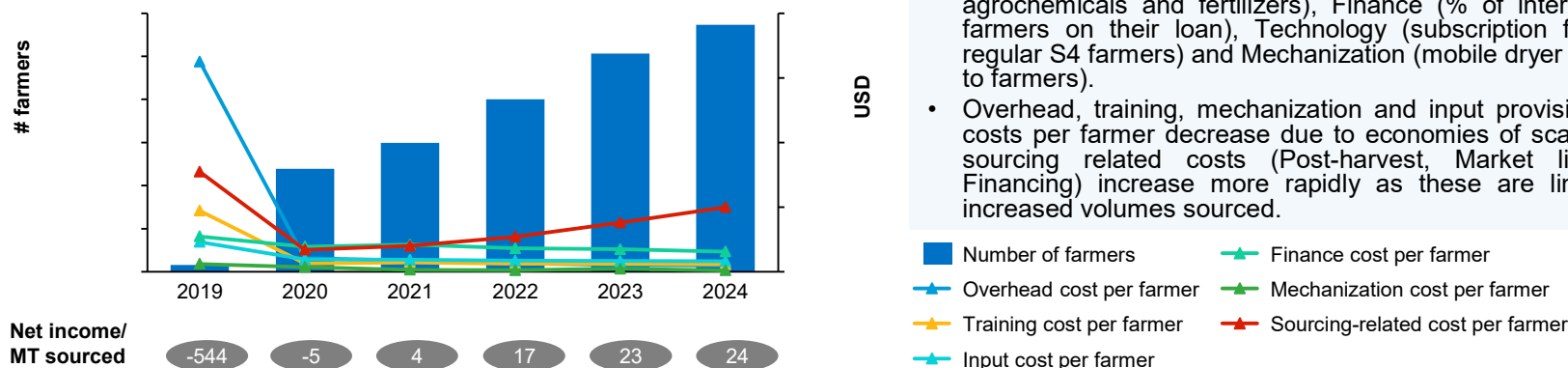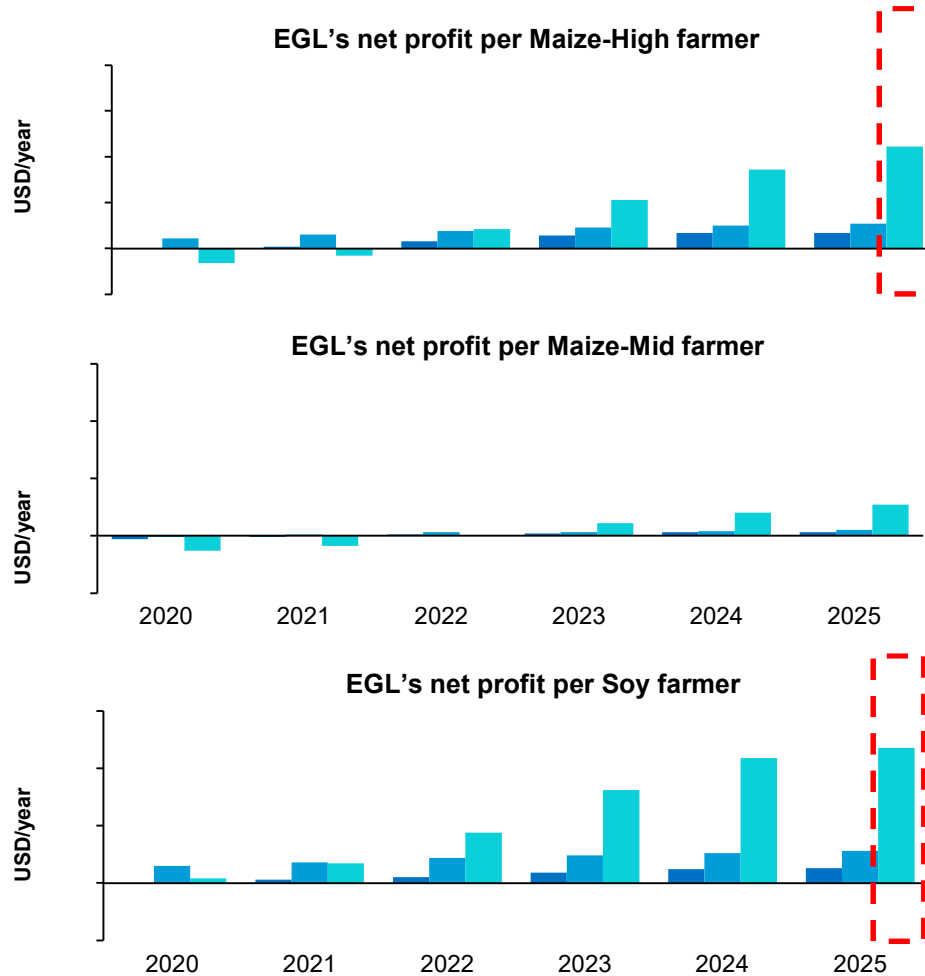
EGL should prioritize serving their most profitable customers: S4 Soy and Maize-High farmers

EGL's net profit per Maize-High farmer

EGL's net profit per Maize-Mid farmer

EGL's net profit per Soy farmer

Discussion

- On per farmer basis, S4 Soy farmers are most profitable for EGL in 2025 because of following reasons:
    a) S4 Soy farmers have higher loyalty from the first year their involvement in SDM
    b) Nearly half of soy farmers grow two seasons of soy crop output per year resulting in selling more crop output and purchasing more crop inputs
- S4 Maize-High farmer is the next best profitable segment for EGL in 2025. The increase in profitability of this segment is driven from:
    a) Increase in farmer loyalty (20% in 2020 to 60% in 2025)
    b) Productivity increase from 30bags/acre to 50 bags/acre in 2025
- Maize-Mid farmers are much less profitable to EGL due to a) lower productivity per acre b) small land size of 1.4 acres compared to 3.5 acres for maize-high farmer .
- In 5th year into the SDM, the commission from sourcing contributes nearly 74% of total revenue from S4 Soy and Maize-High farmers.
- EGL can increase its profitability per farmer by focusing their efforts and resources into increasing the productivity and loyalty of S4 Soy and Maize-High farmers.

Conclusions: key drivers for success and key risks

⚠ Key drivers of success

- **Scale up maize-high and soy farmers.** Maize from high regions accounts for most of EGL's business profits followed by soy farmers. Most of the projected growth between 2020 and 2025 comes through increase in farmers loyalty, increasing in number of farmers and yield per acre from S4 maize-high farmers. However, these farmers will not be able to achieve the projected farm yields without accessing input and production loans. Hence initiatives at the farmer, farmer group and EGL level that facilitate access to finance are critical to the SDM. Spot payment for produce is a critical lever for increasing loyalty

- **Farmer mobilizers optimize costs while extending EGL's execution capability.** Farmer mobilizers reduces the need for EGL to hire manpower on their payrolls. Aligning the incentives of farmer mobilizers with EGL and them being embedded proximate to farmer communities extends EGL's execution capacity

- **Backing from EAFF.** East African Farmer Federation, parent company of EGL can provide access to large number of small holder farmers in the region, bring various value chain partners to the table that can quickly ramp up scale once EGL demonstrates a viable business model .
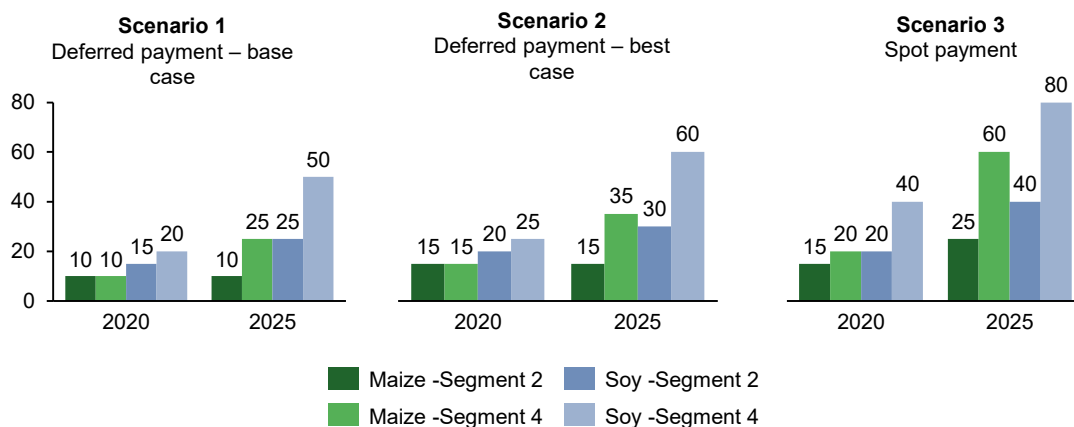
🔑 Key risks

- **Limiting of loan defaults as portfolio grows.** EGL or financial institutions do not have reliable financial data of most farmers. As EGL add more farmers and portfolio size grows, increasingly risky farmer groups may get to access loans thereby rising loan default risk. EGL and financial institutions needs to do proper due diligence before extending loans

- **Narrow off-taker/buyers base.** EGL sells a large proportion of their aggregated output to ETG and remaining to other traders. While EGL has entered into long-term offtake agreement with EGL, it can be prudent strategy to bring other large off-takers on board

- **Coordination of logistics at scale.** Increase in number of farmers and yield per acre require procurement, storage, transport of fertilizers, agrochemicals and crop output in large volumes. EGL needs to have appropriate manpower, technology and infrastructure to handle logistics at scale

Business case for making spot payment instead of deferred payment for aggregation of crop produce

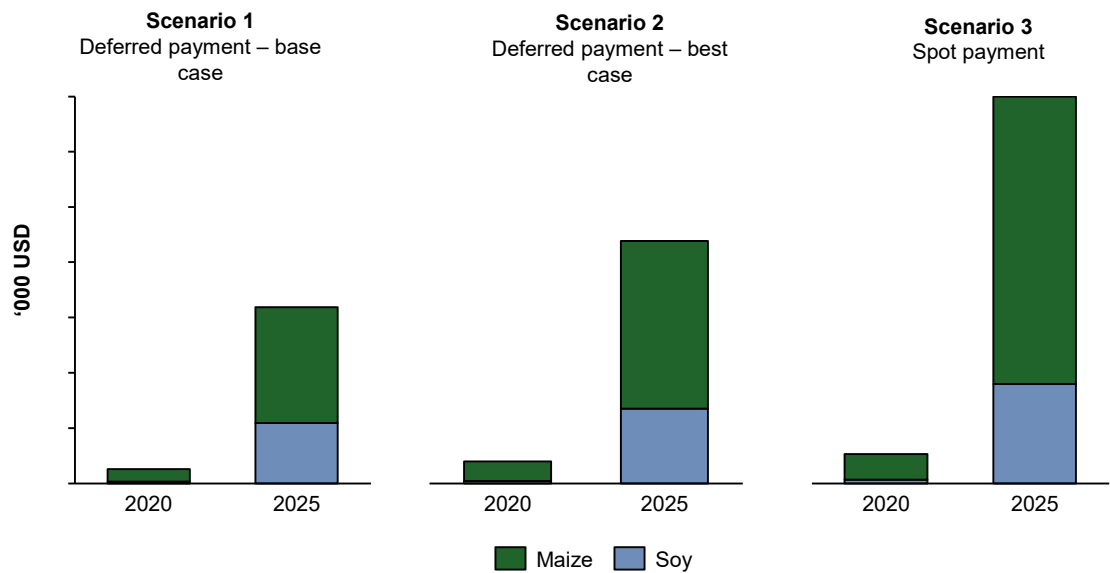## Farmer loyalty (% of sellable output of farmer sold to EGL)

Scenario 1
Deferred payment – base case

Scenario 2
Deferred payment – best case

Scenario 3
Spot payment

Spot payment leads to higher farmer loyalty

Legend:
- Maize -Segment 2
- Maize -Segment 4
- Soy -Segment 2
- Soy -Segment 4

EGL commission earned from sale of maize and soybean (in 000's USD)

Scenario 1
Deferred payment – base case

Scenario 2
Deferred payment – best case

Scenario 3
Spot payment

Legend:
- Maize
- Soy

Discussion

- Loyalty of farmers i.e. farmers' willingness to sell desired quantity of produce to EGL determines total commission earned by EGL.

- One way to significantly increase the loyalty of farmers is for EGL to make spot payment to farmers upon procuring the crop produce, particularly for maize.

- We considered multiple scenarios for this, Scenario 1 and Scenario 2 are for base and best case under deferred payment while Scenario 3 is for spot payment.

- Scenario 3 earns cumulative commission from 2020-2025 which is 42% higher than in Scenario 2 and 86% higher compared to Scenario 1

- Commissions from aggregating the output is the largest revenue component for EGL. Hence, making spot payment to farmers significantly increases revenue and profitability of EGL.

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Working capital for spot payments can be attainable

Aggregation of produce per crop

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Maize-High											■	■
Maize-Mid	■	■										
Soy						■	■					

Aggregation days per year

Maize-High	40
Maize-Mid	40
Soy	50

Cash cycle – days between paying the farmer and getting paid by the buyer

Maize-High	5
Maize-Mid	5
Soy	6

Average working capital required (000's USD)
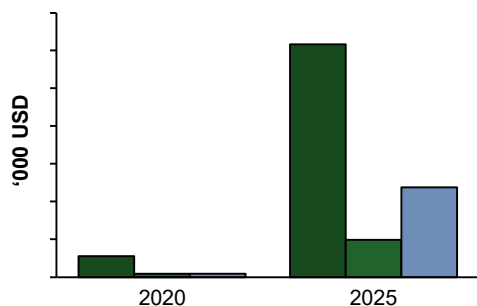
Interest cost on working capital (000's USD)
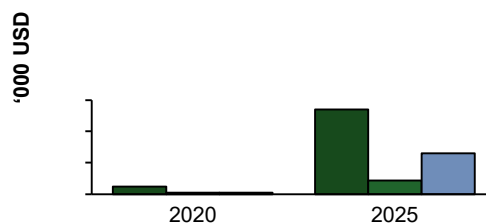
■ Maize-high ■ Maize-mid ■ Soy

Discussion

- Working capital required to make spot payments are determined by a) average quantity of output aggregated per day b) days between paying the farmer and getting paid by the buyer.

- Our analysis suggest the working capital required for making of spot payment can easily be financed for following reasons:
  - The average working capital requirement comes to 11.5% and 10% of trade value (value of output sold to buyers) for maize and soy, respectively.
  - Given that working capital required is a small fraction of trade value, banks could likely grant short-term working capital loan to EGL.

- The estimated interest cost at 2.5% of EGL's sourcing commission for maize and just 3.0% of sourcing commission for soy is very small compared to additional commissions earned making it attractive for EGL to choose this option.
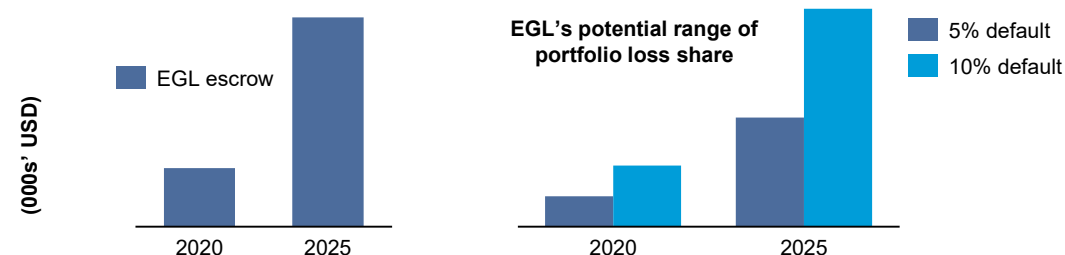
Opportunities

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Business case for changing terms of escrow requirement and loss sharing for farmer loans

Scenario 1: 10% escrow and 50% loss share by EGL

(000s' USD)

EGL escrow

2020   2025

EGL's potential range of portfolio loss share

■ 5% default
■ 10% default

2020   2025

Scenario 2: 10% escrow and 100% loss share by EGL

(000s' USD)

EGL escrow

2020   2025

EGL's potential range of portfolio loss share

■ 5% default
■ 10% default

2020   2025

Discussion

1. Prior to 2020 season, EGL had to provide 20% escrow on loan portfolio and on portfolio default by farmers. The financier had first and full recourse to the 20% escrow amount – this potentially increased risk to EGL on two ways: 1) Increasing requirement of escrow capital from EGL, and 2) higher hit to EGL profitability from portfolio defaults.

- In 2020, EGL **changed escrow and loss sharing terms** to 10% escrow amount and 50% loss sharing on portfolio default. This arrangement is beneficial to EGL in multiple ways compared to earlier terms:
    1) reduces escrow capital requirement,
    2) limits portfolio default loss of EGL to 10% of loan portfolio, and
    3) 50% loss share provides cushion to EGL in limiting the absolute loss for a given default rate (i.e. at 10% portfolio default rate, EGL loss share is only 5% of portfolio compared to 10% earlier).

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Opportunities to leveraging digital platforms

Discussion

- Leveraging digital platforms could generate value to both EGL and farmers / farmer groups.
- Value accrues in the form of efficiency gains, reduced transaction costs and improved direct access to services for farmers and co-operatives.
- Investments in a digital platform should be made considering the total cost of ownership over a period, which includes setup costs, transaction costs, annual fees / license costs and any administrative and management overheads.

Functional Area	Possible use-cases	Value to EGL	Value to farmers / groups
Customer relationship management (CRM)	• An integrated CRM platform for streamlined interaction between EGL, FMs and farmers • FMs can capture and feed farmer data at various stages of engagement with farmers to keep EGL informed • Empower FMs by providing relevant and timely actionable information about farmers and activities	High	High
Payments	Digital / mobile payments for: • Loan disbursement and repayments • Payments to farmers for produce • Payments by farmers for services and inputs	High	High
Planning, forecasting and logistics	• Forecasting seed and input requirements for at farmer / group level • Coordinating delivery of inputs to farmer / group • Managing and tracking collections at aggregation centers • Coordinating collection and transportation from ACs and warehouses	High	Medium
Coordination of services	• Marketplace for connecting service providers and farmers • Aggregating demand for services such as mechanization	Medium	High

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