

The Role of Smart Incentives in Enhancing Agribusiness Growth in Northern Ghana

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Executive Summary

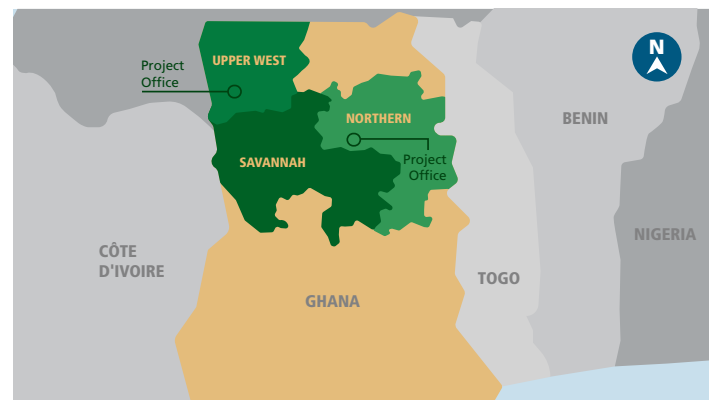
The Greater Rural Opportunities for Women 2 (**GROW2**) project is a five-year initiative (2021-2026) implemented by MEDA¹ and funded by Global Affairs Canada (GAC). It aims to support 40,000 smallholder women farmers, 5,000 entrepreneurs, and 50 agribusinesses (at least 50% women-led) in the soybean, groundnut, and vegetable value chains of Northern Ghana.

MEDA's innovative use of **smart incentives** - financial and non-financial mechanisms aimed at encouraging favorable market-level outcomes - plays a central role in GROW2. This briefing note analyses the potential effects of smart incentives on job creation, market linkages, and income growth. The analysis also aims to understand, at a high level, the benefits for women as smallholder farmers, small business owners, and, to a lesser extent, employees. A final objective is to inform the deployment of future incentives to ensure that they achieve the project's intended goals of creating jobs, increasing incomes, and enhancing women's economic empowerment.

The analysis is based on interviews conducted in September 2024 with 10 agribusinesses operating in the Northern and Upper West Regions of Ghana. Of the 10 businesses, six are women-led. They include processors, input suppliers, and out-grower/seed producers, ranging from early-stage (2-3 years) to mature (5 years or more). The monthly revenues of these businesses vary widely, but the majority earn less than US\$2,000 per month.

¹ MEDA implements some aspects of the GROW2 program through local implementing partners including Prone North, Urbanet, Tumu Deanery Rural Integrated Development (TUDRIDEP), and The Association of-Church-based Development NGOs (ACDEP)

The products sold by the processors include soy milk and soy flour, groundnut paste, Kulikuli, a local groundnut-based snack and groundnut oil. Input suppliers and out-growers sell seeds and inoculants and rent out machinery.



- Nine (9) received a matching grant from the GROW2 project, mainly to purchase machinery.
- Two (2) received matching grants and "innovation funds" - price discounts on inputs to encourage them to sell more of their products to smallholder farmers.
- One (1) received only an innovation grant.

In the first year after receiving the incentive

Sales doubled or tripled

Revenues increased

Additional staff were recruited

Total matching grants received by the businesses amounted to 878,475 Ghanaian Cedi (GHS) (approximately US\$60,000), while the total innovation funds received by three businesses amounted to 1,321,104.75 GHS (about US\$90,000).

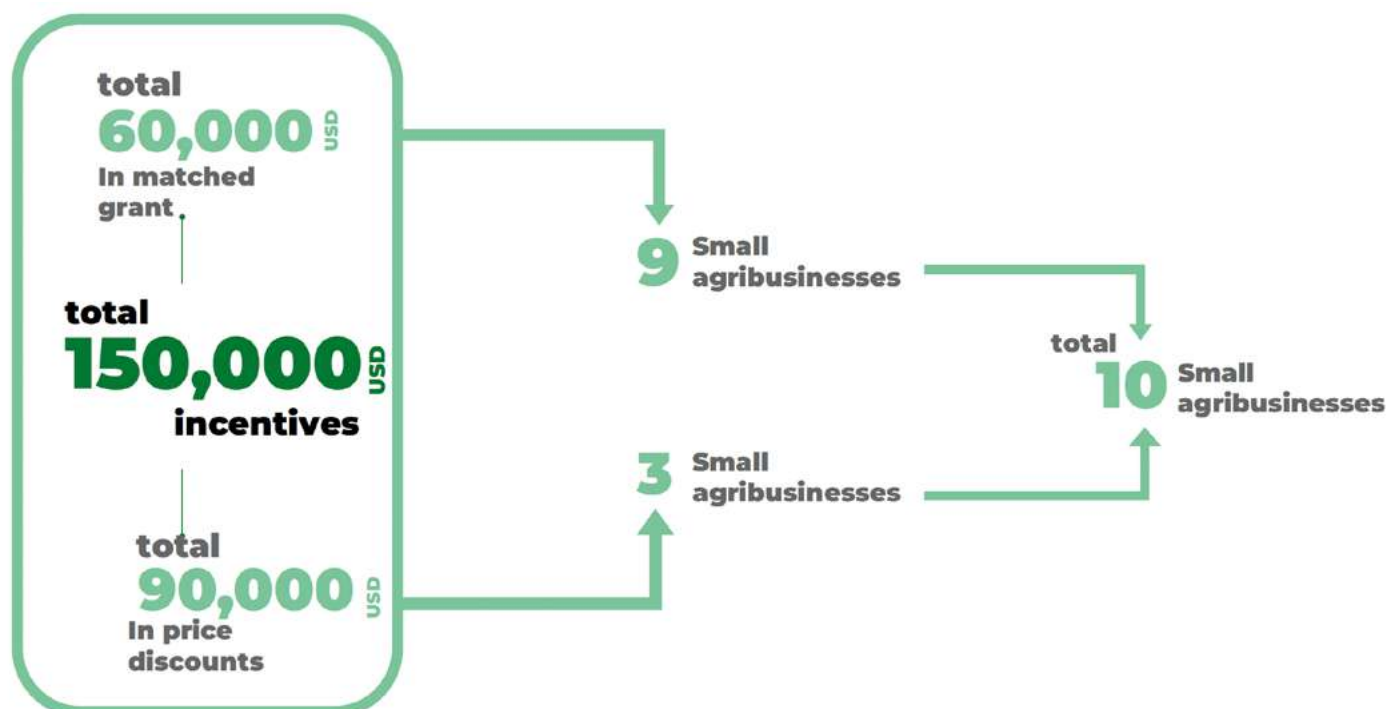
These businesses represent 27% of matching grants and 13% of the innovation funds disbursed by the project thus far. The project plans to disburse an additional 2,443,612.5 GHS (US\$150-160,000) in matching grants to another 19 businesses by 2026.

Overall, all 10 businesses reported positive effects on their business performance within one year of receiving smart incentives. Businesses that received matching grants used the funds to purchase machinery or equipment that helped increase their production volumes. Revenues increased with sales doubling or tripling in the first year after receiving the incentive, resulting in the recruitment of 91 staff (full-time and part-time) to manage the growing capacity.

The three businesses that received innovation funds were able to offer their drought-resistant seeds, inoculants, and other inputs at discounted prices to a much bigger customer base. As a result, their revenues also increased and they hired more sales agents to handle the new customers.

The businesses also demonstrated an intentionality in their recruitment a focus on hiring women. They were deliberate in sourcing from women smallholder farmers and producer groups, contributing to the project's objective of advancing women's economic empowerment.

While causality cannot be inferred from this small sample, the positive reports by the businesses suggest that, within a short period of time, targeted grants can contribute to increases in productivity, which can in turn influence job creation, particularly for women, and lead to new market opportunities such as increased sales and new market linkages.



MEDA's Experience with Incentives in Market Systems Development

MEDA provides financial incentives such as matching awards, grants, innovation awards, and price discounts to support small and medium-sized enterprises (SMEs) and market actors. MEDA has distributed these incentives in over 30 countries, including Ethiopia, Kenya, Rwanda, Nigeria, Ukraine, and Pakistan. To date, MEDA has granted 612 financial incentives across 21 projects, investing over \$72 million (30% from MEDA funding and 70% from matching funds).

By investing in these incentives, MEDA has seen improved results in various sectors including improvements in environmental sustainability, business operations,, technology or equipment adoption, and market linkages among other benefits.

Financial incentives have also played a significant role in job creation, resulting in over 60,000 new decent work opportunities, over half of which have been for women.

In Ghana, MEDA's innovative use of smart incentives has played a central role in the five-year (2021-2026) Greater Rural Opportunities for Women 2 (GROW2) project, implemented by MEDA and funded by Global Affairs Canada (GAC). The project aims to support 40,000 smallholder women farmers, 5,000 entrepreneurs, and 50 agribusinesses (at least 50% women-led) in the soybean, groundnut, and vegetable value chains of northern Ghana. Through GROW2, the following types of financial incentives have been provided:

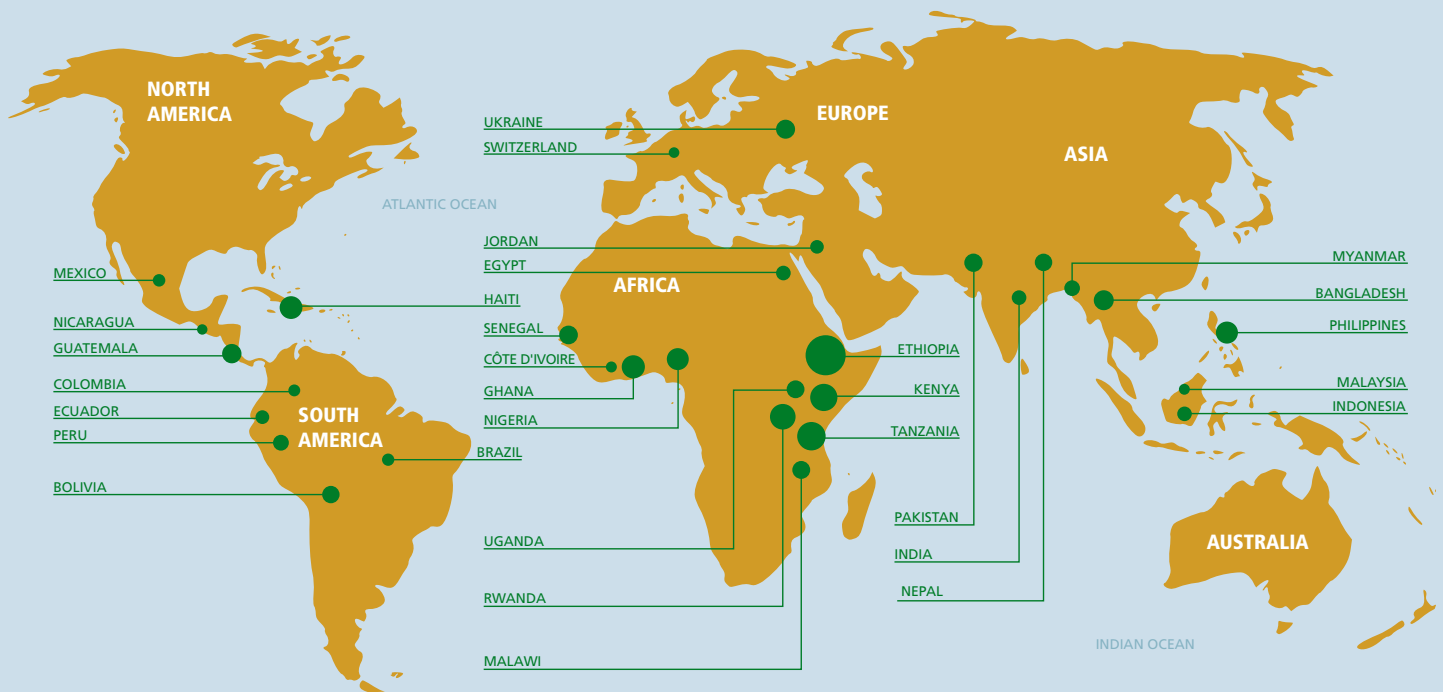
- A **matching award**, requiring a contribution of at least 50% from the target business. Matching awards are used to address the dual goals of business growth and a development outcome that benefits the project's ultimate client. For example, a matching award may be offered to

a small agroprocessor to purchase equipment that will increase production (business goal) but that is climate-smart and accessible to women (development goals).

- Price discounts, or the **"Innovation Fund"** under the GROW2 project, subsidize the cost of a sustainable practice, product, or technology such as inoculants, drought-resistant seeds, manual planters, or solar-powered irrigation systems. Price discounts are targeted at a project's ultimate clients, typically women and youth producers.

These incentives are usually paired with targeted technical assistance such as business training, market linkages support (e.g., trade fairs), or gender inclusion programming in line with the project objectives.





What are Smart Incentives?

Smart incentives are financial and non-financial mechanisms that address a market barrier and stimulate a desired market behavior in commercially oriented market actors such as entrepreneurs, producers, SMEs, lead firms, cooperatives, and others in a targeted agri-food system.

MEDA uses smart incentives carefully and strategically to reduce the real or perceived risk of a market actor trying a new approach, business model, product, or service. Incentives must always benefit agri-food small-scale producers and workers, particularly groups that are considered marginalized in the market system, such as women and youth.

Incentives should ideally:

- Stimulate market interaction in a way that directly links market actors
- Be transparent to minimize market distortion
- Be time-bound with a clear and transparent exit strategy
- Be strategic and used selectively, based on data and a deep understanding of market actor interests
- Be contextual, based on data-driven market research and an understanding of the market barriers for those who are marginalized in the market
- Target those needing the incentive to sustainably change their behavior
- Generate a demonstration effect to build the evidence that the product/service/practice can work in the market

Incentives are not:

- Long term – an exit or phasing out is always built in
- Providing a product/service for free – demand for the product or service must be market-driven
- Motivated only by a client's inability to pay, as this is unsustainable in the long term
- Provided for products/services that the target market can access on their own or that suppliers or government would have provided regardless
- Redeemed without market interaction or participation

The Role of Incentives in Market Systems Development

Financial incentives have been used extensively in market systems development to encourage productive, inclusive, and sustainable market behavior by private system actors. Targeted and well-designed incentives play a crucial role in market systems development in the following ways:



2.1 ENCOURAGING PRIVATE SECTOR INVESTMENT

Financial incentives can motivate private companies to invest in new technologies, products, and markets that they might otherwise consider too risky or unprofitable. This can lead to innovations that benefit the entire market system. For instance, MEDA's **Technolinks+ project** in Nicaragua provided CA\$2.3 million (about US\$1.6 million) in matching grants to a total of 29 SMEs and cooperatives in the agri-food and export sectors to encourage the supply of agricultural technology, such as soil analysis toolkits, solar-powered irrigation pumps, and biodigesters, to small-scale producers. Overall, 35,000 smallholder women and men farmers benefitted from the provision of discounted agricultural technology.



2.2 ADDRESSING MARKET FAILURES

Incentives can help overcome barriers that prevent markets from functioning efficiently. For example, they can encourage the adoption of sustainable practices or the development of infrastructure that supports market growth. In Ghana, the **Farmers' Economic Advancement through Seedlings (FEATS) project** provided 50% price discounts



2.3 PROMOTING SUSTAINABLE SOLUTIONS

By aligning incentives with long-term development goals, programs can ensure that the changes they promote are sustainable. This means that the benefits continue even after the incentives are no longer provided. A good example is the **Maendaleo Sawa project** in Kenya where five lead firms¹ benefitted from environmental sustainability grants (ESGs) to improve the environmental sustainability of their operations and of their supply chains. The grants supported the SMEs in implementing environmentally sustainable practices, such as improving grading sheds for better quality produce and building processing plants and drying facilities for vegetables. The adoption of green technologies also led to reduced post-harvest losses and improved the overall quality of produce.

¹ MEDA defines a Lead Firm (LF) as an agri-SME that has forward and/or backward business relationships with a significant number of targeted micro, small, and medium-sized enterprises (MSMEs), including small-scale producers, in the project's focus counties and sectors. Lead Firms can vary significantly in size and can be processors, exporters, traders, input suppliers, service providers, financial institutions, etc. A critical characteristic of Lead Firms is that they have a commercial incentive to support the MSMEs with whom they have relationships.



2.4 LEVERAGING LOCAL KNOWLEDGE AND RESOURCES

Financial incentives can be designed to work through existing market actors, leveraging their knowledge, networks, and resources. This helps to build local capacity and ensures that solutions are contextually appropriate. In Myanmar, the **Improving Market Opportunities for Women (IMOW) project** allocated CA\$2.1 million (about US\$1.4 million) in matching grants to a total of 44 private sector partners, including lead firms, SMEs, and rice processors. These grants were used for technology upgrades, growth, and innovative pilots. The local knowledge of these private sector partners helped identify suitable technologies and suppliers, and their existing relationships with the community facilitated the adoption of these technologies by women working as small producers.

In designing financial incentives, there are some obvious pitfalls to avoid. Incentives should address market failures without distorting the market. Additionally, it is essential to work with existing system actors and avoid inadvertently creating parallel structures. Furthermore, while public sector actors are important, collaboration with private partners helps unlock new investment and innovation, which is crucial for achieving long-term goals. Finally, the focus should be on systemic change rather than short-term gains, ensuring that incentives are flexible and can adapt to changing conditions.



Indicative Effects of Targeted Financial Incentives in the GROW2 Project

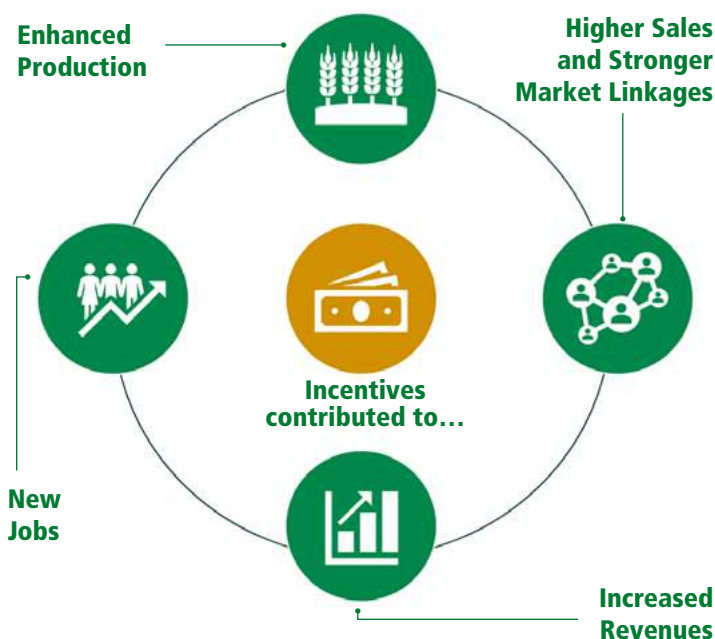
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3.1 BUSINESS PERFORMANCE

The award of targeted financial incentives through the GROW2 project in Ghana contributed to improvements in production volumes and sales activity. The 10 business owners interviewed who had received a matching award reported a doubling or tripling of production thanks to the equipment provided with the grants. For instance, Suglo Suhundoo Enterprise, a processing company, increased its groundnut production capacity from 20 kg to 800 kg per month. Similarly, Dunyiya Enterprise, another processor, enhanced its daily processing capacity from 15 metric tons (MT) of groundnuts processed (shelled) daily to 35 MT per day. In addition, seed and outgrower company SMG expanded its soybean production area from 50 hectares (100–120 MT) to 70 hectares (200–230 MT), while its groundnut production increased from 25 MT to 100 MT over two planting seasons.

Sales mirrored production growth, with all businesses reporting a doubling or tripling of sales in the first year following equipment procurement. This was especially the case for those receiving innovation funds – price discount rebates to encourage sales of environmentally sustainable production inputs. RIDA Foodtech, a woman-led agriprocessor, reported a sales increase from 5,000 GHS per year to 11,400 GHS between January and October 2024. Dunyiya Enterprise, a processor, projected a rise in sales earnings from 500 GHS per day to 3,000 GHS per day after the harvest season. Seed supplier SMG’s sales turnover grew from 600,000 GHS in 2021–2022 to 1.5 million GHS in 2023–2024, while Pogona Foods, a microprocessor, increased daily revenue from less than 100 GHS to 300–500 GHS, thanks to improved machine efficiency.

WITHIN ONE YEAR



3.2 MARKET LINKAGES

The implementation of smart incentives under the GROW2 project contributed to strengthened market linkages among key actors in Northern Ghana's agricultural value chains. The incentives helped establish new relationships between agribusinesses and smallholder farmers, improved forward market access, and supported infrastructure development. Businesses like SMG used innovation funds to expand their reach to over 3,000 smallholder farmers (SHFs), supplying them with certified seeds. This backward integration strengthened input supply chains and improved farmer productivity. Pognaa Foods diversified its products and initiated discussions with three wholesalers targeting the middle-income market segment.

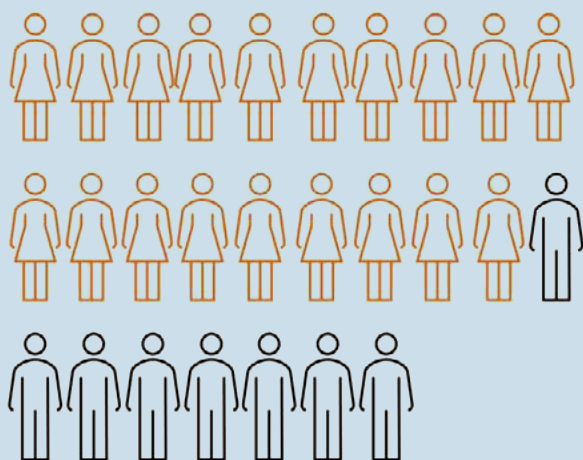
Innovation funds enabled businesses to penetrate remote areas, facilitating access to markets and supplies that were previously inaccessible. This improved geographic reach and demonstrated the ability of smart incentives to address systemic market gaps and create value chain efficiencies. Several businesses established new stores and warehouses, supporting both backward and forward linkages. Dinmbone Farms, with its matching award, expanded operations by establishing a new store and warehouse while securing a partnership with Yara Ghana, a major input supplier.

Overall, these strengthened market linkages have increased interactions between actors, contributed to value chain efficiencies, and fostered the inclusion of women, particularly women smallholder farmers.

3.3 JOB CREATION FOR WOMEN

The program's smart incentives contributed to job creation in the targeted businesses, particularly benefiting women. Seven out of 10 businesses reported hiring new staff within the year, while two more businesses expressed plans to increase recruitment in the coming months. In total, the businesses interviewed added 91 new workers, of which 27 were full-time hires (76% women) and 64 were contractors (62% women). This increase in hiring was made possible by increased production and revenue following the procurement of new equipment or new input sales, allowing these businesses to expand their teams.

In addition to the incentives, these businesses also benefitted from gender and social inclusion programming, which contributed to the prioritization of women in hiring but also in out-grower schemes. The positive employment outcomes demonstrate how smart incentives paired with targeted training can contribute to gender inclusive growth and the empowerment of marginalized groups.



FULL-TIME STAFF POSITIONS CREATED BY ENTERPRISES RECEIVING INCENTIVES

**27 FULL-TIME STAFF HIRED
70% WOMEN**

Breaking Boundaries

The Transformative Journey of Dinmbone Farm Gates Limited with MEDA's Smart Incentive Support

Dinmbone Farm Gates Company Ltd.(DFG) is a woman-owned agribusiness that was established in 2019 and operates across three of six districts in Northern Ghana. DFG's core business is the production of foundation and certified seeds and the sale of plant nutrition and protection products. Prior to its partnership with the GROW2 project, DFG encountered growth constraints during its five years of operation, including insufficient capital to purchase high-ticket agricultural machines such as tractors and threshers to scale its operations. DFG also struggled to access affordable and reliable tractor services.

Women-owned agribusinesses like DFG are often left marginalized because of gender discrimination and cultural biases that contribute to the prioritization of men over women in the allocation of tractor services. Socio-cultural norms and cost concerns also discourage women smallholder farmers (WSHFs) in the region from using certified seeds and legume-specific inputs. Many women farmers are unaware of the productivity benefits and prefer seed recycling, resulting in a missed market opportunity for both DFG and women farmers.

However, through MEDA's matching grant co-investment support, DFG procured a 90 horsepower (HP) tractor. Revenue from ploughing services also enabled DFG to acquire a larger multi-crop thresher, improving soybean processing efficiency and reducing losses. Independent of MEDA, DFG established a new store, warehouse, and shed to house its tractor and farm produce. DFG was then able to hire three full-time staff (two women) and invested



Professor Sanatu Mustapha Alidu, CEO of DFG, stands next to a 90HP tractor

in a GPS tracking device to optimize machine management. In addition, MEDA partnered with DFG through a 1:1 cost-share under the "Innovation Fund" to increase adoption of certified seeds among WSHFs, encouraging early adopters. Early adopters used the certified seeds, along with legume-specific nutrition products, resulting in higher yields. This success crowded-in more WSHFs, driving broader market penetration.

The incentives have delivered measurable results for DFG with a **70% increase in sales** and an expansion of land needed for seed production with an additional 665 acres procured. DFG experienced a **20-27% increase in revenue as compared to 2023**, and an increase in its customer base. **DFG now serves over 7,000 women farmers**, due to the price discounts offered under the Innovation Fund.



LESSONS LEARNED

One of the main challenges regarding incentives is identifying the right recipients. MEDA's experience has shown that a targeting approach was effective in identifying eligible businesses willing to make a matching contribution. The analysis indicated that incentives allowed businesses to acquire tools and technology needed for increased production and revenue growth. Additionally, the incentives promoted women's participation with many businesses actively seeking women as staff and suppliers.

The financial incentives were often accompanied by targeted technical assistance. Businesses received training in areas including business and financial planning, product development, and marketing. This training was noted as crucial in building their capacity and achieving their growth targets. The project also offered opportunities

for businesses to attend events like trade fairs and investment forums, which improved their understanding of investor requirements and helped professionalize their operations.

Finally, the process of determining business eligibility and verifying their contributions was manual and lengthy, requiring documentation such as contracts that were considered complex. Delays and frequent checks during the verification process caused additional costs for businesses due to price volatility of the equipment to be procured. There is a need to streamline the validation process and simplify the technical language in contracts.

Suglo Suhudoo Enterprise (SSE)

A Journey of Growth

Suglo Suhudoo Enterprise (SSE), a woman-led agribusiness, established in 2015, produces groundnut paste, oil, and Kulikuli, a local snack food. Before partnering with MEDA's GROW2 project, SSE struggled with quality control due to reliance on outdated third-party millers and inefficient fuelwood use. With a matching grant from GROW2, SSE acquired a complete milling setup, enhancing efficiency and product quality while addressing environmental concerns.

SSE's CEO, Murijana Abubakari, says that the machinery has drastically reduced the physical burden on workers, who previously relied on traditional and manual production methods. The transition to improved technology has led to a significant increase in output, soaring from 500 kg per month to 1.5 metric tons per month. This has resulted in the expansion of SSE's full-time staff from three to nine. Efficiencies have resulted in lower costs – the processing of 120 kg of groundnuts, which previously took 10 hours now takes just 3.5. Moreover, the product quality improved with fewer defects and impurities. As a result of these improvements, revenues reportedly grew from GHC 200,000 (around US\$13,000) per annum to GHC 700,000 (around US\$45,000).

According to Abubakari, **"One of our most significant achievements has been overcoming product contamination and drudgery, which were major challenges for our business. The introduction of new equipment has allowed us to ensure the quality of our products while contributing positively to the health of our staff."**



A groundnut milling machine at Suglo Suhudoo Enterprise

As a woman-led agribusiness, balancing family responsibilities with business operations had been a significant challenge, often leading to stress and reduced productivity. However, the business development services (BDS) accompanying the incentive have been instrumental in building the capacity of SSE staff, increasing productivity, and freeing up time for a better work-life balance.

SSE's experience has not come without some challenges, including delays from the local equipment suppliers providing the machinery and a prolonged wait for an electricity meter, highlighting the challenges of navigating local bureaucratic systems. As the smart incentive program expands, these lessons will be taken into account to improve the design and accessibility of the program.

Scaling Incentives in Agri-food Market Systems

The implementation of smart incentives within the GROW2 project has contributed to significant positive effects for targeted agribusinesses in Northern Ghana. Incentives have helped businesses increase production capacity, boost sales, strengthen market linkages, and create job opportunities – particularly for women. The stories of businesses like Dinmbone Farms and Suglo Suhudoo Enterprise highlight the transformative potential of targeted financial support paired with technical assistance. As we continue to refine and scale these interventions, it is crucial to maintain a focus on sustainability, gender equity, and systemic change to ensure long-term benefits for all market actors involved. Smart incentives can be powerful tools for driving systemic change in agri-food market systems. To scale incentives effectively, stakeholders designing incentives in their own markets should continue to adopt evidence-based strategies. Based on MEDA's experience, some of the following practical steps can help improve the efficacy of incentives:

4.1 ENHANCING CAPACITY STRENGTHENING FOR MARKET ACTORS

Many agribusinesses, especially women-led and youth-focused enterprises, struggle to fully utilize smart incentives due to limited technical and business skills. Without adequate training, these enterprises may fail to maximize the benefits of available support mechanisms. To address this:

- Pair incentives with tailored technical and **business training** to enhance market actors' ability to leverage them effectively.
- Facilitate **peer-learning opportunities** through knowledge-sharing forums, mentorship programs, and sector-specific events.
- Develop **standardized frameworks** for replicating successful models, such as matching grants and innovation awards, across different value chains.

4.2 PROMOTING MARKET INTEGRATION

A major barrier to sustained agricultural growth is the disconnect between producers, processors, and buyers. Weak supply chain models and limited market linkages often prevent smallholder farmers from accessing competitive markets and scaling their businesses. To strengthen market integration for effective smart incentive utilization:

- **Collaborate with local stakeholders** to identify high-potential businesses and ensure incentives align with actual market needs.
- **Strengthen supply chains** by improving linkages between producers, processors, and buyers.
- **Design gender- and youth-inclusive strategies** that address structural barriers and promote active participation in markets.
- **Leverage demonstration effects** by showcasing successful case studies to encourage wider adoption among market actors.

4.3 LEVERAGING TECHNOLOGY FOR TRANSPARENCY AND EFFICIENCY

The lack of efficient data collection and monitoring systems hinders the ability of smart incentive programs to track progress and measure impact. Digital tools can enhance the efficiency and accountability of these initiatives. To improve transparency and efficiency:

- Implement **digital tools** for data collection, monitoring, and evaluation to ensure evidence-based decision-making.
- Use technology to **enhance market transparency**, enabling producers and buyers to make informed business decisions.

4.4 IMPROVING GENDER EQUITY & SOCIAL INCLUSION

Despite their critical role in agriculture, women and marginalized groups continue to face barriers in accessing financing, mechanization, and market opportunities. Without intentional efforts to

integrate them, smart incentives risk reinforcing existing inequalities. To enhance social inclusion:

- Design **incentive schemes that prioritize gender equity**, setting benchmarks for women's participation in key agricultural roles.
- Create targeted **opportunities for women and marginalized groups** to access credit, mechanization, and markets.

Furthermore, for smart incentives to be fully embraced and sustained, there is a need to engage entire households in the decision-making process. Many agricultural activities are influenced by family structures, particularly in smallholder farming communities where men often control major financial decisions, even in women-led farming households. For example, in previous smart incentive models, when husbands and children were also engaged in training sessions, adoption rates significantly improved, as the family saw the long-term value in investing in labor-saving devices such as roller planters and mechanized threshers.

4.5 BUILDING SERVICE CENTERS CLOSE TO RURAL AREAS FOR SPARE PARTS AND AFTER-SALES SERVICES

One of the biggest barriers to technology sustainability in rural areas is the lack of spare parts and repair services. Many farmers abandon machinery and equipment once it breaks down, as access to replacement parts and technicians is limited. To address this, smart incentive programs should:

- Partner with private sector actors and development organizations to **establish rural service centers** that provide spare parts for agricultural tools and machinery, repair and maintenance services at subsidized costs, and training for local artisans and youth to develop technical skills.

By placing service hubs closer to farming communities, farmers will have immediate access to maintenance, reducing downtime and ensuring long-term usage of smart technologies.

4.6 STRENGTHENING SUPPLIER NETWORKS TO ENSURE CONSISTENT AVAILABILITY OF INPUTS

A well-functioning supply chain is critical for

scaling smart incentives. Currently, many farmers face delays in accessing key inputs, such as improved seeds, fertilizer, and mechanized tools, due to weak supplier networks in rural areas. To bridge this gap, smart incentive programs should:

- Leverage agro-dealer networks to distribute technologies and inputs efficiently.
- Partner with input suppliers to create stockpiling strategies, ensuring that critical inputs are available before planting seasons.
- Encourage local entrepreneurship by training agro-dealers and cooperatives to serve as distribution hubs for new technologies.
- Strengthen last-mile delivery systems to reduce logistical bottlenecks, allowing farmers to access technologies on time, thereby maximizing their productivity and earnings.

4.7 DEVELOPING A SUSTAINABLE REPAYMENT MODEL FOR SHFS INVESTING IN TECHNOLOGY

Access to financing remains one of the largest barriers to technology adoption for smallholder farmers. Many farmers lack collateral and are unable to afford upfront costs, even when technology significantly improves their productivity. To address this challenge, flexible repayment models should be developed, including:

- Pay-as-you-harvest models, where farmers pay for machinery in installments after each harvest cycle.
- Revolving loan funds, allowing farmers to repay their investments and enabling new adopters to access financing.
- Equipment leasing models, where cooperatives or entrepreneurs rent out machinery at affordable daily rates.

Scaling smart incentives requires a multi-faceted approach that strengthens household participation, supply chain reliability, financial accessibility, and technical support services. By integrating these recommendations, agricultural technology adoption will not only increase in the short term, but will also create long-lasting economic and environmental benefits for farming communities.

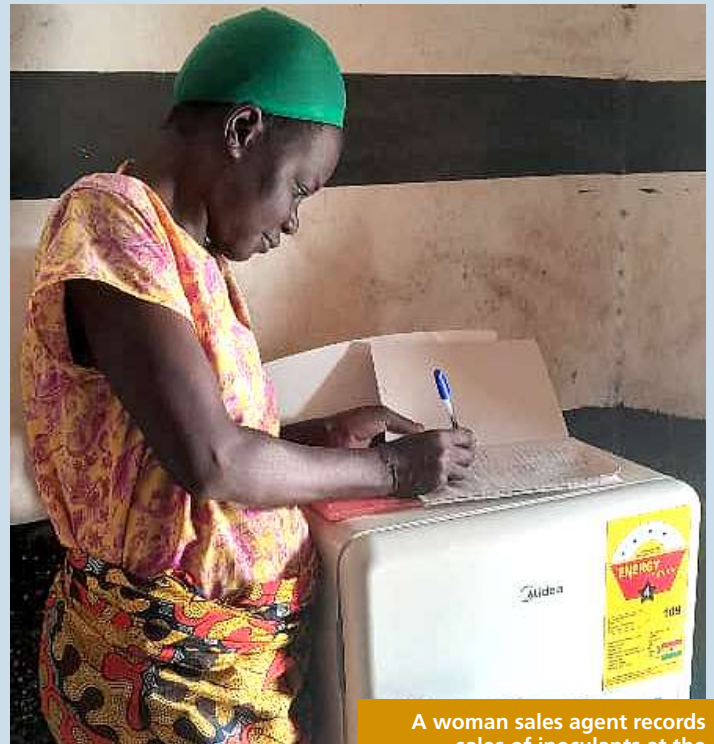
Green-Ef Eco-Business Village Ltd.

From Struggling Seeds to a Thriving Harvest

Green-Ef Eco-Business Village Ltd. is one of the leading importers and distributors of premium rhizobium inoculants in Northern Ghana. The business delivers Legumefix, a solution designed to boost yields in leguminous crops such as soybeans and groundnuts. Featuring high bacterial concentrations, an extended shelf life, and an integrated sticking agent, Legumefix simplifies nitrogen fixation, enriches soil fertility, and ensures healthier crops with significantly higher yields.

Before partnering with GROW2, Green-Ef faced challenges in scaling its inoculant business including weak distribution networks and linkages with farmers, as well as cultural beliefs that legumes do not require inoculants. The lack of investment in cold storage further hindered accessibility, as inoculants lose efficacy above 20°C, while Northern Ghana's temperatures range from 30-42°C. Without a robust last-mile distribution system, timely availability and affordability remained systemic barriers. Additionally, most WSHFs were unaware of inoculants' benefits, proper application, and storage, limiting adoption and market growth.

MEDA co-invested with Green-Ef through matching grants to procure 50 eco-friendly fridges for women sales agents (WSAs) in remote areas. Alongside training in inoculant benefits and entrepreneurship, this initiative enhanced distribution efficiency, increased stock volumes, and **reduced operational costs by 30%**. Formal, commission-based contracts were put in place



A woman sales agent records sales of inoculants at the community level

between the WSAs and Green-Ef, and full-time staff grew from seven to nine, in addition to four casual employees. **The number of WSAs expanded from 18 to 55, significantly improving women's access to inoculants, enhancing efficiency, and boosting customer satisfaction due to increased yields.**

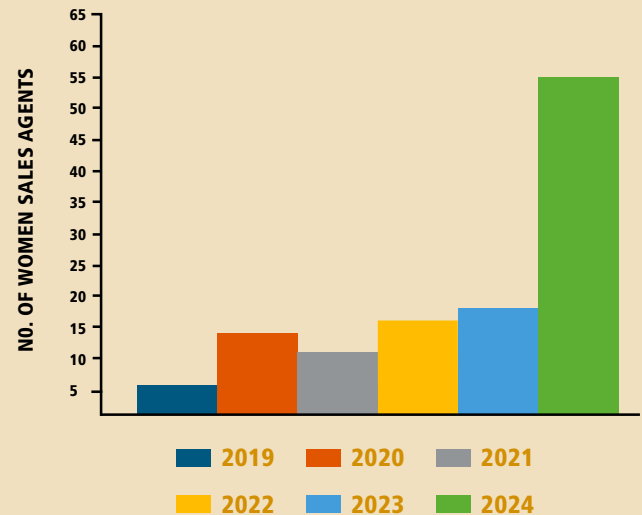
In addition, to overcome WSHFs' reluctance to use inoculants, a 1:1 cost-share incentive for early adopters (WSHFs), demonstrated yield improvements and encouraged wider adoption. In the first season, sales surged from 2,500 packs to 8,000 with each 100-gram pack priced at

CA\$4.76. However, sales declined to 5,500 packs in the second season due to a prolonged drought. To mitigate such risks, Green-Ef is collaborating with MEDA to explore solutions such as drought-resistant seeds and crop insurance.

Challenges remain, but lessons have been learned. Clear and mutually agreeable contract terms, especially regarding project termination and jurisdiction, are crucial to avoid misunderstandings and ensure smooth implementation. The education level of WSAs and weak telecom networks in remote areas can significantly hinder accurate and timely sales data capture. Lastly, providing mobile devices and user-friendly software can enhance sales tracking and data management in areas with limited connectivity.

Green-Ef's adoption of the incentives and the deployment of the last mile distribution model has created employment opportunities for enterprising women (See Figure 8), expanded customer reach, improved system coordination among WSHFs and GreenEf, and strengthened the distribution system, ensuring timely availability and accessibility of inoculants for WSHFs to use in legume production.

GROWTH IN WOMEN SALES AGENTS



Growth in Green Ef's last mile distribution network through WSAs shows a significant jump in 2024 following the matching grant.

Annex 1: Profiles of Businesses Interviewed

NAME OF BUSINESS	TYPE OF BUSINESS	GENDER CATEGORY	STAGE OF BUSINESS	PRODUCTS OF BUSINESS
MarvMay	Processor	Woman-Owned	Mature (2008)	Soy Milk, Soy Kebabs Tom Brown, other protein-rich foods
Suglo Suhudoo Enterprise	Processor	Woman-Owned	Early Stage (2020)	Groundnut Paste, Kulikuli (local snack), Groundnut Oil
RIDA Foodtech	Processor	Woman-Owned	Early Stage (2021)	Soy Milk, Soy Kebabs Dried Fruits, Okara Flour
Dinmbone Farms	Input Supplier	Woman-Owned	Early Stage (2019)	Seed Production, Fertilizer, Pest Management Chemicals
Green EF	Input Supplier	Man-Owned	Medium (2017)	Soil Testing, Sale of Inoculants
Dunyiya Enterprise	Processor	Man-Owned	Mature (2012)	Groundnut Shelling
SMG	Out-Grower and Seed Producer	Man-Owned	Early Stage (2019)	Rice, Maize, Sorghum, Groundnuts, Soybeans, Sesame Seeds
Pognaa Foods	Processor	Man-Owned	Mature (2013)	Peanut Paste, Tom Brown, Glazed Peanuts, Peanut Cookies, other Peanut-Based Snacks
Sungbo-Women Empowerment Organization LBG	Out-Grower	Woman-Owned	Medium (2018)	Mechanization, Aggregation, Processing Services
Song Taa Tie Taa	Processor	Woman-Owned	Mature (2015)	Dawa Dawa, Shea Butter, Groundnuts, Tom Brown, Maize, Soy



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