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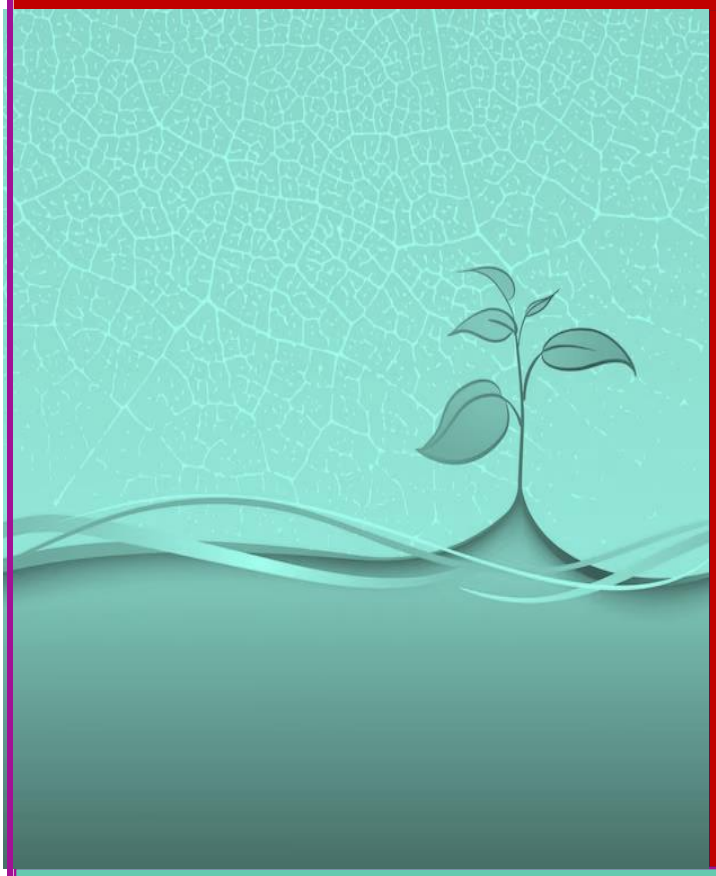

END-TERM REVIEW OF STRATEGIC PARTNERSHIP-SUSTAINABLE VEGETABLE VALUE CHAIN (SVVC) PROJECT

Final Draft Report

Submitted to: The Development Fund

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I express my sincere appreciation to the Development Fund for entrusting Progress Inc. with the responsibility of conducting this evaluation.

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Pooja Koirala

Team Leader

Progress Inc.

Progress Inc. has prepared this report on behalf of the Development Fund as a part of the End-term review of Strategic Partnership Sustainable Vegetable Value Chain (SVVC) project

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The evaluation was conducted by **Pooja Koirala** (Founder/Director of Progress Inc.) and Melaku Gebreyesus

(National Consultant).

A combination of primary and secondary data sources was employed to derive the findings. The primary data collection for this evaluation was conducted in August 2023.

If you have any inquiries pertaining to the evaluation, please feel free to reach out to Progress Inc. through the following contact information:

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EXECUTIVE SUMMARY

The 'Sustainable Vegetable Value Chain (SVVC) project in Guba Lafto and Fogera Woredas aimed to boost small-scale farmers' livelihoods and empower medium/large-scale farmers for export-oriented vegetable production. Key players included the Development Fund, JoyTech Fresh, SNV (Netherlands Development Organization), and the two local partner organizations from two woredas.

Running from January 2019 to December 2022, SVVC aimed to double the income of 3,500 smallholders, generate $2.5 million in annual exports, and create 2,600 jobs in the agriculture sector. The project focused on expanding smallholders' vegetable businesses and increasing herb exports by medium/large-scale farmers through inputs, knowledge, and market access.

Norad's grant scheme initiated the SVVC project in 2018, focusing on strategic partnerships between private enterprises and non-commercial organizations to address value chain challenges. The project targeted the Amhara Region due to proximity to infrastructure and ongoing projects, aiming to uplift small-scale farmers grappling with rain-fed agriculture and limited expertise in vegetable cultivation.

The endline evaluation assessed the SVVC project's performance, addressing r**elevance, coherence, effectiveness, efficiency, impact, and sustainability.** It aimed to ascertain logical framework results, provide recommendations for future projects, and assess the collaboration's added value.

Methodology: The evaluation design incorporated both summative and formative elements for a comprehensive project assessment. Summative focused on outcomes, while formative extracted lessons learned and offered future recommendations. The OECD DAC criteria guided the evaluation, emphasizing relevance, coherence, efficiency, effectiveness, impact, and sustainability.

Initially, the design of the evaluation was to incorporate mixed methods of data collection. However, due to the conflict situation in the Amhara region, the initial plan for quantitative data collection through surveys with farmers had to be abandoned. After waiting for resolution of the situation for some time, the evaluation had to resort to alternative methods of enriching data by adding the numbers of Key Informant Interviews (KIIs) via in-person meetings, and phone due to security and network issues.

Qualitative methods, particularly in-person interviews with some phone interviews, were primary for data collection. KIIs included local partners, government representatives, lead farmers, and cooperative members, focusing on relevance, coordination, efficiency, and sustainability. Only one FGDs was possible in Fogera Woreda that involved Fogera farmers, covering their project experiences, benefits, and challenges. Central-level interviews included strategic partners, the Development Fund representative, and donor organization representative, offering broader insights.

Field-level interviews in Fogera included lead farmers, promoters, and agro-dealers. At the Woreda (district) level, representatives from various offices were interviewed. KIIs were also conducted with implementing partner ORDA Ethiopia and a Development Agent. In Guba Lafto, interviews were conducted with implementing partners and four Woreda-level officials, including those from the Agriculture, Cooperative, Finance, and Administrative departments. IDIs were carried out with 10 lead farmers from Guba Lafto over phone. In total, 35 KIIs and 1 FGD were conducted.

Key findings

Relevance and coherence

Fogera and Guba Lafto Woredas were chosen strategically due to their irrigation potential, offering ideal conditions for vegetable farming. Specific kebeles with prior irrigation experience were selected. Partnering with JoyTech Fresh added relevance by supplying quality seedlings and facilitating market links, promoting entrepreneurship, and improving livelihoods. The project directly addressed challenges such as traditional farming methods, limited access to quality seedlings, fertilizer availability, pesticide access, and the absence of collective marketing. Moreover, the relevance of the support becomes evident through the implementation of value chain analyses in both project areas, serving as the foundation for identifying the selected products.

The project's objectives align seamlessly with Ethiopia's development agenda, emphasizing food security, resilience, and social inclusion. The project's coherence with national policies, private sector goals, and development standards ensures potential for impact and sustainability. The project contributes to multiple Sustainable Development Goals (SDGs), including No Poverty, Zero Hunger, Responsible Consumption and Production, Gender Equality, and Decent Work and Economic Growth. The project exhibits complementarity with other ongoing development efforts, fostering a harmonious and integrated approach to addressing farmers' needs. The project aligns with various Ethiopian government policies, enhancing vegetable farming and economic development while supporting initiatives like the National Horticulture Development Strategy and Productive Safety Net Program.

Effectiveness

The SVVC project, despite facing external challenges pertaining to COVID-19 pandemic and conflict in the Amhara region, demonstrated its effectiveness in improving the livelihoods of smallholder farmers in Ethiopia. It aimed to elevate their vegetable businesses and achieved notable success. Stakeholders, including Woreda officials and farmers, praised the project for its comprehensive approach, addressing production, protection, post-harvest management, and market linkages.

Reviewing the data for the year 2023, it is evident that the average income has reached an impressive figure of 20,535 Birr. This represents a remarkable growth of 372% compared to the baseline (4353 Birr). Although income set targets for all three years were not fully achieved, external factors such as the pandemic and conflict impacted these outcomes. Farmers did manage to produce higher volumes of vegetables.

The project has demonstrated substantial success in bolstering the productivity and sales of vegetables among smallholder farmers, specifically focusing on tomatoes, cabbage, and peppers. Notably, tomato sales consistently exceeded targets, reaching an impressive 98% in 2023. Cabbage sales, although experiencing fluctuations, also achieved 98% in 2023, while pepper sales consistently outperformed targets, hitting 96%. In terms of production volume per hectare, tomato production displayed remarkable growth, surpassing the 2020 baseline by 115% in 2023, reaching 41,823 kg/ha. Similarly, cabbage production saw a staggering 588% increase from the baseline in 2023, with 87,719 kg/ha. Pepper production rebounded to 193% above the baseline, registering 29,532 kg/ha in 2023. These statistics reflect the project's undeniable success in boosting vegetable production and sales.

Farmers attributed their success to timely access to seedlings, essential inputs, and expert guidance. Increased vegetable production also positively impacted nutrition, benefiting households, and improving the health of children. However, challenges related to overproduction and post-harvest management

need attention to maximize the project's effectiveness. Overall, the SVVC project demonstrated its effectiveness in improving smallholder farmers' livelihoods and vegetable production, with significant increases in income and productivity. The key findings at the output level shows:

Supply of quality inputs:

During the lifetime of the project, 7,412,200 seedlings were distributed. In 2020, the project achieved 94% of its seedling distribution target but fell slightly short, likely due to increasing seedling prices. In 2021, only 40% of the targeted seedlings were supplied due to conflict in North Wollo and financial constraints leading to farmer departures in South Gondar. In 2022, the project exceeded the seedling target, distributing 3,185,000 seedlings and absorbing 100% of seedling costs in North Wollo. The project's flexibility and proactive efforts were key in overcoming challenges in seedling distribution.

Knowledge transfers and trainings:

Agronomic training of trainers (ToT) was conducted for project experts, extension workers, government specialists, and development agents. ToT for extension workers consistently exceeded targets, with 52 trained in 2020, 58 in 2021, and 44 in 2022. ToT to model/lead farmers had mixed results, with only 30% trained in 2021 but 82% in 2022. Training for spray service providers (SSP) show success, surpassing the target by 18% in 2020. Challenges in lead/model farmer support and female participation in training were noted due to armed conflict and financial constraints.

Access to markets

Efforts to enhance market access included establishing producer and marketing groups, facilitating business-to-business discussions, and creating market linkages. Over 50 producer and marketing groups were established and supported in 2020. In 2021, 36 producer and marketing groups were linked with agro-dealers, and market linkages were created with vegetable traders. Challenges in establishing effective value chain platforms were faced, particularly in Fogera, where farmers struggled with market linkage and pricing control by brokers. In Guba Lafto, farmers reached agreements with traders to buy 10-15% over the market price at their farms and increasing planting rounds helped prevent oversupply.

In addition to training, the project provided continuous field-level monitoring, daily advising, and facilitated marketing linkages. This comprehensive support ensured farmers received consistent guidance, contributing to their success. The project's structured revolving fund for local traders improved market connections. It involved transparent finance management and strengthened relationships between farmers and agro-dealers. The project fostered better communication and trust between agro-dealers and farmers. This collaboration resulted in improved access to credit and valuable advice for farmers. These achievements went beyond the project's primary objectives, leaving a lasting impact on the local agricultural community.

JoyTech's involvement in the project proved highly effective and widely acknowledged, fostering a thriving market environment and transferring essential knowledge to beneficiaries and neighboring farmers. However, the anticipated repurchase of seedlings from JoyTech did not materialize as expected due to factors like elevated transport costs and inflation affecting seedling prices over the project's duration. The ongoing conflict in Amhara had a direct impact on the farmers' willingness and capacity to participate in cost-sharing and, consequently, to cover the expenses for seedlings independently. On a positive note, enabling factors behind achievement included improved institutional linkages, strategic allocation of resources, and valuable advisory support. Challenges in the project's effectiveness stemmed from external

factors impacting farmers' capacity to generate expected revenue and the complex marketing landscape. In the case of Farmforce, their digital solution demonstrated significant potential in optimizing supply chain efficiency and improving farming practices, although challenges like connectivity, financial constraints, and technical limitations need to be addressed for sustained success. These findings underscore the need for adaptive strategies, stakeholder coordination, and a focus on long-term sustainability in agricultural development projects.

Partnership and collaboration

DF prioritized meticulous partnership and collaboration efforts, forming clear project agreements with various stakeholders and implementing partners, including strategic allies like JoyTech and SNV. This strategic alignment was crucial for project success. Their complementary collaboration optimized agricultural practices. The project's deep engagement with local government bodies enhanced ownership and accountability, contributing to sustainability. Government officials actively participated in project management, and the collaboration between JoyTech and local government institutions exemplified the potential of public-private partnerships for sustainable agricultural development. Implementing partners ORDA Ethiopia and WE-Action played pivotal roles, further strengthening their alignment with agreements at the regional level. DF's proactive coordination approach encompassed structured agreements, detailed implementation plans, and regular monitoring sessions. They also promoted a culture of collaboration through awareness-building sessions, high-level oversight through steering committees, and local engagement via multi-stakeholder platforms.

Efficiency

Efficiency was a paramount consideration in the SVVC project, with DF focusing on resource optimization and cost-effectiveness. The project leveraged stakeholder expertise and minimized external dependencies for capacity building, ensuring efficient resource utilization. The budget adhered to the 80-20 rule, directing a significant portion towards program-related activities, emphasizing results over administrative costs. Funds were disbursed systematically, following project planning and regular evaluations to ensure effective allocation. The project displayed remarkable adaptability when faced with unforeseen challenges like the pandemic and armed conflict, modifying its business model and adjusting cost-sharing to respond to inflation and conflict impacts. Robust financial management mechanisms ensured transparency. Despite external challenges, such as the pandemic and armed conflict, JoyTech implemented efficient processes, including advanced planning and structured schedules, to address seedling distribution challenges, ensuring timely seedling delivery.

Sustainability

The project developed a comprehensive sustainability plan, focusing on support throughout the value chain, although full realization of outcomes was not achieved. Farmers possess fundamental skills for seedling production and distribution, making them capable of independent continuation. Ongoing training remains essential. Farmers expressed strong commitment to continuing project practices, seeking alternative seedling procurement options and agricultural advice post-project. Emphasis on marketing enhances sustainability by ensuring improved produce reaches viable markets, fostering economic viability. The DF submitted a concept note to potential donors, leveraging project achievements and lessons for future initiatives. Government stakeholders expressed commitment to continue project activities, integrating them into local plans and policies for sustainability. The ToT activities foster a culture of continuous learning and knowledge

transfer, enabling long-term sustainability. Promotion of organic fertilizers reduces dependence on costly chemical fertilizers and encourages soil health, likely to continue after the project. Farmers introduced to resource-efficient practices like smoking and night-time watering may adopt these methods beyond project completion. Training in IPM encourages ecological balance and reduced reliance on chemical pesticides, promoting sustainable pest control. Supporting agro-dealers in supplying inputs at reasonable costs enhances sustainability, ensuring continued supply chain for agricultural inputs. Moreover, DF has also developed exit strategies/sustainability plan indicating the responsible government authority to follow up the results of the project when the project phases out.

Impact

In 2023, the project led to a substantial rise in income compared to the baseline, driven by diversified vegetable production, advanced hybrid seed adoption, and improved agronomic practices. The project has had a profound impact on smallholder farmers, significantly increasing their income through enhanced vegetable production. This improvement was driven by advanced farming techniques, high-quality seedlings, and training sessions. Notably, women and marginalized groups also experienced higher income levels, contributing to improved living standards. Additionally, the project led to better nutrition, increased asset ownership, and widespread adoption of modern farming practices. Despite challenges, the project laid a strong foundation for sustainable agriculture, leaving a lasting positive impact on the community.

Recommendation

- Comprehensive risk analyses and mitigation measures.
- Gradual reduction of dependency in seedling financing.
- Engaging various stakeholders and value chain actors.
- Emphasize marketing aspects, including market linkages and farmer skills.
- Documenting lessons learned and project evidence.
- Consider longer project durations for meaningful impacts.
- Encourage localized production by smallholder farmers.
- Empower youth groups for entrepreneurial seedling production.
- Embrace tissue culture for quality seedlings.
- Partner with input agencies for seed availability.

LIST OF ABBREVIATIONS AND ACRONYMS

ADLI: Agricultural Development Led Industrialization

COVID-19 - Coronavirus Disease 2019

DF - Development Fund

ETB - Ethiopian Birr (currency)

FAO - Food and Agriculture Organization of the United Nations

FGDs - Focus Group Discussions

GDP - Gross Domestic Product

GTP-II: Growth Transformation Plan-2

HEP - Health Extension Program

HR - Human Resources

IPM - Integrated Pest Management

IT - Information Technology

Kebeles - Smallest administrative units in Ethiopia

KII - Key Informant Interviews

KPA - Kebele Pestiside Agent

MEL - Monitoring, Evaluation, and Learning

MOFED - Ministry of Finance and Economic Development

NGO - Non-Governmental Organization

Norad - Norwegian Agency for Development Cooperation

NRM: Natural Resource Management

OECD DAC - Organisation for Economic Co-operation and Development Assistance Committee

ORDA: Organization for Rehabilitation and Development

PSNP: Productive Safety Net Program

R&D - Research and Development

RUSACCO - Rural Saving and Credit Cooperatives

SDGs - Sustainable Development Goals

SGBV - Sexual and Gender-Based Violence

SNV - Netherlands Development Organization

SSP - Spray Service Providers

SVVC: Sustainable Vegetable Value Chain

ToT - Training of Trainers

WE-Action – Women Empowerment Action

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CHAPTER 1: BACKGROUND

Agriculture is the bedrock of Ethiopia's socioeconomic framework, exerting profound influence over all economic sectors and developmental pathways. It serves as the primary source of employment for roughly 80% of the population (World Bank, 2021). While cereals dominate the agricultural landscape, vegetable production remains underrepresented, constituting merely 1% of the overall agricultural output (Central Statistical Agency, 2015). In 2021, vegetables primary production for Ethiopia was 1.65 million tons, while cereal production was 30,108,985 tons ("Vegetables Primary Production in Ethiopia," 2021).

This scarcity in vegetable production not only translates to food and nutritional insecurity stemming from an over-reliance on staple crops but also squanders the potential for economic gains from the lucrative vegetable sector. In a country where agriculture serves as the backbone of livelihoods, particularly in regions like Amhara, where the project areas of Guba Lafto and Fogera are located, the impact of these disparities is particularly pronounced (USAID Collaborative Research Support Programs Team, 2020).

In this context, the project, 'Sustainable Vegetable Value Chain' (SVVC) project, was initiated to take root in the northern region of Ethiopia, targeting Guba Lafto and Fogera Woredas. The project focuses on providing high-quality seedlings, technical support, and better market access. Key players include the Development Fund, managing the programme; JoyTech Fresh, responsible for producing quality seedlings, SNV (Netherlands Development Organization) for capacity building, and two implementing organizations Women Empowerment Action (WE-Action) and Organization for Rehabilitation and Development in Amhara (ORDA).

The overarching goal was to enhance the livelihoods of the local population by augmenting vegetable businesses for around 3,500 small-scale farmers, encompassing approximately 17,500 individuals. To bolster the vegetable value chain, the project aimed to offer high quality hybrid seedlings, capacity-building initiatives, vigilant production monitoring, and improved access to inputs and markets. In tandem, the project envisioned to empower 50 medium/larger scale farmers to engage in crop production for the export market. These farmers would receive high-quality seedlings for internationally sought-after crops, alongside capacity-building support, meticulous production oversight, export accreditation, and links to established export markets.

The project's implementation was set to span four years, commencing from January 2019 to December 2022. It will be closely aligned with the ongoing Climate Adaptation and Rural Development (CARD) program, funded by Norad through the DF.

The anticipated pivotal outcomes of the SVVC project encompass:

1. Doubling the income for 3,500 small holder farmers and their families.
2. Annual export value of 2.5 million USD through 50 medium/large scale farmers.
3. The creation of 2,600 jobs in the agriculture sector.

In order to achieve this impact, the project decided on two outcomes:

1. Vegetable business of smallholder farmers expanded/enhanced.
2. Export of Herbs by medium/large scale farmers increased.

Similarly, the project has 5 outputs:
1.1: Supply of quality inputs locally increased.
1.2: Knowledge on vegetable production increased.

1.3: Access to market increased.
2.1: Production of Herbs for export increased.
2.2: Capacity of medium/large scale farmers for export increased

1.1 CONTEXT AND RATIONALE

The inception of the project can be attributed to Norad, particularly during the year 2018, when it actively pursued a grant scheme aimed at identifying projects conducive to strategic partnerships involving private enterprises and non-commercial organizations. These partnerships were designed to collaboratively tackle specific obstacles within value chains within developing countries. This underscores the project's donor-driven nature, as Norad took the lead in fostering these strategic alliances. The project was initiated with the objective of promoting value chain development, job creation, and poverty reduction in emerging markets by fostering collaboration between integrated societies and private companies, as articulated by Norad.

In its endeavor to establish such strategic partnerships, Norad played a proactive role in convening stakeholders from both the non-commercial and private sectors. The overarching vision was to facilitate cooperation between non-commercial and private entities, capitalizing on each other's strengths and synergizing efforts to achieve the project's objectives.

Within this framework, the Development Fund introduced three distinct initiatives, wherein NGOs, private enterprises, and government entities collaborated. The SVVC project emerged as one of these initiatives. However, the project's scope was heavily influenced by the context of the target area. It became evident that the local farmers required interventions to enhance their productivity, elevate their living standards, and improve their nutritional well-being.

As highlighted in the project proposal, the project's chosen locales within the Amhara Region were strategically positioned. Guba Lafto and Fogera Woredas were proximate to the anticipated hub established by JoyTech Fresh in Alemata. These areas held unique potential due to existing engagement; the Norad-funded CARD project had a presence in Guba Lafto, while Fogera boasted a strong potential for vegetable production (Norad, 2021). Availability of water for irrigation underscored the viability of these regions for such interventions, aligning with the project's objectives.

For medium and large-scale farmers, proximity to the established JoyTech Fresh hub in Alemata accentuated the project's relevance. This area, characterized by vast expanses of land, abundant boreholes for water access, and ongoing vegetable production, was poised for transformation into an export-oriented agricultural zone.

Small-scale farmers in the target areas, like much of the country, grappled with rain-fed agriculture and limited expertise in vegetable cultivation. While tomatoes, onions, and chilies were prevalent crops, traditional farming methods and limited technological adoption inhibited productivity ((Zerssa, Feyssa, Kim, & Eichler-Löbermann, 2021). The dearth of quality seeds, fertilizers, and chemicals further compounded these challenges.

In the broader context of Ethiopia's agricultural landscape, the SVVC project was poised to ameliorate challenges that had stifled the growth of vegetable production. By integrating modern practices, facilitating access to inputs, and strengthening market linkages, this initiative sought to invigorate the agricultural sector, bolster food security, and elevate economic prospects for farmers at various scales across Amhara and beyond.

1.2 OBJECTIVES

As the project nears its completion, it was crucial to evaluate its performance and assess the extent to which its objectives have been achieved. This end-term evaluation examined the project's relevance, coherence, effectiveness, efficiency, impact, and sustainability.

Specifically, the objectives of the endline evaluation were:

- To ascertain results as stipulated in the logical framework
- To assess relevance, coherence, effectiveness, efficiency, impact, and sustainability, in addition to project and risk management and relevant cross-cutting issues
- To provide findings, conclusions, key lessons learned and clear recommendations for future design and implementation
- To identify any challenges the project faced and formulate appropriate recommendations for future actions, and
- To assess whether the collaboration between DF, its implementing and strategic/private sector partners have added value to the interventions with a positive effect on beneficiaries and other stakeholders (including what factors contributed to or detracted from added value).

CHAPTER 2: METHODOLOGY

2.1 EVALUATION DESIGN

The evaluation design was structured to incorporate both summative and formative elements for a comprehensive assessment of the project's performance. The summative aspect primarily focused on measuring the project's success in achieving its intended outcomes, while the formative approach aimed to extract lessons learned and provide recommendations for future endeavors.

The evaluation was aligned with OECD DAC criteria, emphasizing relevance, coherence, efficiency, effectiveness, impact, and sustainability as key dimensions for assessment.

Relevance examined how well the project aligned with beneficiary needs, global considerations, and changing circumstances, such as the impact of events like COVID-19 and conflict in Amhara region. Coherence assessed how the project fit within the broader landscape of government and partner interventions. Effectiveness measured the project's ability to reach its objectives and produce desired results, considering variations across different groups. Efficiency evaluated resource utilization and the conversion of inputs into outcomes. Impact delved into both immediate and long-term effects, encompassing various dimensions. Lastly, sustainability explored the project's capacity to maintain benefits over time, considering institutional support, capacity-building, and stakeholder engagement.

To ensure a comprehensive analysis, the evaluation employed a concurrent triangulation method, which encompassed primary and secondary data collection. Primary data included qualitative data collection methods, while secondary data comprised both qualitative and quantitative information. This multifaceted approach allowed for a thorough and well-rounded evaluation of the project's performance and its potential for future improvements.

2.2 DATA COLLECTION METHOD

The initial evaluation plan adopted a mixed-method approach, which included the collection of quantitative data focusing on production costs, sales, and revenue generation through surveys with the direct beneficiaries. The intention was to conduct surveys with farmers in both areas under

evaluation. However, due to the conflict situation in the Amhara region, the survey component had to be dropped. Although enumerators in Fogera managed to collect one day's worth of data from nearly 50 farmers, conducting surveys in Guba Lafto became impossible. Due to unreliable internet connectivity, the data collected by the enumerators cannot be sent as they do not have access to a stable internet connection. The evaluation team patiently awaited a resolution of the situation from August 3 to August 20, but unfortunately, normalcy was not restored within that timeframe.

Consequently, the evaluation team had to adapt to the challenging circumstances and explore alternative methods for data collection. Given the security concerns in the field, a careful assessment of field plans was undertaken. As a result, a series of Key Informant Interviews (KIIs). While some of these interviews were conducted in person, the majority, particularly those at the kebele level, were carried out via phone. It's important to note that the quality of the phone network during the evaluation period was also suboptimal. Despite these limitations, the team made every effort to maximize the collection of primary data by conducting KIIs.

The primary data collection relied primarily on qualitative methods, predominantly involving in-person interviews. KIIs were conducted with various stakeholders, including local implementing partners, strategic partners, government representatives, lead farmers from the community, and cooperative representatives. These interviews focused on evaluating aspects such as relevance, coordination, efficiency, and sustainability. They also delved into programmatic limitations and operational challenges. Government stakeholders were particularly questioned about their perception of the project and their willingness to take it forward after the funding ceased.

Additionally, one Focus Group Discussions (FGDs) were conducted with a farmers' group from Fogera to gather grassroots-level insights. These discussions aimed to understand the experiences of farmer group members within the project. Topics covered included their involvement in vegetable production, participation in business activities, and engagement in capacity-building initiatives. The FGDs explored their perspectives on the project's benefits and challenges from their unique vantage point.

To provide further detail, at the central level, interviews were conducted with strategic partners, a representative of the Development Fund, and a representative of the donor organization. These interviews were instrumental in obtaining a broader perspective on the project's coordination, funding, and strategic direction from central-level stakeholders.

At the field level in Fogera a total of five interviews were conducted with lead farmers. One interview was conducted with a promoter, and three interviews were held with agro-dealers. At the woreda (district) level, three representatives were reached, including the Agriculture Officer, Finance Officer, and Cooperative Officer. KIIs were also carried out with the representative of the implementing partner, ORDA Ethiopia, as well as with a Development Agent. These interviews aimed to gather comprehensive insights from various stakeholders involved in the project. In Guba Lafto, interviews were conducted with implementing partners and four Woreda-level officials, including those from the Agriculture, Cooperative, Finance, and Administrative departments. Additionally, 10 phone interviews were carried out with lead farmers.

2.3 SAMPLING APPROACH FOR QUALITATIVE DATA COLLECTION

Characterized by its convenience, the selection process varied at different levels of participation. At the central level, the criteria for participant selection were based on their ability to provide relevant information crucial to the evaluation's findings. These selections were made collaboratively with the DF to identify stakeholders who were well-placed to offer accurate insights. An initial stakeholder

mapping exercise was conducted to identify those with a vested interest in the evaluation, leading to the choice of Woreda officers and representatives from partner organizations.

In contrast, when it came to field-level data collection, which included lead farmers, agro-dealers, promoters, and extension workers a convenient sampling approach was employed. While the original plan had been to utilize a purposive quota-based sampling method, the conflict situation prevented adherence to this plan. Instead, interviews were conducted with whomever was available and accessible under the circumstances. These interviews were conducted by assessing the situation at hand and involving all participants who were available and willing to engage in discussions with the evaluation team. Additionally, the selection of interviewees was contingent on the prevailing security situation, ensuring that the researchers could travel safely.

		Targeted sample size		Achieved sample size	
		Fogera	**Gula Lafto**	**Fogera**	**Gula Lafto**
Survey	Project beneficiaries	**240**	**224**	**Dropped**	
KIIs	Representative of Norad	1		2	
	Representative of DF	1		3	
	Strategic partners- JoyTech Fresh and the Netherlands Development Organization (SNV).	2		1	
	Implementing partners - Women Empowerment Action (WE-Action) and ORDA Ethiopia	1	1	1	1
	Woreda Agriculture, administrative and cooperative offices (Guba Lafto and Fogera)	2	2	3	4
	Lead farmer	5 (3 men and 2 women)	5 (3 men and 2 women)	5	10
	Cooperatives/ agro-dealers	3	1	3	0
	Promoter	-	-	1	-
	Government development agent	-	-	1	-
	Total KIIs	**24**		**35**	
FGDs	Farmers group – small holder farmers	3 (2 mixed and 1 woman only group)	3 (2 mixed and 1 woman only group)	1 (5 male, 3 female)	-
	Total FGDs	**6**		**1**	

2.4 STUDY LIMITATION

Several limitations were encountered during the evaluation, primarily stemming from the challenging context in which data collection took place. Below, these limitations will be outlined:

- Conflict-related data collection challenges: The ongoing conflict situation in the Amhara region led to the abandonment of the original survey component, which had been designed to collect quantitative data related to production costs, sales, and revenue generation from farmers in both evaluation areas. As a result, an incomplete dataset emerged, particularly from the Guba Lafto area.
  To address the absence of survey data, available data from partners were leveraged, focusing on productivity, land size, production sold, and production cost. While this data had not been collected explicitly for this evaluation, it provided a basis for some analyses. To gather additional information, a series of KIIs were conducted with various stakeholders, including local implementing partners, government representatives, and lead farmers. This qualitative data helped compensate for the lack of quantitative survey data.
  The absence of quantitative survey data might have limited the ability to perform detailed quantitative analyses, such as the assessment of return on investment or the execution of statistical comparisons between the two evaluation areas. Instead, the analysis relied more heavily on qualitative insights and partner data, potentially affecting the depth of quantitative assessments.
- Data collection adaptation: Since the data collection primarily relied on KIIs, including phone interviews, resulting in potential biases due to the absence of in-person interactions and suboptimal phone network quality. Despite limitations, every effort was made to maximize the quality and quantity of data collected through KIIs to compensate for the change in data collection approach. The shift from in-person interviews to KIIs, particularly those conducted over the phone, might have influenced the depth and richness of the qualitative data collected. Potential biases related to the absence of in-person interactions should be considered in the analysis of qualitative findings.
  Additionally, the inability to include a sufficient number of female participants in interviews due to convenience sampling may limit the comprehensive analysis of the gender component, potentially missing important insights into gender dynamics and impacts.
- Sampling challenges:
- The inability to adhere to the originally planned purposive quota-based sampling method at the field level, coupled with the use of convenience sampling, might have introduced selection bias and limited the representativeness of our data.
  Given the conflict situation, interviews with participants who were available and accessible were conducted, with an assessment of the situation at hand to ensure the safety of the research team. The use of convenience sampling and the departure from the planned purposive sampling method might have implications for the representativeness of our findings.
- Communication constraints: Communication challenges, including limited access to daily debriefs, field notes, and researchers in the field, hindered the ability to adapt data collection strategies based on emerging findings or challenges encountered.
- Challenges with engaging with persons with disabilities: The evaluation did not actively engage individuals with disabilities to gather their perspectives and assess how the project impacted their lives. Due to the evaluation's reliance on convenient sampling to reach beneficiaries, it was challenging to access the contact information of individuals with disabilities, and the field

team faced difficulties locating them due to security concerns. Consequently, there is a gap in the analysis regarding the aspect of social inclusion and its integration into the project's assessment.

- Utilization of available alternatives for data collection: Although preliminary interview targets were set, it proved unfeasible to carry out all the planned interviews due to the impossibility of accessing kebele levels and collecting responses from participants. Additionally, the uncertain and inaccessible phone networks further constrained data collection efforts among participants. The inability to conduct all planned interviews and limited access to certain geographical areas may have affected the comprehensiveness of the data.
- The evaluation process encountered numerous challenges, primarily stemming from the protracted conflict situation in the Amhara region. Originally, the evaluation was scheduled to be completed within a four-week timeframe by mid of August, but due to the evolving conflict, this timeline extended by weeks and the evaluation process is coming to an end only in September end.

CHAPTER 3: EVALUATION FINDINGS

3.1 CRITERIA: RELEVANCE

The project's relevance was firmly rooted in a comprehensive understanding of needs and strategic alignment with key stakeholders. The design and implementation of the project were intricately tied to various factors that ensured its meaningful impact and resonance within the local context.

Primarily, the project's geographical focus was meticulously chosen based on a thorough needs assessment. The regions of Fogera Woreda and Guba Lafto Woreda were selected due to their potential for irrigation, both surface and subsurface, which presented opportunities for optimal vegetable production. The selection of specific kebeles (localities) with prior experience in irrigation and vegetable cultivation further bolstered the project's relevance.

Additionally, the clear targeting criteria for project beneficiaries, which includes farmers willing to actively engage in the project, possessing access to irrigation water, and demonstrating the readiness and capacity to utilize agricultural inputs, underscores the relevance of aligning project resources with those who can make the most of the support provided, supporting to ensure that the project's efforts are directed toward those who can benefit most effectively, maximizing the impact and relevance of the interventions.

Furthermore, the alignment with JoyTech's business objectives adds another layer of relevance to the project. The project's collaboration with JoyTech, which aims to supply seedlings to smallholder farmers while facilitating market linkages with commercial producers, speaks to the project's role in fostering entrepreneurship, economic engagement, and employment opportunities within the agricultural sector. The choice of vegetables (tomato, cabbage, and green pepper) resonated with the priorities of partner institutions substantiated with value chain analyses carried out in both project areas. JoyTech's presence in the south Tigray region, with its vision of establishing a nursery hub, added another layer of relevance, enabling efficient supply of seedlings across different farmer segments, from smallholders to commercial cultivators.

The SVVC project was highly relevant and important in addressing several key challenges faced by the local farming community in Fogera and Guba Lafto as highlighted in their baseline report. In both the areas, despite farmers' extensive experience in vegetable production, their knowledge of improved agronomic practices remains limited, leading to traditional cultivation methods. Likewise, the practice of traditional farming methods and limited knowledge about modern techniques and technologies hindered productivity of vegetables in the project area. Farmers often lacked the necessary skills and expertise to implement best practices, such as proper crop rotation, soil management, and pest control, leading to reduced productivity. Additionally, the use of reused seeds from previous harvests resulted in declining productivity over time due to the loss of seed vigor and genetic degradation. Likewise, the lack of proper irrigation systems and dependency on rain-fed agriculture made the region's farmers vulnerable to fluctuating weather conditions, leading to inconsistent yields.

The Gubalafto, Fogera and Mahoni-Alamata areas are predominantly rural and have relied on subsistence farming due to limited arable land. Farmers here have faced food insecurity due to climate-related challenges like delayed and insufficient rainfall and droughts. Therefore, the area is under a safety net program to support food-insecure individuals and protect livelihoods. Most of the region's

farmers are smallholders with limited resources and low technology adoption.[1] The region is vulnerable to climate change impacts and other non-climatic factors like inappropriate land use, land degradation, population pressure and poverty.

The other challenges that the project attempted to address are:

- *Lack of market access:* The absence of a proper, accessible, and sustainable market posed a significant obstacle to vegetable production in both the areas. The inefficient marketing system resulted in farmers selling their produce at low prices to local traders. Highlighted by Fogera Woreda, the absence of a developed marketing system results in farmers selling their produce at farm gates for low prices determined by brokers, weakening the bargaining power and income potential among smallholder farmers. Moreover, poor post-harvest management and limited market opportunities led to substantial post-harvest losses. The project aimed to establish a well-developed value chain and connect farmers to better markets.
- *Quality seedlings shortage:* Farmers lacked access to quality seedlings, relying mainly on seeds from local suppliers with low growth rates. The project aimed to provide improved hybrid seedlings to enhance crop productivity and quality.
  The FGDs and KIIs with the smallholder farmers in Fogera Woreda revealed the project's unquestionable relevance to smallholder farmers. Participants voiced their appreciation for the project's support, underscoring its importance in their farming endeavors. One farmer stated, ***"We got high-quality seedlings for free and at affordable costs in subsequent rounds,"*** emphasizing the project's direct relevance to their specific farming needs.
- *Fertilizer availability:* While fertilizers were generally available through government-supported farmers' cooperatives, consistent access was a concern. The project aimed to ensure reliable and timely availability of fertilizers to optimize crop growth.
- *Pesticide challenges:* Access to pesticides was limited due to shortages, particularly in certain seasons. The project aimed to address this issue by providing access to a variety of pesticides to manage pests and diseases effectively using integrated methods.
- *Extension worker support:* Extension worker support was limited and not tailored to the specific needs and understanding of farmers stressed in the baseline report from Guba Lafto Woreda, while Fogera highlighted that extension workers lacked practical skills and resources to provide effective support to farmers. In the project's vision, the approach involved assigning one extension worker to oversee the progress of up to 50 farmers, creating a personalized, regular and extensive support system.
- *Collective marketing absence:* There was no established system for collective marketing of vegetables. Farmers were individually selling their products. The project aimed to create a more organized and efficient marketing system that could benefit all farmers.

3.2 CRITERIA: COHERENCE

The project's objectives aligned seamlessly with Ethiopia's broader development agenda. Given the imperatives of food security, livelihood resilience, and social inclusion, the project aimed to uplift the poor, women, and youth in a manner that aligned with the national and local development priorities. The project's alignment with national priorities was evident in its emphasis on producing improved

1 https://ir.bdu.edu.et/bitstream/handle/123456789/15204/Melisa%20Ayalew%20MSC%20thesis%20%20after%20deffence%20Signed.pdf?sequence=1&isAllowed=y

varieties of vegetables for both local consumption and export markets. This strategy not only resonated with the government's policy but also addressed the agriculture sector's top priorities.

The project's alignment with various strategic frameworks and objectives is a testament to its comprehensive and well-considered approach. The project's coherence with key national policies, private sector objectives, and development standards underscores its potential for impact and sustainability. The SVVC project is fully aligned with the goals and priorities outlined in "The Pathway to Prosperity Ten Years Perspective Development Plan (2021 – 2030)" for Agricultural Development. The project not only complements but also directly contributes to the key priorities and visions set forth in this plan. It demonstrates a clear commitment to supporting smallholder farmers, improving productivity, and fostering private sector involvement, all of which are essential elements of the plan's vision for agricultural development. Moreover, the plan emphasizes expanding the participation of private investors in agriculture, and the SVVC project's collaboration with JoyTech, a private sector entity, aligns perfectly with this vision. By facilitating market linkages and promoting entrepreneurship in agriculture, the project contributes to the plan's objective of private sector-led agricultural growth.

Key contributions include "giving intensive trainings and bringing tangible capacity building and skills improvement for Woreda officers from Fogera and producers as shared in the interviews. ***"These training efforts have led to the adoption of "modern agricultural practices" and the introduction of "new techniques for vegetable production,"*** demonstrating the project's alignment with government objectives. Woreda Officers from Gula Lafto emphasized the importance of irrigation, which is a government priority, and the project's contribution to "***changing the lives of the farmers by providing chemicals as well as a series of training to partners and farmers."***

Explained by DF representatives, the project's alignment with DF's minimum standards of Agriculture and Natural Resource Management (NRM) underscores its commitment to upholding high-quality practices and ethical standards. By adhering to these established benchmarks, the project not only ensures the effective execution of its initiatives but also contributes to the responsible and sustainable management of agricultural resources.

The review of project proposal and existing government policies and strategies shed light that SVVC project aligns well with several key policies and plans of the Ethiopian government aimed at enhancing vegetable farming and its contributions to the country's agricultural and economic development. It complements the Agricultural Extension Strategy by providing targeted training to farmers on improved vegetable production techniques and aiding the facilitation of market access, thereby enhancing their wealth generation abilities and reducing poverty. The project's emphasis on access to quality inputs, women's participation, and linkages to markets directly supports the goals of the National Horticulture Development Strategy, contributing to increased vegetable productivity.

The project's focus on ensuring the availability of high-quality vegetable seedlings and its efforts to create a more efficient and competitive vegetable market resonate with the objectives of the Vegetable Seed Policy and the Agricultural Extension Strategy, respectively. Furthermore, the project's activities are complemented by the Ethiopian government's financial support programs for farmers, such as the Productive Safety Net Program (PSNP) and the Agricultural Development Led Industrialization (ADLI) program. The government's establishment of vegetable research centers, investment in irrigation infrastructure, and support for processing and marketing facilities align with the project's objectives. The project's contribution to skill-building, input access, market linkages, and sustainable practices supports the overarching objectives of these government policies.

The evaluation deems that the SVVC project also contributes to various Sustainable Development Goals (SDGs). It addresses SDG 1 (No Poverty) by improving smallholder farmers' income and livelihoods, and SDG 2 (Zero Hunger) by enhancing food security through increased vegetable production and access to nutritious food. The project's focus on sustainable practices aligns with SDG 12 (Responsible Consumption and Production), promoting eco-friendly methods and resource efficiency. Efforts to engage women in agriculture support SDG 5 (Gender Equality), and the project's income-generating opportunities align with SDG 8 (Decent Work and Economic Growth).

In Guba Lafto Woreda, the officer from Cooperative and Agriculture department noted that the project aligns with the government's priorities, especially in the agriculture sector, by focusing on irrigation. It has been involved in canal construction and maintenance in kebeles such as Geshober, Debot, and Gedober. This directly contributes to the government's efforts to enhance irrigation infrastructure, a crucial aspect of agricultural development.

3.2.1 COMPLEMENTARY

The evaluation revealed that the project exhibited a sense of complementarity with other ongoing development efforts. It was noted that DF was concurrently executing various programs, involving the same partners and others with focus on climate adaptation and rural development. While the partners might not always be the same, the common thread was centered around supporting farmers' access to quality seeds and providing a platform for advocating their interests in relation to the local government.

This alignment with other programs, particularly those geared towards climate adaptation and rural development, signifies a harmonious approach. By addressing multiple facets of farmers' needs and facilitating a platform for their voices to be heard, the project effectively unites with broader development initiatives. This integrated approach not only amplifies the impact but also fosters a synergistic effect, where the combined efforts lead to a more comprehensive and sustainable transformation in the targeted areas. Specifically, CARD project and the SVVC project are complementary in multiple aspects:

- Both projects focus on the same communities, allowing for the efficient utilization of resources and expertise. The SVVC project enhances the capacity of local smallholder farmers in vegetable production, while the CARD aims to increase awareness and skills in crop and livestock production. This synergy ensures that farmers receive a well-rounded education, encompassing various aspects of agriculture, thus strengthening their overall resilience.
- The SVVC project introduces improved crop varieties, particularly vegetables, which can enhance dietary diversity and nutrition. Concurrently, the CARD project familiarizes women with drought-tolerant crop varieties, addressing food security concerns through diversified and resilient agricultural practices.
- Gender equality is a shared objective. SVVC places a strong emphasis on women's participation in agriculture, while the CARD project seeks to empower women through skills development. The combined efforts bolster gender equality, ensuring that women in the community are active participants in both vegetable farming and broader rural development initiatives.
- The presence of the common partner, WE-Action, facilitates collaboration, resource sharing, and coordination between the two projects. Additionally, both projects operate in the same geographic areas, ensuring that interventions are streamlined and mutually reinforcing.

3.3 CRITERIA: EFFECTIVENESS

3.3.1 EFFECTIVENESS AT OUTCOME LEVEL

The project was launched with two overarching outcomes. The first focused on elevating the vegetable business of smallholder farmers, while the second centered on facilitating the export of vegetables by medium and large-scale farmers. However, due to the prevailing conflict situation, the second objective had to be permanently dropped . The subsequent section delves into the accomplishments related to the attainment of the first objective. Norad views dropping off the export component as a practical decision in alignment with the project's core objectives. The focus of the project was primarily poverty reduction and improving the conditions of local farmers.

Across all interviews, it is evident that the SVVC project is widely perceived in a positive light. Woreda officials from Fogera described it as "***a very nice project***" and one that is "***effective on production, protection, post-harvest management, and market linkages***." Notably, the project is commended for its comprehensive approach, focusing on production, protection, post-harvest management, and market linkages. This widespread positivity reflects the project's impact and its alignment with local priorities.

In Guba Lafto, Woreda level stakeholders across different offices and roles generally express positive views about the SVVC project and its objectives. They highlight that the project aims to "benefit the community in a sustainable way, improve themselves and their families," and it's intended to "increase farmers' income from low living standards to better living conditions, especially to increase female farmers' income." Stakeholders view the project as an effective way to achieve these goals by "***creating market, providing product input, and transferring knowledge.***"

Several outputs were targeted to drive these outcomes forward. Firstly, addressing the issue of accessing quality inputs was identified as a critical factor. Activities were undertaken to meet this challenge head-on, including conducting assessments of farmers' input demands, providing appropriate vegetable seedlings, and facilitating links between farmers and cooperatives/agro-dealers for accessing essential chemicals and fertilizers. The strengthening of agricultural input suppliers, like farmers' cooperatives and agro-dealers, based on their identified gaps and business plans, played a pivotal role in this endeavor.

Within the scope of the first outcome, three corresponding outputs were identified. The initial output revolved around ensuring the supply of quality inputs, specifically seedlings. The second output involved augmenting knowledge about vegetable production, while the third output was dedicated to the expansion of access to markets.

Change in income

Reviewing the data for the year 2023, it is evident that the average income has reached an impressive figure of 20,535 Birr. This represents a remarkable growth of 372% compared to the baseline (4353 Birr). Notably, just the previous year presented substantial challenges, attributed to a myriad of factors, including the hindrance of farming activities in North Wollo due to conflicts and the economic recession affecting income levels in South Gondar. However, despite these challenges, the use of improved hybrid seedlings, proper agronomic practices, and digital traceability systems led to increased vegetable productivity per hectare even the previous year.

It is worth emphasizing that the farmers' resilience and success, backed by the SVVC project, serve as a compelling demonstration of how such support can be effectively leveraged to enhance the well-being of smallholder farmers. Particularly, when operating under normal conditions and provided with

a reasonable timeframe without disruptions, be they of a political or social nature, the project exhibits the potential to significantly transform the income and livelihoods of individuals.

Corroborating this the farmers in FGDs in Fogera Woreda noted that the project led to a notable improvement in farmers' incomes. Some farmers mentioned doubling their income, and others were even able to invest in additional assets like generators, motorcycles, cows, and oxen. This positive impact was also seen among women, as they increased their income by selling vegetables and practiced new planting and growing techniques.

In 2020 (at the start), the project aimed to raise the annual income of smallholder farmers from ETB 4,353 (baseline) to ETB 10,822. However, due to COVID-19 restrictions, the actual achievement was ETB 7,481, which translates to ETB 6,226 in real value, considering inflation adjustments. COVID-19 led to supply chain disruptions and restrictions on movement, making it challenging for farmers to sell their produce in local and distant markets. Moreover, restrictions on movement and trade disruptions might have hindered farmers' access to essential agricultural inputs like seeds, fertilizers, and pesticides, potentially affecting crop yields; and lastly, the pandemic's economic impact could have led to price fluctuations for agricultural products, affecting farmers' profitability.

Vegetable productivity and sales

As per the available 2020, 2021 and 2022 annual reports of the SVVC project, the smallholder farmers were able to improve their sales and production of vegetables (Tomato, Cabbage and Pepper) consistently, exceeding their targets in most of the years. Cabbage, although experiencing some fluctuations in sales and production, showed significant growth in production during 2021, 2022 and 2023.

In the case of tomatoes, sales consistently exceeded the targets over the three years, with actual sales reaching 93%, 96%, and 98% against the targets of 91%, 94%, and 95% for 2020, 2021, and 2022, respectively. In 2023, the sales of tomato was 98%. The sales performance of Cabbage showed some variations, with fluctuations between the targets and actual sales. Cabbage achieved 95%, 92%, and 87% sales against the targets of 86%, 88% and 93% for the respective years. In 2023, the sales of cabbage was 98%. On the other hand, Pepper sales performed consistently above the targets, achieving 96%, 94%, and 97% against the set targets of 90%, 92%, and 90% for the same years. The sales of pepper was 96%.

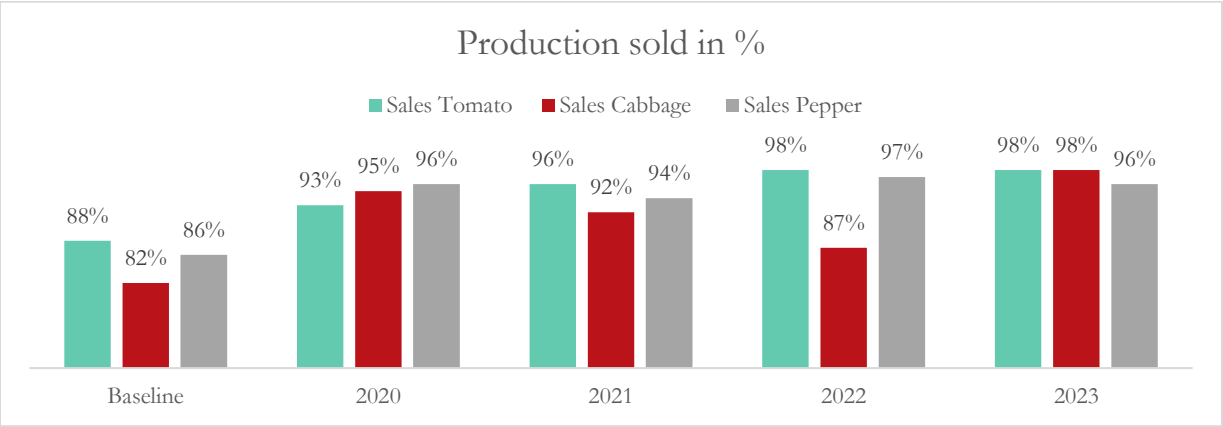

Figure 1: Production sold in %

In terms of production volume per hectare, tomato production showed significant growth over the three years, with actual production exceeding the targets of 39,000 kg/ha for each year, reaching

41,000 kg/ha (105% of the target) in 2020, 40,692 kg/ha (104% of the target) in 2021, and a remarkable 59,520 kg/ha (153% of the target) in 2022. In 2023, the production volume per hectare of tomato was 41823 kg/ha which is 115% higher than the baseline. Similarly, Cabbage production experienced substantial growth, surpassing the targets significantly in 2020 and 2022. In 2020, Cabbage achieved 75,000 kg/ha (259% of the target) compared to the set target of 29,000 kg/ha, and in 2022, it reached 61,548 kg/ha (184% of the target) against the target of 33,500 kg/ha. In 2021, Cabbage production amounted to 49,264 kg/ha (147% of the target). In 2023, Cabbage production was 87719 kg/ha which is 588% increase than baseline. Pepper production exceeded the target in 2020 with 22,000 kg/ha (105% of the target) compared to the set target of 21,000 kg/ha, it dropped in 2021, achieving 13,750 kg/ha (84% of the target) against the target of 16,450 kg/ha. Nevertheless, in 2022, Pepper production recovered and exceeded the target, reaching 20,462 kg/ha (124% of the target). In 2023, the productivity of Pepper was 29532 kg/ha, which is 193% increase from the baseline. These figures show that the project has contributed to increased vegetable productivity per unit area, with higher yields at the project's end (2023) compared to its start (2020).

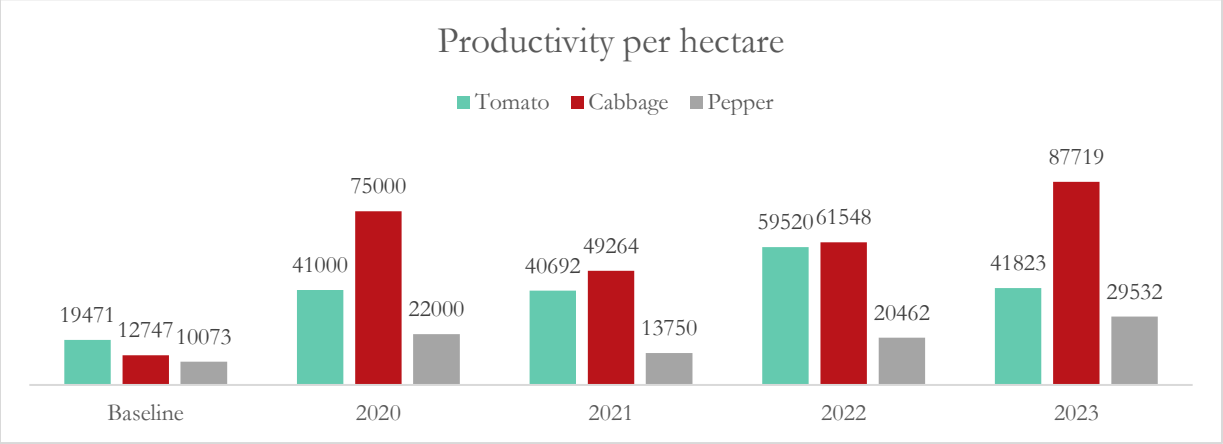

Figure 2: Productivity per hectare of land

Overall, the vegetable production data indicates positive trends in the sales and production of the vegetables, suggesting that the project was successful in achieving its objective.

The project's achievements, impacts, and success stories provide evidence of positive change within the target communities. There is clear evidence of improved agricultural practices, including enhanced land preparation, optimized irrigation and water use, better input management, and overall, more efficient practices.

The project's effectiveness is clearly demonstrated in the reported increase in vegetable productivity, a theme echoed in both FGDs and KIIs. Farmers from Fogera Woreda attributed their success to the project's attentive training, timely seedling distribution, and access to essential inputs. Farmers were keen to point out their enhanced knowledge, with one sharing, ***"Our knowledge increased, and our capital increased, thanks to the project's valuable training and support."*** Farmers reported a significant increase in vegetable productivity, particularly in tomato, pepper, and cabbage. They attributed this to timely access to seedlings, essential inputs, and close follow-up by project experts. As a farmer explained, ***"Main reasons behind the change are getting training attentively, seedlings on the right time, essential inputs on time, and very close follow-up by the project experts."***

Even the donor representatives have emphasized and recalled that, in their opinion, this project performed exceptionally well. For instance, in the case of cabbage, they noted that the original production increased by a factor of five.

The average land size allocated per household for vegetable cultivation has risen to 448 square meters, with a corresponding increase in the number of seedlings used. Some farmers have expanded their plots to as much as 750 square meters and increased seedling uptake accordingly.

The effects of production on the nutrition levels of the farmers and their households were notably positive. With increased vegetable production, at least 10% of the yield was redirected toward home consumption, leading to a significant increase in the availability of fresh and nutritious vegetables within these households. This not only transformed dietary habits but also contributed to improved feeding styles, encouraging more diverse and balanced meal preparations. Particularly noteworthy was the positive impact on the health of the younger generation. Thanks to the increased consumption of vegetables, children within these households experienced improved health outcomes, demonstrating that the benefits of vegetable overproduction extended beyond income generation to the overall well-being of the farming families.

While increased production was generally positive, it also posed challenges related to overproduction, especially in the case of cabbage. The overproduction attributed to challenges associated with both pre- and post-harvest management. The absence of standardized equipment for cultivation hindered the efficiency of farming operations. Moreover, the lack of proper storage facilities left the harvested produce vulnerable to spoilage, exacerbating the problem of food wastage. Transportation emerged as another critical bottleneck, with the farmers resorting to manual methods, such as carrying produce and using carts, which not only proved labor-intensive but also contributed to losses in transit. The absence of a nearby market and a standardized marketplace for vegetables further compounded the issue, as it limited access to potential buyers and deprived the farmers of a competitive edge. Additionally, the lack of market linkage presented a substantial hurdle, preventing farmers from effectively channeling their surplus produce to appropriate buyers or markets.

Some of the farmers from Guba Lafto on the other hand mentioned market-related challenges, such as price fluctuations, which affected their ability to sell their products at profitable rates.

Findings specific to ORDA- Ethiopia (Fogera)

Assessing the overall outcomes in Fogera, it is evident that there has been substantial progress. When we compare the results against the specified targets and the accomplishments, we observe a consistent increase in income in all years, except for 2021. The decline in income for Fogera Woreda can be attributed to market challenges and a shortage of irrigation water caused by an extended dry season, resulting in a reduction in cabbage and green pepper vegetable production.

Regarding the sale of vegetables, the targets were consistently exceeded by anywhere from 3% to 25%, indicating that farmers were able to sell a higher proportion of their produce, ultimately boosting their earnings.

In terms of vegetable productivity, the project consistently outperformed tomato productivity in all years. In the final year, they exceeded the target by an impressive 25%. The remarkable growth rate of cabbage in 2023 is also worth noting, as the project managed to achieve 266% of its cabbage production target.

However, there was a slight underachievement in pepper production. Even when compared to the project's end targets, only 67% of the pepper production target was met. The reasons for this

underachievement can be attributed to early onset of the rainy season, resulting in fewer harvests than expected in 2020, a shortage of irrigation water causing production decreases in 2021, and a high incidence of disease in 2022, which further reduced pepper production.

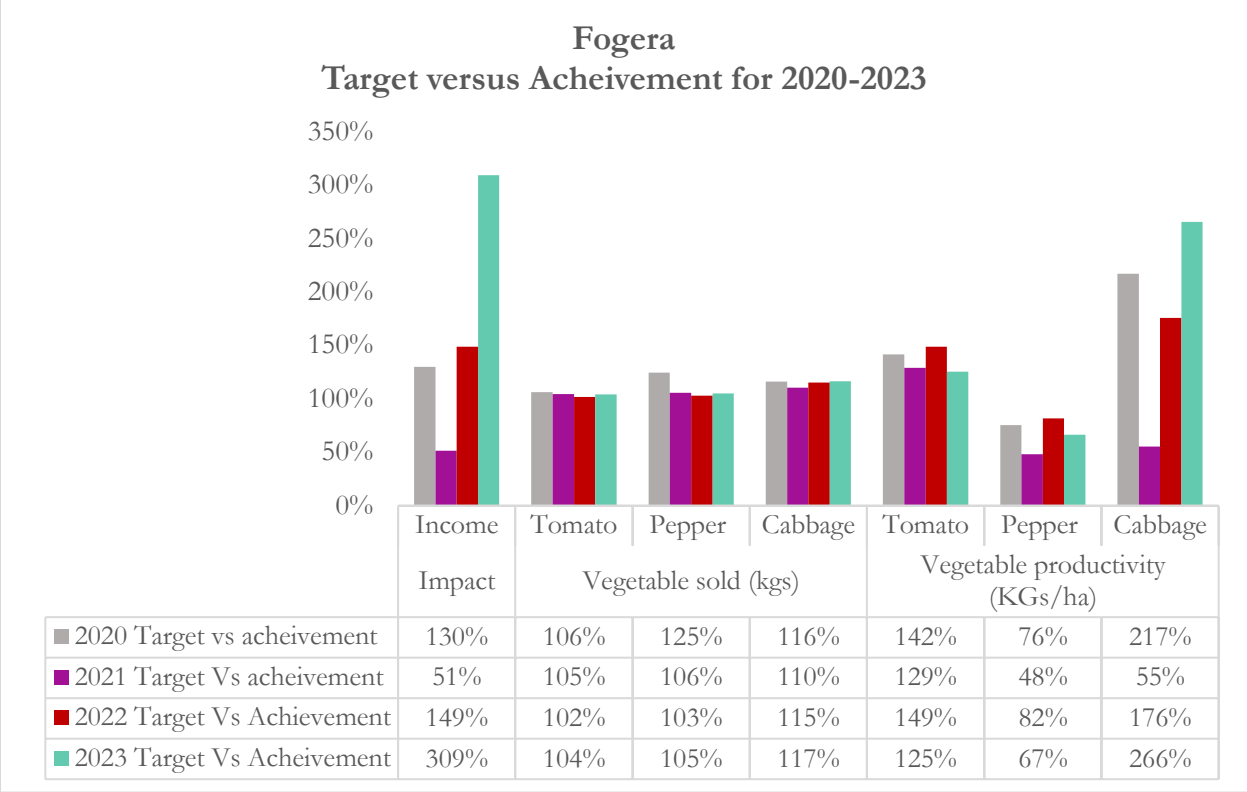

Figure 3: Overall targe versus achievement status for Fogera

The provided table offers a comprehensive breakdown of the impact and outcomes. When we compare the 2023 figures (end of the project period) with the baseline, it becomes evident that there has been an improvement across all parameters. The most notable increase is observed in income, which has surged from 2,420 birr to 13,102 birr, representing a remarkable 441% increase.

In terms of vegetable productivity, there have been substantial increases, with tomato productivity rising by 126%, pepper by 218%, and cabbage by a remarkable 386%.

Table 1: Target versus achievement status for Fogera

Fogera ORDA											
		Baseline	2020 Target	2020 Achievement	2021 Target	2021 Achievement	2022 Target	2022 Achievement	2023 Target	2023 Achievement	Increase since baseline
Impact	Income	2420	3630.2	4722.8	3630.1	1866	4235.38	6309	4,235.4	13102.3	**441%**
	Tomato	90.7%	93%	99%	94%	98%	95%	96%	94.8%	98.8%	**9%**

Vegetable sold (kgs)	Pepper	73.90%	79%	98%	88%	92%	90%	93%	90%	94.6%	**28%**
	Cabbage	80%	85%	99%	81%	90%	84%	97%	83.9%	97.8%	**22%**
Vegetable productivity (KGs/ha)	Tomato	22154	40000	56625	40000	51573	40000	59520	40000	50175	**126%**
	Pepper	5237	25000	18875	25000	12075	25000	20461.8	25000	16630	**218%**
	Cabbage	19145	35000	76011	35000	19387.2	35000	61548.3	35000	92966	**386%**

Cost benefit analysis

To evaluate the project's effectiveness, a cost-benefit analysis was conducted using data gathered from the year 2022.

Cost benefit analysis for ORDA

The calculations are based on the information extracted from terminal report.

2022/2023 Cropping Season:

Green Pepper:

- Investment per producer (with land cost): 18,723.67 birr
- Net profit per producer (with land cost): 9,676.83 birr per 448m2
- Net profit per producer (land excluded): 10,348.43 birr per 448m2

Tomato:

- Investment per producer (with land cost): 24,669.86 birr
- Net profit per producer (with land cost): 17,004.20 birr per 700m2
- Net profit per producer (land excluded): 18,115.79 birr per 700m2

Head Cabbage:

- Investment per producer (with land cost): 8,379.24 birr
- Net profit per producer (with land cost): 14,441.72 birr per 252m2
- Net profit per producer (land excluded): 14,764.08 birr per 252m2

Calculate the Return on Investment (ROI) for the year 2022/2023, using the following formula:

ROI = (Net Profit / Investment Cost) x 100

Where:

- Net Profit is the difference between the income (revenue) generated and the cost of investment.
- Investment Cost is the total cost of production.

To calculate the ROI for each vegetable crop for the year 2022/2023:

Green Pepper:

- Net Profit (with land cost): 9,676.83 birr per 448m2
- Investment Cost (with land cost): 18,723.67 birr per 448m2
- ROI (with land cost) = (9,676.83 / 18,723.67) x 100 ≈ 51.67%
- Net Profit (land excluded): 10,348.43 birr per 448m2
- Investment Cost (land excluded): 18,052.07 birr per 448m2
- ROI (land excluded) = (10,348.43 / 18,052.07) x 100 ≈ 57.27%

Tomato:

- Net Profit (with land cost): 17,004.20 birr per 700m2
- Investment Cost (with land cost): 24,669.86 birr per 700m2
- ROI (with land cost) = (17,004.20 / 24,669.86) x 100 ≈ 68.83%
- Net Profit (land excluded): 18,115.79 birr per 700m2
- Investment Cost (land excluded): 23,558.69 birr per 700m2
- ROI (land excluded) = (18,115.79 / 23,558.69) x 100 ≈ 77.06%

Head Cabbage:

- Net Profit (with land cost): 14,441.72 birr per 252m2
- Investment Cost (with land cost): 8,379.24 birr per 252m2
- ROI (with land cost) = (14,441.72 / 8,379.24) x 100 ≈ 172.11%
- Net Profit (land excluded): 14,764.08 birr per 252m2
- Investment Cost (land excluded): 8,051.93 birr per 252m2
- ROI (land excluded) = (14,764.08 / 8,051.93) x 100 ≈ 183.11%

Findings specific to WE-Action (Guba Lafto)

Evaluating the outcomes in Guba Lafto, a remarkable increase in 2023 becomes evident when compared to the baseline. Income saw a substantial surge of 345%, escalating from 6,284.8 Birr to 27,967.0 Birr.

However, an examination of the 2020 results reveals impressive achievements in pepper and cabbage productivity, surpassing targets by 363% and 236%, respectively. Yet, tomato productivity showed a lag in performance. This trend persisted in 2021, with targets being exceeded for pepper and cabbage productivity, while tomato production continued to fall short of the set target.

It's worth noting that due to security concerns, no activities took place in 2021, preventing the measurement of income and other parameters for 2022. Despite these challenges, the significant rise in income demonstrates that, if conditions stabilize, there is potential for these smallholder farmers to thrive.

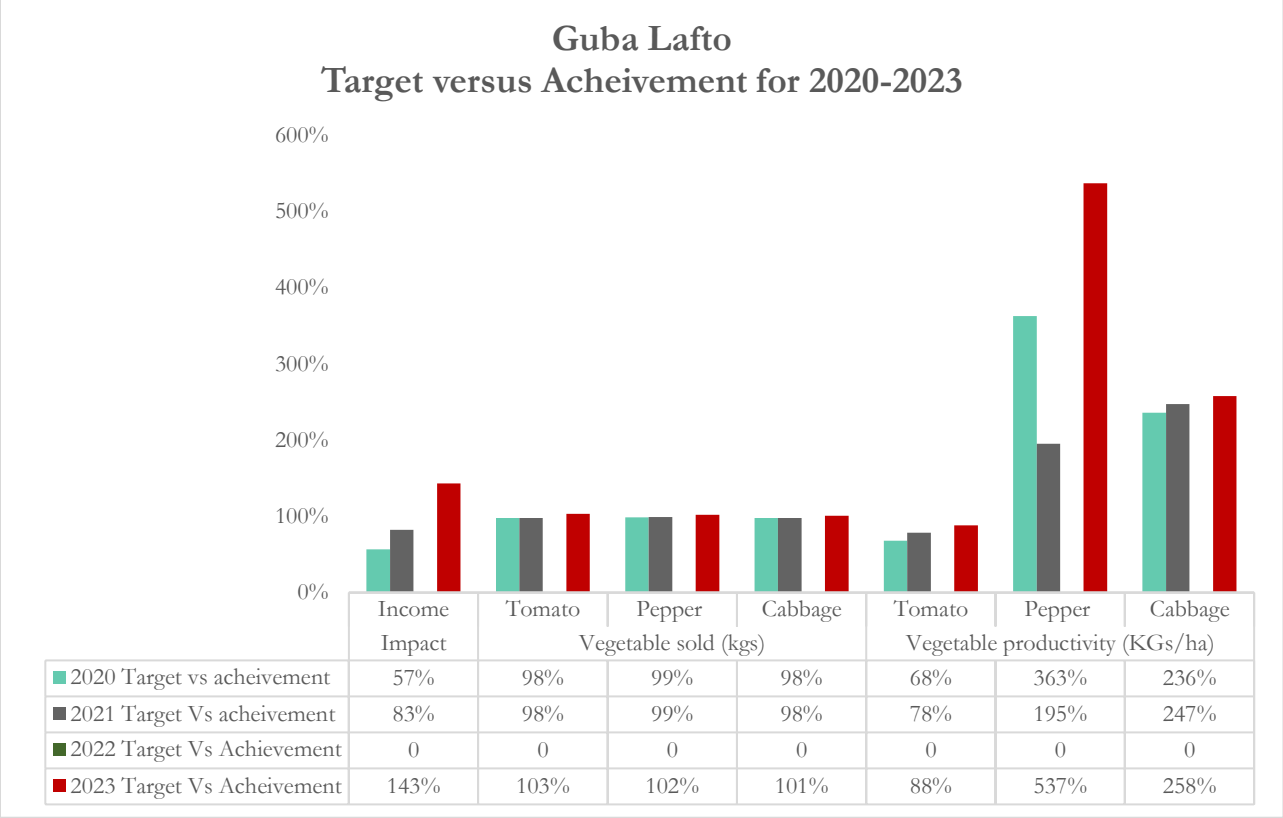

Figure 4: Target versus achievement status for Guba Lafto

The table below illustrates breakdown of the impact and outcomes. When we compare the 2023 figures (end of the project period) with the baseline, it becomes evident that there has been an improvement across all parameters. The most notable increase is observed in income, which has surged from 6284.8 birr to 27967 Birr, representing a remarkable 345% increase.

Table 2: Target versus achievement status for Guba Lafto

Guba Lafto WE-Action												
		Baseline	**2020 Target**	**2020 Achievement**	**2021 Target**	**2021 Achievement**	**2022 Target**	**2022 Achievement**	**2023 Target**	**2023 Achievement**	**Increase since baseline**	**Increase since baseline**
Impact	Income	6284.8	18013	10240	19406.74	16016.4	19406.74	NA	19496	27967	345%	345%
Vegetable sold (kgs)	Tomato	85%	89%	87%	95%	93%	95%	NA	95%	98%	103%	15%
	Pepper	92%	94%	93%	96%	95%	96%	NA	96%	98%	109%	7%
	Cabbage	90.5%	94%	92%	96%	94%	96%	NA	96%	97%	116%	7%
Vegetable productivity (KGs/ha)	Tomato	16788	37500	25490	38000	29810	38000	NA	38000	33471	84%	99%
	Pepper	1000	7500	27200	7900	15425	7900	NA	7,900	42433	170%	4143%
	Cabbage	20256	31000	73200	32000	79140	32000	NA	32,000	82483	236%	307%

3.3.2 OUTPUT LEVEL ACHIEVEMENTS

Supply of Quality Inputs:

Assessing the results year wise, in 2020, the project fell slightly short of its distribution target, achieving 94% of the intended seedling distribution. The adjustment made due to increasing seedling prices may have contributed to this underachievement. The year 2021 witnessed a significant underachievement in the seedling distribution, with only 40% of the targeted seedlings being supplied to farmers. The conflict in the North Wollo zone, resulting in no seedling distribution, and the departure of some farmers in South Gondar due to financial constraints contributed to this shortfall. This significant deviation from the target indicates a substantial challenge faced by the project during this period. In 2022, the project succeeded in slightly exceeding the target of 3,185,000 seedlings, demonstrating full achievement. Moreover, to mitigate the lack of productivity in the North Wollo area and alleviate difficulties faced by local communities, the project absorbed 100% of the seedling costs. This decision indicates a proactive effort to overcome challenges and ensure successful seedling distribution during the year. Nevertheless, in several cases, farmers were reluctant to pay their 50% contribution for the purchase of seedling, hindering the achieving of the target set for farmers repaying the 50% share.

In the context of Fogera, the project has extended its support to a total of 2,089 smallholder farmers over the entire duration of its project, with 987 of them being female, representing a 100% target coverage over the last four and a half years. As part of these efforts, the project has successfully provided 4,572,200 high-quality seedlings, reaching 91.18% of its intended target for the project's lifespan.

During the project period in Guba Lafto, out of the planned 3,884,400 seedlings, a total of 2,840,000 disease-free, high-yielding, and market-oriented vegetable seedlings were distributed, benefitting 1,286 individuals (766 of whom were female). The project also undertook significant irrigation infrastructure development, constructing a 1,973-meter canal to ensure continuous water access for irrigation. This initiative resulted in the irrigation of 350 hectares of farmland, benefiting 786 individuals, including 82 female-headed households.

Furthermore, the project extended financial and technical support to three irrigation cooperatives and one agro dealer during its implementation. These efforts were complemented by comprehensive training programs.

Knowledge Transfers and Trainings: A significant aspect of achieving the outcome was the need to increase knowledge and awareness about modern vegetable production practices. The project recognized that although farmers in the target districts had extensive experience in vegetable cultivation, they were still reliant on traditional methods. Addressing this gap, agronomic training of trainers (ToT) was conducted for project experts, extension workers, government specialists, and development agents. This training then trickled down to the targeted farmers, including both men and women.

The importance of proper irrigation water management was also emphasized, as water scarcity can significantly impact productivity. The project conducted assessments and initiated canal maintenance activities in 2019, laying the foundation for efficient irrigation. Capacity-building training was provided to water management committee members and project staff, focusing on proper irrigation practices and strategies for avoiding water scarcity.

According to the farmers from Fogera, the training and support provided by the project were highly valuable. They mentioned acquiring knowledge about planting and growing various vegetables,

integrated pest management, improved spraying techniques, post-harvest handling, and marketing linkage. As one farmer stated, "***Yes, we have enough knowledge about planting and growing tomato, pepper, and cabbage with the right spacing, watering at the best times, and using fertilizers and chemicals effectively."***

In the case of Guba Lafto, the farmers and Lead farmers have stressed that they learned a variety of valuable skills and knowledge from their training. They learned about modern farming techniques, including online planting, proper spacing between seedlings, field preparation, and pest and disease prevention. These skills have greatly enhanced their agricultural practices, particularly in the cultivation of tomatoes, peppers, and cabbage. Additionally, they gained insights into the importance of proper seedling distance and the use of fertilizers.

The first set of training programs is focused on ToT for Extension Workers. In 2020, the target was to train 39 extension workers, and the actual number trained was 52, exceeding the target by 33%. In 2021, the target increased to 60, and the actual number trained was 58, achieving 97% of the target. For 2022, the target was set at 42, and the actual number trained was 44, surpassing the target by 5%. This indicates a positive trend of consistently exceeding the training targets for extension workers. ToT to Model/Lead Farmers, had mixed results. In 2021, the target was to train 120 model/lead farmers, but only 36 received training, achieving a mere 30% of the target. The performance slightly improved in 2022, with 102 model/lead farmers trained, achieving 82% of the target. However, lead farmers in Fogera expressed the need for more comprehensive coaching and capacity building to effectively lead their groups. While lead/model farmers in Guba Lafto also lacked adequate support for empowering their groups as they were not well capacitated, coached and capitalized by implementing partners, positive outcomes were observed in terms of increased income and knowledge among farmers. Trainings to Smallholder Farmers in vegetable farming, Integrated Pest Management (IPM), and post-harvest handling, also showed varied outcomes. In 2020, the target was to train 1750 smallholder farmers, and the actual number trained was 1452, achieving 83% of the target. However, in 2021, despite an increased target of 3000, only 1570 farmers received training, achieving 52% of the target. The performance improved in 2022, with 2475 smallholder farmers trained, reaching 83% of the target. These trainings continued in 2023 during the non-cost extension period as well.

Other training programs, such as Training for Spray Service Providers (SSP) showed more positive results. For the Training for SSP in 2020, the target was set at 28, and the actual number trained was 33, surpassing the target by 18%. However, in the case of Training for Kebele Pestiside Agent (KPA) in the same year, the target was 7, but no participants were trained, resulting in 0% achievement. The information gathered from the annual reports indicates that the planned training for KPAs has been delayed. Although local authorities expressed approval of the KPA training during a pilot testing phase, regional authorities have requested that the training be temporarily suspended due to policy-related issues.

As per the monitoring reports, it was found that lead/model farmers who are expected to take over their group's responsibility were not well capacitated, coached and capitalized by implementing partners in either of the project areas (Fogera and Guba Lafto). Lead/Model farmers explained that they were not provided any special support that could add value to their leadership in empowering their follower farmers. They were provided a one-time capacity building training on agronomic practice, IPM and post-harvest handling like any other targeted beneficiary. Despite the lead farmers not being provided any special support, they have been working in the dissemination of messages/communications cascaded from extension workers and in sharing the knowledge they have. Highlighted by the promoter in the interview in Fogera, lead farmers received special training and

detailed training at both Woreda and Zonal levels. They played a crucial role in the project by facilitating communication, identifying pest occurrences, and conducting demonstrations on their plots for other farmers. This targeted support system enhanced lead farmers' capabilities and responsibilities within their communities.

The annual progress reports of the project sheds light on some significant challenges faced during the implementation of the programs and the achievements of smallholder farmers, particularly in the context of armed conflict and socio-economic constraints in the project areas. The armed conflict seems to have had a huge impact on the training initiatives, leading to dropouts among farmers due to insecurity and instability. Additionally, the farmers' inability to cover the cost-sharing of inputs might have further impacted the results, making it difficult for them to participate fully in the training programs. The conflict appears to have had substantial impact on women's participation in training activities. The war's consequences might have deterred women from participating, considering the increased risk of sexual and gender-based violence (SGBV) attacks, especially in the North Wollo area. This reluctance to travel away from their homes highlights the challenges women faced in accessing and participating in the training programs.

The overall perception of the SVVC project among agro-dealers and promoters from Fogera was also highly positive. They credited the project for improving their skills and knowledge, establishing market linkages, providing financial support, and introducing new agricultural practices. However, some suggested that extending the project's duration and expanding its reach to more Kebeles and beneficiaries could further enhance its impact.

Access to markets: Addressing the lack of a well-developed marketing system was identified as a critical factor for successful outcomes. The project trained staff in producer-led value chain analysis, leading to the development of value chain analysis documents by each implementing partner. Producer and marketing groups were established and strengthened, irrigation cooperatives were supported in facilitating input and output marketing, and efforts were made to improve the collection, analysis, and dissemination of real-time market price information to smallholder farmers.

Over the three years, the project worked to enhance market access for smallholder farmers in the project area. Various interventions were implemented, including establishing producer and marketing groups, facilitating business-to-business discussions, and organizing multi-stakeholder value chain platforms. Market linkages were created with vegetable traders, and capacity-building trainings were provided to cooperatives and agro-dealers. Despite challenges, such as conflicts and COVID-19 restrictions, the project consistently aimed to improve market access for farmers, making efforts to establish connections, strengthen relationships, and foster collective marketing opportunities.

As per the annual progress reports, in 2020, 50 producer and marketing groups were established and supported, and business-to-business discussions were facilitated. Eleven agro-dealers received training on business plans and marketing. In 2021, 36 producer and marketing groups were established and linked with agro-dealers, and market linkages were created with selected vegetable traders. Key stakeholders received capacity-building training on collective marketing and agricultural input provision.

Although efforts were made to organize quarterly multi-stakeholder value chain platforms to strengthen relationships between buyers and sellers throughout the project, market linkage in Fogera seems to be the biggest problem. The vegetable farmers argued that the SVVC project was not too successful in establishing an effective value chain multi-stakeholder committee/platform. All the farmers, unanimously complained about the absence of market linkage. Farmers reported difficulties

in finding good markets for their surplus produce. Challenges included the influence of brokers on pricing and the lack of nearby markets. These market-related issues resulted in reduced costs for their products. Farmers as of 2021 still sold their produce in the conventional way. Planning on when, where and how the produce is sold was weak. Farmers claimed that buyers tried to lower the price at the field against to the existing price in the market. As a result, farmers sold their product at a competitive price during harvest. On the contrary, in Guba Lafto, it was seen that the project attempted to contact producers and traders in the multistakeholder value chain platform and agreement reached between farmers and traders to buy 10-15% over the market price at their farms. Meanwhile, increasing the number of planting rounds helped avoid bulk supplying that saturate the market.

Despite targeted smallholder farmers complaining about the absence of market linkage, the quality of the seedlings was very much productive and earned them better. They received proper training, enough farm inputs and seedlings on time. However, the rising prices of fertilizer, pesticides, fuel and other technical support posed hurdles.

The table below illustrates the progress on the output level over the years:

2020	**Output 1.1**	**Output 1.2**	**Output 1.3**
	Increased Local Supply of Quality Inputs	**Enhanced Knowledge in Vegetable Production**	**Improved Market Access**
2019	The project managed to distribute a substantial number of vegetable seedlings to targeted farmers in 2019. Approximately 800,000 seedlings, comprising 92,800 cabbages, 188,800 tomato, and 518,400 pepper seedlings, were distributed to a total of 498 (322W) farmers.		Project introduced new agricultural technologies and inputs, setting the stage for sustainable market linkages and improved practices in the future.
2020	The project targeted distributing 2,366,800 improved hybrid vegetable seedlings of cabbage, pepper, and tomato to smallholder farmers in 2020. Although this was adjusted due to rising seedling prices, the actual distribution was 2,228,800 seedlings.	While the original plan was to train 39 extension workers on agronomic practices, integrated pest management, and post-harvest handling, 52 extension workers received training (including 8 women). Training was planned for 1,750 smallholder farmers (including 790 women) but reached 1,452 (860 women)	Eight cooperatives were initially identified for marketing system development, but only four were sufficiently functional. The project supported these four, establishing 50 producer and marketing groups, facilitating business-to-business discussions, and training agro-dealers. Efforts were made to enhance market access through various

		due to COVID-19-related issues. For model farmers, 70 received close follow-up, while 35 (5 women) underwent training due to realignment of the budget to cover increased seedling costs caused by inflation.	collaborations and platforms, though some activities were impacted by COVID-19 travel restrictions.
2021	Although the project aimed to distribute 2,975,000 improved hybrid seedlings of tomato, pepper, and cabbage in Q4 2021, the actual distribution at the end of the planting season was 1,198,400 seedlings. Factors contributing to this shortfall included conflict-related seedling distribution halt in North Wollo and farmers leaving the project in South Gondar due to financial constraints.	Training of trainers (ToT) on improved agronomic practices, integrated pest management, and post-harvest handling was provided to 58 extension workers, including 10 women. The original plan aimed to train 60 extension workers, including 11 women. While the plan was to provide ToT for 120 model/lead farmers (59 women) on improved vegetable production and leadership, only 36 model/lead farmers (3 women) received this training due to armed conflict and drop-outs. Similar factors affected the training and supervision of smallholder farmers, with only 1,570 (812 women) reached out of the targeted 3,000 (1,937 women).	Eight cooperatives were initially identified for marketing system development, but only four were sufficiently functional. Market access was improved through various activities, such as multi-stakeholder value chain platforms, establishing producer and marketing groups, and creating market linkages with vegetable traders.
2022	By the end of 2022, the project provided 3,185,000 improved hybrid seedlings of tomato, pepper, and cabbage to targeted farmers, slightly surpassing the annual target. This included 100% of the North Wollo area, which faced conflict-related challenges in the previous year. The project covered the seedling costs for South Gondar due to economic difficulties.	In terms of training, the ToT sessions for improved agronomic practices, pest management, and post-harvest handling targeted 44 extension workers, including 8 women, compared to the planned 42 extension workers (9 women). Model/lead farmer training aimed at 125 participants (62 women), but the achievement was 102 model/lead farmers (5 women). Gender-specific challenges, influenced by the conflict's impact, played a role in the underachievement	Training and capacity building activities continued to strengthen the involvement of key project stakeholders, including farmers' cooperatives, RUSSACOs, irrigation cooperatives, and agro-dealers. Quarterly multi-stakeholder value chain platforms were organized to enhance buyer-seller relationships, and 46 producer and marketing groups were established to improve market access. Market linkages with vegetable traders were reinforced, and training

		among women. Challenges also affected the training and supervision of smallholder farmers on vegetable farming, IPM, and post-harvest handling, resulting in the achievement of 2475 farmers (1278 women) out of the planned 3000.	sessions for traders and project staff in marketing and business skills were conducted.

3.3.3 OTHER PROJECT GAINS

Support beyond training: Farmers received ongoing support beyond training, including field-level monitoring, daily advising, marketing linkages, and the facilitation of a revolving fund for local traders. The promoters in interviews from Fogera explained that they offered extensive support to farmers beyond training, including day-to-day follow-ups, regular support for at least two days per week per beneficiary, monitoring of irrigation and pest management, guidance on plot preparation, practical demonstrations on fertilizer use, assistance in selecting and using chemicals, supervision of spraying and environmental protection, and decision-making support regarding harvest timing and marketing linkages. This comprehensive support system ensured farmers received continuous guidance throughout the project.

Provision of revolving fund: The project's approach to facilitating a revolving fund for local traders involved a systematic process. Initially, the finance was directed to the Rural Saving and Credit Cooperatives (RUSACCO) situated within the project's Kebele explained the implementing partner from Fogera. To ensure transparent and efficient management and distribution of these funds, a comprehensive agreement was crafted by the Woreda SVVC technical committee. This agreement outlined the specific guidelines and procedures for handling and disbursing the finance to the selected local traders. To establish a fair and objective selection process for these traders, the technical committee established official screening and selection criteria. Subsequently, after the thorough screening of four local traders, the RUSACCO initiated agreements with these selected individuals. Following these agreements, the RUSACCO facilitated the transfer of the designated loans to each of the chosen local traders. These traders, in turn, played a crucial role in establishing market linkages to purchase vegetables directly from the project beneficiaries.

Interview with the promoters shed light that beneficiaries were assigned to specific agro-dealers. Beneficiaries used project-issued IDs for purchasing chemicals exclusively from their assigned agro-dealers. The project facilitated a revolving fund, offering beneficiaries a 25% discount and agro-dealers a 75% return. This approach strengthened the relationship between smallholder farmers and agro dealers and was mutually beneficial.

The strength of the revolving fund approach was mentioned as a capital booster for agro-dealers, enabling them to provide discounts and increase their supply capacity. The feedback from the development agent in one interview was largely negative. He explained that many farmers saw it as providing little to no benefit, expressing concerns about its potential to foster dependency, burden extension workers, negatively impact non-beneficiary farmers, and strain relationships within the farming community.

Improved relationship: The relationship between agro-dealers and farmers improved significantly during and after the project. Farmers sought advice, and agro-dealers provided inputs on credit. The project's

influence was apparent in the trust and communication between the two groups. One of the agro-dealers from Fogera expressed, ***"We have good communication. I give inputs in credit and advise them how to use. We have a nice relationship after the project."***

3.3.4 EFFECTIVENESS OF JOYTECH'S INITIATION

The effectiveness of JoyTech's initiation was highlighted through insights shared by a representative of JoyTech during an interview. The interview revealed that JoyTech's efforts had garnered widespread recognition and acknowledgment. Notably, their brand and contributions were recognized by a spectrum of stakeholders, including project implementing partners, beneficiaries, and even non-project beneficiaries within the project's operational areas. This recognition stood as a testament to JoyTech's impactful role and underscored their significant presence as a transformative force in the agricultural domain. The representative further shared that JoyTech's involvement had yielded a distinct market development impact, particularly within the local market. Importantly, this achievement was not driven solely by profit motives. Instead, it was aligned closely with the overarching objectives of the project. In sum, the representative's interview shed light on JoyTech's comprehensive impact, spanning branding, market development, and the transfer of essential knowledge and skills. These insights illuminated the depth of JoyTech's contributions and their alignment with the project's objectives of sustainable progress and empowerment within the agricultural realm.

The evaluation ascertains that JoyTech's contributions played a pivotal role in nurturing a thriving market environment, reflecting their commitment to fostering growth and progress within the community. There was a knowledge and skill transfer from JoyTech that directly benefitted the beneficiaries and indirectly to the neighboring small holder farmers.

- JoyTech's guidance led to the adoption of advanced agronomic practices. This encompassed optimizing land preparation, delineating planting spaces in organized rows, and employing effective crop management techniques. These practices collectively resulted in increased crop yields and heightened productivity.
- JoyTech's expertise contributed to enhanced irrigation efficiency. Farmers gained valuable insights on how to wisely utilize water resources, leading to improved crop growth while minimizing wastage.
- JoyTech's interventions had a positive impact on the utilization of agricultural inputs. Farmers were equipped with the knowledge to effectively deploy inputs like fertilizers and pesticides, leading to healthier crops and enhanced yields.
- JoyTech's contributions extended to refining marketing strategies. Beneficiaries and farmers received guidance on effective marketing techniques, empowering them to position their produce more strategically within the market and enhance their economic prospects.

Repurchase of seedlings from JoyTech

The repurchase of seedlings from JoyTech after the initial distribution did not occur as anticipated. The proportion of farmers who engaged in repurchasing seedlings was notably low, accounting for less than 5% of the total beneficiaries as reported by JoyTech's representative. This repurchasing activity was limited to farmers from the Fogera area. Several factors contributed to the subdued rate of repurchasing seedlings. For example, JoyTech shared that one significant factor was the elevated cost of transport. The logistics involved in transporting small packs of seedlings posed a challenge, particularly for a small number of beneficiaries. The cost associated with transporting these seedlings

likely outweighed the benefits for many farmers, rendering the repurchasing option less appealing. Furthermore, the impact of inflation further compounded the challenges. The price of seedlings experienced a consistent increase over the course of the project's duration. When the project commenced, the price per seedling was 2.5 birr. However, as the project progressed, this price escalated to 5.4 birr during the project's midpoint and eventually reached 7.8 birr by the project's conclusion. This rise in seedling prices over time likely deterred potential repurchasing, as farmers faced higher costs that might have been less feasible within their budget constraints.

Challenges pertaining to effectiveness of JoyTech's initiative

JoyTech's project aimed to transition farmers towards self-sufficiency with a gradual approach. However, external factors, including conflict-induced economic instability and inflation, disrupted this plan. Farmers prioritized basic needs over investing in hybrid seedlings due to limited purchasing power. Hyperinflation and high market costs compounded these challenges. As a result, farmers couldn't generate expected revenue, despite initial progress. JoyTech faced additional hurdles, such as COVID-19 impacts, conflict, inflation, and limited foreign currency access, affecting profitability. Currency scarcity hindered seedling production even after the project ended.

Market challenges included inaccessible markets, price fluctuations, and middlemen involvement, complicating profit distribution for smallholder farmers.

3.3.5 EFFECTIVENESS OF FARMFORCE'S INITIATIVE

Farmforce, as one of the private partners engaged in the project, collaborated closely with the Development Fund and worked in conjunction with JoyTech. Together, they shared a unified objective: to enhance the productivity of farmers. Farmforce introduced a digital solution designed to revolutionize agricultural management and optimize supply chain efficiency, with a specific focus on smallholder farming. This innovative solution harnessed the capabilities of software and data management tools to address the multifaceted challenges encountered by farmers, cooperatives, and organizations within the agricultural sector. The scope of these challenges encompassed various facets of agriculture, spanning from production and traceability to market access and sustainability.

The essence of Farmforce's software and technology was rooted in its ability to address the inefficiencies pervasive within the agricultural sector, particularly in the context of smallholder farming and supply chain management. The motivations behind the development of Farmforce's technology were numerous. Notably, traditional agricultural practices often grappled with inadequate data collection and management systems. Farmforce's technological solution sought to bridge this gap by offering a digital platform that aggregated and centralized essential data pertinent to farming activities, crop yields, input utilization, and other critical information. Moreover, within the complex supply chains of agricultural produce, the tenets of traceability and transparency were identified as paramount to ensure product quality, safety, and overall accountability. In this regard, Farmforce's technology played a pivotal role in facilitating the monitoring and tracing of agricultural inputs, production processes, and the intricate pathways of distribution.

Beyond its significance to the project, Farmforce's technology proved advantageous to its users, encompassing both extensive workers and DF itself. The software's functionality as a digital platform for record-keeping and data management bolstered the overall efficiency of farm operations. Agricultural extension workers found themselves empowered to not only monitor their activities but also to track progress and receive guidance on optimal practices. This collaborative approach resulted in enhanced productivity and more effective management of resources, signifying a noteworthy stride toward sustainable agricultural practices.

Challenge for Farmforce

While the project achieved several positive outcomes, it also encountered a number of challenges associated with the utilization of the system.

Notable among these challenges were limitations in connectivity, particularly in rural areas. This connectivity issue adversely affected the synchronization of data, impeding the seamless flow of information within the system. Additionally, the requirement for continuous support and updates became apparent, underscoring the necessity of maintaining the system's functionality and relevance.

Collaborators engaged in the project also voiced concerns related to financial aspects. The initial investment costs associated with implementing the system emerged as a notable challenge. These costs encompassed expenses related to software integration, training, and equipment procurement. The financial landscape was further complicated by funding constraints, limiting the ability to allocate resources as needed.

Technical limitations also surfaced as a challenge in the system's implementation. The challenge of providing tablets for training purposes was acknowledged, indicating a need for addressing logistical complexities related to equipment distribution and usage. These challenges collectively illustrated the need for a comprehensive approach to tackle technical, financial, and logistical obstacles to ensure the system's effectiveness and success.

3.4 CRITERIA: EFFICIENCY

DF has actively employed strategies to assess the efficiency of the project in utilizing resources to deliver results in an economic and timely manner. The focus on cost-effectiveness and operational efficiency was a fundamental consideration throughout the project's implementation.

Firstly, DF prioritized utilizing the expertise and resources available within the stakeholder network and DF itself. This approach aimed to reduce dependency on external sources for capacity building and training. By organizing on-site training sessions and workshops, the project minimized costs associated with distant travel and logistics. It was found that the implementing partners used their project staff exhaustively, together with relevant government stakeholders and kebele leaders, to meet the objectives of the project. Coordination with all stakeholders was evident, particularly in the implementation of planned activities. By leveraging government expertise to cascade capacity-building trainings to target farmers, the project reduced expenses while empowering local communities. Organizing trainings at the kebele level, in close proximity to beneficiaries' villages, further lowered costs associated with transportation and venue rental.

Another critical strategy to ensure cost-effectiveness was adhering to the 80-20 rule, where a significant proportion of the budget was allocated to program-related activities rather than administrative costs. DF maintained a strong emphasis on directing resources towards the core programmatic activities rather than administrative overhead. Insights into the allocation of the budget to different project components indicate how resources were distributed to different project activities. This approach aimed to streamline resource distribution to activities that directly contributed to achieving the project's objectives.

While the project might not have initially incorporated a specific cost efficiency and effectiveness approach, DF adapted to new developments. Norad introduced a cost efficiency/effectiveness approach in 2021, accompanied by a clear template. DF embraced this approach by generating relevant information for internal assessment exercises.

Review of monitoring reports revealed that the other project cycle management activities, such as joint planning and organized joint monitoring with relevant stakeholders, were carried out to the required extent. In Guba Lafto, WE-Action had been collaborating with stakeholders in an integrated manner at each project phase. However, concerning the issue of seedling cost sharing, it was found that the field office had not diligently followed up on it, and the relevant government stakeholders had also not strictly collaborated in collecting the farmers' share of the costs.

The government stakeholders expressed contentment with the partners' collaboration with all woreda offices during the implementation and monitoring of the project. In this regard, Woreda Officials from Fogera shared that this partnership extends to various sectors within the government, fostering effective cooperation. Regular meetings, evaluations, and the presence of committees further contribute to this efficient coordination. Timeliness is another strength, with a well-structured schedule for training and evaluations to ensure activities progress as planned. Despite these strengths, some participants note concerns about the project's relatively short duration of 3 to 4 years. In terms of resources, the project provides valuable support, including financial assistance, capacity-building through training, and the introduction of modern agricultural practices. Expanding resources, as suggested by some respondents, could further enhance the project's efficiency, especially when considering the inclusion of more beneficiaries and target Kebeles in a potential second phase.

The government stakeholder at Woreda level from Guba Lafto expressed that one of the project's notable strengths is its accurate identification and engagement of stakeholders, coupled with effective engagement of government officials. He further noted that comprehensive documentation and adherence to the project's schedule have contributed to its success.

3.4.1 ADAPTATION OF PROJECT

The project demonstrated an impressive level of adaptability throughout its implementation. The initial business model stipulated that farmers would receive free seeds in the first year and a 50% discount in the second year. However, the project adeptly responded to the challenges posed by the conflict situation and its lingering impact, showcasing its capacity for adaptation.

In the face of the unforeseen circumstances, the project had to consistently provide seedlings free of charge in both the first and second years to a significant proportion of farmers. Farmers in the FGDs and KIIs praised the project for delivering seedlings on schedule, enabling them to plant and cultivate crops during the intended season. This efficiency was reinforced in KIIs, as one informant noted, *"The project has enough supplies and creates a good working environment, which ensures things run smoothly."*

Consequently, the project had to actively engage new farmers to replace those who were displaced and no longer able to commit to the project. In response to the seedling distribution shortfall, the project formulated plans for accelerated implementation in 2022, involving an expanded scale of planting and engagement of more farmers than initially intended. In terms of the cost-sharing model, the project demonstrated adaptability by extending credit to farmers who were either unable or unwilling to cover their share of seedling costs. Additionally, in the conflict-affected region of North Wollo, the project assumed full responsibility for seedling costs, aiming to mitigate setbacks in project development achievements.

Moreover, to counteract the effects of inflation, the project introduced adjustments in cost-sharing and implemented eco-green bio-liquid fertilizer as a cost-effective alternative to urea. The integration of organic fertilizer application using manure was also intended to mitigate the impact of inflation. To enhance the participation of women, the project collaborated with DF gender advisor to evaluate novel approaches and guarantee inclusivity in relevant project activities.

Acknowledging the impact of armed conflict in Northern Ethiopia on the project's overall interventions, contingency planning was undertaken, and implementation plans for 2022 and the NCE period in 2023 were expedited. These endeavors were aimed at navigating challenging circumstances and sustaining project advancement.

Remarkably, despite the adverse events and the need for significant adaptations, the project maintained stability and adeptly steered its course in the most effective direction possible. This ability to pivot and respond to changing circumstances underscores the project's resilience and underscores its commendable execution.

3.4.2 FUND MANAGEMENT

DF employed a well-structured approach to manage the disbursement of funds throughout the project implementation, ensuring transparency and accountability at every stage. The financial management and control mechanisms put in place demonstrated a commitment to effective resource utilization and project success.

The project's preparation and submission to Norad in 2019 set the foundation for a structured financial management process. Implementing partners then crafted detailed work plans and budget breakdowns for each of the subsequent years. The total project budget was distributed to each partner for every year based on the allocated budget. This approach ensured that each partner received funds commensurate with their responsibilities and activities. The disbursement schedule was divided into two phases. This initial disbursement, amounting to 50% of the total budget, took place upon project signing following Norad's approval. This step typically occurred between February and April after project submission in October. The remaining 50% of the total budget was disbursed upon request by implementing partners, contingent on budget utilization. This approach facilitated a flexible and efficient allocation of resources based on project progress.

Corroborating this the representative from ORDA Ethiopia cited that funds were transferred to ORDA Ethiopia's bank account, a process that occurs in two installments during each project year:

"As per the annual project document prepared and approved by the DF, the budget of the SVVC was transferred into ORDA Ethiopia's bank account." "The budget in each project year from the DF was transferred on two sessions."- ORDA Ethiopia

These fund transfers are closely tied to the project's annual plan, Importantly, project funds are allocated in a manner consistent with the project's activity plan, budget, and grant agreement, ensuring transparency and accountability:

"The SVVC project was utilizing the fund in relation to the activity, budget plan, and the grant agreement signed by the two partners."

The project maintained a vigilant approach to budget monitoring and financial accountability. Budget and financial monitoring were conducted twice a year, ensuring that the project's financial health was consistently evaluated. Moreover, annual project auditing was conducted by each implementing partner, bolstering internal accountability. To ensure overarching financial integrity, an annual program audit took place at the central level in Oslo.

While there were minor delays in budget disbursement during the project's timeline, the process remained smooth overall. Particularly, Year 3 and Year 4 witnessed seamless budget disbursement, contributing to the project's steady progress.

The financial records from partners ORDA and WE-Action for the SVVC project included annual budget plans. These plans outlined the allocation of funds under categories like project outcomes (increased seedling supply, improved vegetable knowledge, and enhanced market access), project-related expenses (seminars/consultancy, field travel, and capital spending), administrative costs, and personnel expenses.

Flexibility is a hallmark of this partnership, with the DF's willingness to adapt the budget plan as needed***: "The DF is open to revising the budget plan as needed at any time."***

3.4.3 EXTERNAL CHALLENGES IMPACTING EFFICIENCY

The SVVC project encountered formidable external challenges that significantly impacted its overall progress and objectives. These challenges were primarily rooted in unexpected external factors, including the unprecedented COVID-19 pandemic and an ongoing armed conflict that persisted from 2020 to 2022.

The onset of the COVID-19 pandemic and its subsequent disruptions had profound implications for the SVVC project. The pandemic disrupted crucial linkages between farmers and traders, resulting in a ripple effect that directly impacted vegetable sales. The intricate network of supply and demand was disrupted, leading to financial setbacks and logistical hurdles that affected the project's objectives.

In addition to the pandemic, the ongoing armed conflict in Ethiopia added another layer of complexity to the project's challenges. This conflict had a dual impact. Firstly, it led to the temporary halt of project activities in the Amhara region, disrupting ongoing interventions and delaying progress. Secondly, the conflict rendered farming interventions in the Tigray region impossible from mid-2020 onwards. The repercussions of this conflict extended beyond direct accessibility challenges. The hyperinflation triggered by the conflict inflated the costs of essential resources like seedlings, imposing an economic strain on farmers' revenues. This, in turn, complicated the overall landscape of the project, impeding its ability to meet its objectives effectively.

3.4.4 EFFICIENCY CONCERNS EXPERIENCED IN DISTRIBUTION OF SEEDLINGS

Efficiency-related challenges surfaced within distribution of seedlings as a part of JoyTech's operations during the project's duration. The project operated in a volatile environment characterized by the emergence of multiple factors, including the onset of the COVID-19 pandemic in March 2020, the escalation of conflict in the North since November 4, 2020, and the pervasive impact of high inflation. These external dynamics collectively impeded the efficiency and timeliness of JoyTech's seedling production and distribution endeavors.

The challenges led to a sequence of implications:

- The tumultuous environment prompted delays in the production of seedlings. Moreover, the necessity to relocate the nursery seedling site from South Tigray (Mehoni) to Bishoftu introduced additional production and transportation costs.
- The financial implications of the environment became evident in the escalating costs of seedlings. The price of seedlings surged from 2.5 birrs in 2020 to 7.80 birrs in 2022, indicative of the adverse financial effects borne by JoyTech.
- The project's support for three rounds of seedling distribution involved cost-sharing arrangements. The project covered 100% of the costs for Year 1, while project beneficiaries were expected to contribute 50% in Year 2 and 75% in Year 3. However, the achievement in Year 3 fell below the targeted threshold, with participation reaching only around 40%, significantly lower than the intended 70%.

Lesson learned from cost-sharing approach

- The project's experience with cost-sharing arrangements highlights the importance of flexibility in adapting to unforeseen challenges. The lesson is to develop flexible cost-sharing mechanisms that can accommodate unforeseen circumstances without placing undue financial burden on beneficiaries.
- In regions prone to instability, projects should have contingency measures in place to continue implementation or adjust targets and timelines accordingly. The lesson is to incorporate conflict-sensitive planning and responses into project design to maintain continuity in adverse conditions.
- Projects should continuously monitor progress and adjust strategies based on real-time challenges and feedback. Lesson: Regularly assess project performance and be prepared to modify cost-sharing structures and strategies as needed to ensure continued engagement.
- Consideration should be given to equity and inclusivity in cost-sharing arrangements. The lesson is to develop cost-sharing models that consider the economic diversity of project participants, ensuring that contributions remain affordable for all.

3.4.5 MITIGATION OF EFFICIENCY-RELATED CHALLENGES FACED BY JOYTECH

Despite the external challenges, once the decision was made to relocate seedling production to Bishoftu, JoyTech demonstrated a commitment to prompt implementation. To streamline their processes, implementing partners were entrusted with consolidating and reporting the specific demands for seedlings from project beneficiaries to JoyTech three months in advance. Additionally, JoyTech devised a well-structured seedling production, delivery, and distribution schedule. This schedule adhered to specific timelines: a 30-day period for tomato and cabbage seedling production, and a 40-day period for green pepper seedlings. To enhance operational efficiency, JoyTech conducted on-the-ground assessments of land preparation for planning purposes. This involved inspecting the delivery centers and evaluating the readiness of the land. A one-week assessment window was allocated, with contingency planning for potential delays in land preparation, allowing for a buffer of 3 to 4 additional days before the actual seedling delivery and distribution.

These streamlined implementation approaches were designed to address the time-sensitive nature of seedling production and distribution. Despite the overarching challenges, JoyTech's commitment to efficient execution, evidenced by these strategic measures, played a crucial role in ensuring that seedlings were produced and delivered in a timely manner.

3.5 CRITERIA: PARTNERSHIP AND COLLABORATIONS

3.5.1 STRATEGIC FACILITATION AND COORDINATION BY DF

DF established clear project agreements with various implementing partners and stakeholders, outlining their respective roles and responsibilities within the project framework. These partnerships and collaborations were essential for achieving project objectives and ensuring smooth operations.

JoyTech and SNV were designated as strategic partners of DF. These partnerships entailed shared goals and responsibilities aimed at driving the project's success. ORDA and WE-Action were identified as implementing partners. They played a pivotal role in executing the project activities and achieving the desired outcomes. ORDA Ethiopia and We Action had their own project agreements with the Regional Bureau of Agriculture, further solidifying the alignment of efforts and responsibilities.

DF played a pivotal role in ensuring the smooth and efficient implementation of the project through a strategic approach to coordination, collaboration, and oversight. DF's proactive measures encompassed a range of activities that not only set the stage for successful implementation but also fostered a culture of collaboration and shared responsibility among stakeholders.

- DF initiated the implementation journey by establishing structured agreements. A Memorandum of Understanding (MoU) was meticulously prepared, outlining the roles, responsibilities, and expectations of each stakeholder. This document served as a guiding framework throughout the project period, ensuring clarity and accountability.
- Collaboration was further facilitated by a Detailed Implementation Plan that was jointly developed with implementing partners and stakeholders. This plan delineated the steps, timelines, and strategies to be undertaken, enabling all parties to be aligned and synchronized in their efforts.
- Recognizing the importance of clear communication, DF initiated awareness-building sessions at the project's commencement. These sessions enlightened partners about the project's modalities, enhancing understanding and buy-in from the outset.
- DF established a robust monitoring framework, conducting joint monitoring sessions on a quarterly basis. These sessions not only tracked progress but also created a platform for stakeholders to exchange experiences and collaborate on solutions to challenges encountered.
- To ensure high-level oversight and strategic direction, steering committees were established at both the national and Woreda (district) levels.
- Multi-stakeholder platforms were set up at the Woreda level, serving as regular forums for engagement and coordination. The minutes of these meetings provided valuable insights and references for ongoing actions.
- In a pivotal role, DF appointed a Project Advisor who served as a central figure for collaboration and coordination. This advisor acted as DF's point of contact, fostering networks and liaising with partners and stakeholders. Beyond facilitation, the advisor also provided advisory and technical services to enhance project outcomes.
- DF's commitment to capacity-building was evident through the organization and facilitation of training activities. These initiatives aimed to enhance stakeholders' skills and knowledge, contributing to improved project execution.

3.5.2 EFFECTIVENESS OF PARTNERSHIP

The project's formulation was also guided by the lessons learned from a previous collaboration between DF and implementing partners on the honey value chain and CARD project on climate adaptation and rural development. Building upon this successful partnership, the initiative was extended to the vegetable value chain. Partners such as WE Action and ORDA were selected based on their proven track record in climate action and rural development programs.

Coordination of DF with implementing partners: The collaboration between ORDA Ethiopia and the DF has been pivotal for the project's success. This partnership dates back to 2016, originating from a prior project called the Climate Smart Food and Nutrition Security Project (CSFNSP) in two Woredas of North Shoa. According to the interviewee, the continuity of this partnership was instrumental: This historical collaboration laid the groundwork for the subsequent SVVC project in Fogera Woreda. Over time, ORDA Ethiopia and DF have cultivated a robust partnership characterized by effective working *management* ***"In the course of the project implementation, ORDA Ethiopia & DF have established a good partnership for working management."*** The

DF's contribution extends beyond financial support. They have played a proactive role in enhancing the capacity of project staff through various training initiatives:

"The DF works on capacitating of staffs on relevant areas through different trainings."

Furthermore, DF's involvement includes project monitoring and follow-up, ensuring that the project aligns with its objectives and operates efficiently:

JoyTech, DF and implementing partners: JoyTech's collaboration with DF and implementing partners exemplified a model of effective cooperation and coordination that contributed significantly to the project's success. This robust partnership was characterized by its multi-dimensional approach, fostering shared responsibilities, transparency, and mutual learning in the face of challenging external circumstances. The partnership fostered a sense of shared ownership and responsibilities among all stakeholders. Open communication and shared understanding were central tenets of the collaboration**.** The partnership facilitated the transfer of knowledge and skills among partners. Collaboration translated into tangible action. Jointly developed strategies and implementations were a testament to the power of collective efforts. The partnership embodied a culture of learning from one another's experiences, enhancing the collective capacity to navigate challenges and seize opportunities.

JoyTech's involvement in crucial committees, including the steering committee, technical working group, and joint monitoring team, showcased its active participation in project management and oversight. JoyTech's commitment was demonstrated by its participation in planning meetings, quarterly gatherings, and knowledge-sharing sessions. By actively engaging in these events, JoyTech contributed to the continuous improvement of the project's strategy and execution. Moreover, JoyTech's role was not limited to execution; it extended to accountability. Regular submission of annual plans and progress reports—both quarterly and annually—ensured a transparent flow of information and the tracking of achievements and challenges.

Despite the prevailing volatile external environment—including COVID-19 and conflict—JoyTech's collaboration with DF and implementing partners stood strong. This unity of purpose and shared approach contributed to the project's adaptability and success.

DF's relationship with private partners - JoyTech and Farmforce: The collaboration between JoyTech and Farmforce in the form of a strategic partnership yielded notable results. According to insights shared by DF, the partnership encountered a smooth and harmonious trajectory. Despite the individual vested interests of the private partners, their commitments aligned with their promises. For instance, JoyTech aimed to establish a nursery in the Tigray region, with the objective of serving as a gateway to promote hybrid seedlings. Simultaneously, Farmforce sought to test and refine their software and technological solutions through this pilot initiative.

Both private partners leveraged the pilot project to test their offerings and gather invaluable lessons. The experience encompassed both favorable outcomes and challenges. JoyTech, while aspiring to establish a nursery in certain conflict-affected areas, faced hindrances due to the ongoing conflict and unfavorable environmental conditions that hindered quality assurance. On the other hand, Farmforce tested their technology, albeit encountering potential disparities in usability compared to initial expectations. Nonetheless, both partners displayed resilience by staying committed to their original intentions, not swaying from their goals in the face of challenges.

Collaboration between JoyTech and Farmforce: The collaboration between DF and private partners yielded a synergistic outcome, with both JoyTech and Farmforce playing integral roles in achieving positive results for farmers. While the partnership between JoyTech and Farmforce might

not have been explicitly defined, it was implicit that their combined efforts were pivotal in driving successful outcomes within the project. This partnership underscored the potential of amalgamating technological solutions and high-quality inputs to foster successful agricultural endeavors.

The collaborative relationship between Farmforce and JoyTech can be characterized as complementary, with each partner contributing distinct yet interconnected elements to enhance agricultural practices. This complementary nature was particularly evident in their joint efforts to amplify the impact of JoyTech's high-caliber seedlings on farmers' productivity.

Notably, a publication by Farmforce spotlighted JoyTech's recognition of the significance of Farmforce's advanced data storage and efficient information exchange capabilities. By harnessing Farmforce's technology, JoyTech effectively optimized the influence of their seedlings throughout the agricultural cycle.

This dynamic interaction yielded tangible benefits for field staff members. By leveraging this integrated system, field staff gained instant access to JoyTech's recommendations and instructions via Farmforce's platform. This real-time accessibility facilitated swift decision-making and empowered field staff to efficiently convey these directives to farmers. The seamless synchronization of data ensured that farmers received timely insights and interventions, enhancing their capacity to safeguard their crops with precision and efficiency. This collaborative synergy between JoyTech and Farmforce significantly contributed to the project's success in optimizing agricultural practices and outcomes.

DF's relationship with local government: Regarding its relationship with the local government, the project showcased a deeply entrenched engagement with governmental bodies. The governmental influence extended comprehensively, reaching down to the kebele (village) level. The project's initiation involved establishing a contract with the regional government as a foundational step. Notably, the government remained an active participant in various project phases, ranging from participating in training sessions to engaging in traceability activities and other operational aspects. Moreover, the government played a role in shaping significant political decisions at the project's outset.

This approach, where the government is deeply integrated into the project, holds substantial advantages in areas where the government's involvement is robust. It fosters a sense of ownership and accountability, thereby contributing to the project's overall sustainability.

DF's and implementing partners' relationship with local government: Woreda Officials from Fogera emphasized the effectiveness of collaboration between the Woreda offices and various project stakeholders, including the Development Fund and implementing partners. This collaborative approach has proven mutually beneficial, contributing to the project's overall success. Effective communication, regular evaluations, and shared responsibilities have been key elements of this partnership. As one official noted, ***"The collaboration of DF, ORDA, and Woreda offices is going very smoothly."***

Government officials from Woreda also stressed that they have been actively involved in the project management cycle, including planning, implementation, and monitoring of activities. The government has participated in forums, organized awareness-raising activities, and monitored the project's progress closely. ***"We are clearly participating in the project," cited Woreda Agriculture Officer.***

Collaboration between the local government and JoyTech: The collaboration between JoyTech and the government stands as a testament to the power of public-private partnerships in driving agricultural transformation. By harnessing their collective strengths, these two entities have managed

to amplify the impact of their individual initiatives and contribute to the overarching goal of sustainable agricultural development.

JoyTech recognized the value of collaborating with local government institutions as a means to synergize efforts and align objectives. This collaborative outreach involved close engagement with key entities such as the Bureau/Office of Agriculture, the Agricultural Transformation Agency (ATA), and related projects, including the International Wetland Development-Shala Project funded by The Netherlands Government. The collaboration aimed at addressing critical aspects of agricultural development, including water use efficiency, the adoption of improved crop varieties, and forestation activities. By targeting these transformational activities, the partnership contributed to sustainable agricultural practices that could yield long-term benefits for both farmers and the environment.

Collaboration of DF and Norad: In the context of collaboration with the donor, it became evident that their direct involvement in the project was quite limited. The representative from Norad openly acknowledged that their engagement in the project's monitoring and oversight had been minimal. This was partly attributed to the project's size, which was significantly smaller compared to the extensive portfolio of projects supported by the donor and the overarching agreement with the Development Fund. Given the need for strategic prioritization, the donor primarily engaged with the project through document reviews. These reviews encompassed critical elements, such as evaluating the project's request for a no-cost extension and addressing issues related to overspending, including the improper borrowing of funds from other Norad agreements.

The donor suggested that Norad's waning engagement with the project may not have necessarily indicated a lack of interest but could have been more related to capacity issues resulting from a reorganization process. The reorganization likely required significant resources and effort, with new case officers taking on multiple agreements simultaneously. This could have spread thin the available capacity for monitoring and overseeing individual projects, including the one in question. The donor believed that the reduced attention to the project might have stemmed from the challenges of handling multiple agreements and not necessarily from a deliberate lack of interest. Additionally, the donor representative speculated that if there were major issues or higher-priority projects within Norad, those may have taken precedence over the project in question. Despite these uncertainties, the donor emphasized that it was not a conscious decision to reduce attention to the project, but rather a reflection of the broader challenges and dynamics within Norad's operations during the reorganization period.

3.6 CRITERIA: ARRANGEMENT FOR MEAL

The project's MEAL approach was a cornerstone of its success, characterized by a comprehensive and collaborative framework that ensured effective monitoring, evaluation, and continuous improvement. The MEAL strategy was marked by several key practices that fostered transparency, accountability, and informed decision-making.

- **Collaborative joint monitoring:** The project's MEAL approach was anchored in a joint monitoring effort that brought together DF, JoyTech, SNV, and implementing partners. Regular monitoring activities were conducted during critical project phases, such as vegetable production. These joint monitoring sessions were structured and data-driven, enabling stakeholders to collectively assess progress, identify challenges, and share insights. A plan of action was subsequently developed based on the findings and lessons drawn from these monitoring sessions.

- After each joint monitoring visit, action plans were created based on the findings and observations. These plans outlined necessary corrective actions, follow-up steps, and timelines for implementation. The action plans served as a roadmap for addressing issues and improving project performance.
- **On-site monitoring:** The project demonstrated its commitment to accuracy and detail by engaging in on-site monitoring of vegetable production. By selecting a sample of 20 farmers from across all kebeles, the project ensured representation and diversity in its assessment. The monitoring encompassed the four pillars of the 4P's framework: Plot, Practice, Production, and Pests and Diseases. This comprehensive approach allowed for a holistic evaluation of farming activities and conditions.
- **Swift corrective actions:** A hallmark of the project's MEAL approach was its capacity for real-time adjustments. Through on-spot monitoring, any observed deviations or challenges were addressed promptly. Corrective actions were taken in response to issues related to practices, production techniques, and pest and disease management. This agility ensured that the project remained aligned with its objectives and that farmers received timely support. DF had implemented an Action Point Tracker system. The tool helped monitor the implementation of action items identified during monitoring visits. The tracker recorded the status of each action point, whether it has been addressed, and the progress made. This mechanism ensured that corrective actions are taken promptly.
- **Regular Review of Reports:** DF reviewed quarterly and annual reports submitted by implementing partners. These reports provided detailed insights into the progress of project activities, achievements, challenges, and budget utilization. This review process enabled DF to track the project's overall performance.
- **Transparent reporting and communication:** The project embraced transparency by ensuring a streamlined reporting and communication process. Following on-site monitoring, the results were reported to DF, which then consolidated and shared the reports with implementing partners, as well as other stakeholders. This systematic reporting mechanism facilitated knowledge dissemination, enabling all stakeholders to remain informed about project progress and outcomes.
- **Empowered field assistants:** Field assistants played a pivotal role in the project's MEAL strategy. Organizing monthly farmer days, these field assistants facilitated interactions between farmers and the project, fostering a continuous feedback loop. The insights gathered from these interactions were captured and submitted to implementing partners, contributing to the ongoing improvement of project activities.

3.7 CRITERIA: SUSTAINABILITY

First and foremost, the DF has taken proactive steps by formulating exit strategies and sustainability plans. These plans outline the specific government authority that will assume responsibility for monitoring and maintaining the project's outcomes once the project phases out. This approach demonstrates a forward-thinking perspective aimed at ensuring the continued success and sustainability of the project beyond its initial phases.

Moreover, the project had initially formulated a robust sustainability plan at its inception. This plan was carefully developed to ensure that the initiatives would continue to progress even beyond the project's duration. The primary goal was to provide comprehensive support throughout the entire

value chain. Although the intended outcome wasn't fully realized, the strategies employed by the project undeniably played a significant role in contributing to sustainability.

Positively, within the farming community, there exists a foundation of knowledge and skills that can support the sustainability of seedling production and distribution activities. Farmers possess sufficient capabilities to continue these activities independently. While farmers have the fundamental skills, ongoing training and capacity-building remain crucial for maintaining and enhancing their proficiency.

While sustainability is a concern, farmers expressed their unwavering commitment to continuing the practices learned from the project after its conclusion. Farmers from Fogera shared their strategies for ensuring sustainability, such as exploring various seedling procurement options and seeking agricultural advice post-project. Despite these challenges, the project has left a solid mark on smallholder farmers, emphasizing the potential for continued success in sustainable agriculture and livelihood improvement.

Lead farmers and farmers from Guba Lafto are enthusiastic about implementing the knowledge and techniques they acquired during the training in their long-term farming practices. They express a strong commitment to continuing with these practices, as they have witnessed the positive impacts on their productivity and living standards. They are dedicated to applying what they have learned, such as weed control, and disease prevention, to optimize their agricultural endeavors.

Furthermore, the emphasis on strengthening the marketing aspect underscores DF's holistic approach to sustainability. Effective marketing strategies ensure that the produce generated through improved seedlings reaches viable markets, fostering economic viability for both farmers and SMEs. This integration of production and marketing aligns with the broader goal of creating a self-sustaining ecosystem within the agricultural sector.

DF's commitment to ensuring the sustainability of the project is evident through its proactive efforts to secure its continuation and build upon the achievements realized thus far. DF's preparation and submission of a concept note to potential donors signifies a strategic move to extend the project's scope and impact. By leveraging the achievements and lessons learned from the ongoing project, DF aims to establish a solid foundation for the development of a subsequent initiative.

Government ownership: By involving the government from the very inception and involving them in key decision-making processes, the project established a strong foundation for collaborative efforts that could effectively address challenges and contribute to the project's long-term success.

The project's engagement with the local government and the establishment of procedures to prioritize fuel supply for farmers at nearby stations shows a level of government ownership. If the government recognizes the value of prioritizing agricultural needs and the positive impact on farmers, they may continue this practice to support sustainable irrigation in the region. Overall, it was recognized that the integration between the project and the respective government stakeholders has been very much appreciated with visible and tangible actions taken with regard to extending knowledge and skills to farmers, supporting agro-dealers and efforts in sustaining the project's works. In the remaining period of the project, woredas are expecting to receive all project documents, reports, and related documents so that they can support farmers to continue their vegetable production. They have assured that they will continue to support farmers to get input, extension service and market.

The commitment of the local government to sustaining the project's positive outcomes was a recurring theme. Woreda Officials from Fogera expressed a strong willingness to continue the project's activities beyond its current duration. Plans and responsibilities have been established to ensure that

achievements in horticulture and capacity building endure. One official affirmed, ***"Yes, the government committed to continue the project's activities as before."*** One crucial aspect highlighted by the interviews is the integration of the SVVC project into local plans and policies. This commitment to aligning project activities with government objectives ensures sustainability and continued support for its initiatives. As one official stated, "Yes, we have a plan. We are committed to continue the project's activities as before," explained the Woreda officers from Fogera.

Woreda official from Guba Lafto highlighted that the government is committed to continuing the activities initiated by the project, especially those showing positive results. Plans exist for ongoing support, although challenges such as the distance and availability of seedlings need to be addressed. ***"The government is committed to continuing the project," expressed the Woreda Official.***

Training of Trainers: The ToT activities of the project offers a possibility to guarantee long-term sustainability of the project processes and outcomes. The Fogera Woreda offices also assigned DAs and other experts upon ORDA's request that helped knowledge transfer and experience sharing to help other non-project kebeles and farmers. By encouraging a culture of continuous learning and ownership, these local trainers may continue to disseminate information, enabling vegetable growers' long-term resilience. ToT is anticipated to considerably help farmers maintain and modify methods after the project has ended.

Organic fertilizer: Since artificial fertilizers were expensive and difficult to get on enough, the partners have promoted and demonstrated cultural practices on locally produced and botanical fertilizers as a cultural crop protection alternative. The introduction of organic fertilizer from manure as an alternative to conventional fertilizers shows a sustainable approach. By promoting organic fertilizers, the project encourages soil health while also reducing dependence on costly chemical fertilizers with inefficient supply chains. If farmers experience positive results and economic benefits from using organic fertilizers, they are more likely to continue this practice even after the project concludes.

Alternative measures*:* Introducing farmers to alternative protective measures, such as smoking and night-time watering, promotes resource-efficient and environmentally friendly practices. Stakeholders also insisted on considering implementation of additional canal maintenance/upgrading. Strengthening irrigation user committees for ensuring water distribution among beneficiaries equitably would also help in the long run. If farmers experience positive outcomes from adopting these measures, they may continue using them as part of their regular farming routines even after the project ends. Moreover, for scaling up and ensuring sustainability of the project's works, the woredas demanded further resources and technical back up since the population is high and area of the woredas are vast.

Integrated pest management: Providing farmers with customized technical training on IPM supports sustainable pest control practices. By equipping farmers with knowledge and skills in balancing chemical and traditional measures, the project promotes ecological balance and the encourages reducing reliance on chemical pesticides. If farmers witness the benefits of IPM in terms of reduced pest resistance and minimized environmental impact, they may continue to apply these principles beyond the project's duration.

Collaboration with agro-dealers: Facilitating workshops for agro-dealers and supporting them in supplying inputs at reasonable costs enhances the sustainability of the project's results. Farmers are worried that getting seedlings for cheaper prices may not be possible after the project. The seeds the farmers are trying to grow by themselves may not be as effective as seedlings provided by JoyTech. If

agro-dealers see the value in catering to the needs of farmers at affordable prices, they are more likely to continue offering these services even after the project's conclusion, thus ensuring the sustainability of the supply chain for agricultural inputs. The longevity of the project's impact depend on strengthening multi-stakeholders value chain platforms, business to business.

JoyTech's sustainability strategy

As a sustainability strategy, JoyTech had adopted a strategic approach to ensure the long-term sustainability of seedling production and distribution activities. Their strategy involved establishing a nursery hub in the Southern Part of Tigray, specifically in Mehoni, with the intention of creating a market niche for improved seedlings. This hub was strategically positioned to cater to export-oriented commercial farmers and project sites located within a 300-kilometer radius. The initial plan included gradual expansion to Bahir Dar, guided by insights gained from project implementation.

Unfortunately, the sustainable strategy encountered setbacks due to the disruptive impact of the conflict on the nursery hub. This conflict-induced disruption hampered the planned expansion and functioning of the nursery hub, delaying its potential contributions to sustainability. Additionally, the lack of access to foreign currency hindered JoyTech's capacity to import seeds from Israel, further impeding seedling production and distribution activities.

Nevertheless, JoyTech is ready to produce vegetable seedlings in its nursery even in the coming days. The readiness to continue seedling production in its nursery site hinges on the provision of improved seedlings to smallholder farmers by government agencies. This collaborative approach highlights the importance of government involvement in ensuring the sustainability of seedling production and distribution.

Despite strategies that foster sustainability, the availability and accessibility of improved seeds emerge as the most significant challenge in achieving sustainability. While farmers possess the necessary skills, the sustainable production and distribution of seedlings rely heavily on the availability of improved seed varieties. The success of these activities hinges on the continuous access to high-quality seeds that can drive productivity, diversity, and overall agricultural outcomes.

Norad's perspective

The representative who closely managed the project until it transitioned to the 'Food Section' department has proposed a sustainability plan on behalf of Norad. This plan entails seeking a project extension lasting between 12 to 18 months as the project nears its conclusion. This option is applicable to projects that meet specific criteria, including scalability, effective partnership functioning, priority status in the country, timely and accurate reporting, and responsible fund management. The SVVC project aligns well with these criteria, making it a potential candidate for an extension. Its scalability, successful partnership with JoyTech, continued priority status in Ethiopia, adherence to reporting standards, and responsible fund

management make it a strong contender for further expansion. Norad's recommendation to consider this sustainability option reflects the project's potential for continued impact and growth, allowing it to serve as an exemplar for future initiatives.

Contradictorily, the focal person from the new Food Section department noted that in terms of sustainability, the donor expressed concern about the project's future. They note that the project was initially intended to conclude after a specific timeframe but received a no-cost extension. The project aimed to develop initiatives that could be scaled up more easily, as the previous focus had been on small-scale interventions in support of the private sector. However, the budget allocated for private sector development has been decreasing over the past few years, indicating potential changes or reductions in the project's future scope or scale.

3.7 CRITERIA: IMPACT

The SVVC project aimed to substantially enhance smallholder farmers' annual income through vegetable production, contributing to local economic growth. Evaluation findings show that it helped improve farmers' understanding, knowledge and characterization of the different varieties of vegetables, allowing them to plan their plantation and harvest in synergy with the market. The project helped farmers gain vegetable farming skills and knowledge along with adequate knowledge about financial management. While not directly observed, the project has the potential to create jobs, particularly among commercial farmers, contributing to broader economic growth.

Towards the end of the project in 2023, there has been significant rise in income compared to baseline. Project participants have reported an increase in income resulting from diversified vegetable production. The adoption of advanced hybrid seedlings and agronomic practices significantly boosted vegetable productivity. Income levels vary based on factors such as vegetable type, land size, and market value. The project's impact on farmers' livelihoods is profound, as emphasized in both FGDs and KIIs. Participants acknowledged that the project led to a significant income boost. One farmer from Fogera eloquently stated, "***Our income increased by double***," highlighting the tangible economic benefits brought about by the project. Moreover, the project positively impacted women and marginalized groups, enabling them to experience increased income and self-reliance. This positive impact aligns with the broader goal of improving living standards in the community.

Overall, the impact of the project on smallholder farmers in the community has been profound and multifaceted. It has significantly enhanced their agricultural practices, leading to increased productivity and income. The project's support, which included the distribution of high-quality seedlings, extensive training sessions, and linkage with agro-dealers, proved invaluable for these farmers. They not only received free or affordable seedlings but also benefited from knowledge imparted during training sessions on various aspects of farming, including integrated pest management, proper spacing, improved spraying techniques, and post-harvest handling. This newfound knowledge enabled farmers to achieve a remarkable improvement in vegetable productivity, particularly for tomato, pepper, and cabbage.

Farmers from Fogera shared that the project has led to positive changes in the nutrition levels of the farming households. With increased vegetable production, at least 10% of the yield is now consumed within the households, resulting in improved dietary diversity and overall health, particularly among children. Additionally, some farmers have invested their increased income in acquiring assets such as generators, motorcycles, cows, and oxen, further enhancing their livelihoods.

However, there are challenges and concerns regarding the long-term sustainability of the project's impact. Issues such as the availability of high-quality seedlings, access to original chemicals and inputs,

market linkage, support from agricultural and cooperative offices, interference from brokers in the market, and transportation and security issues remain as potential obstacles. Nonetheless, the project has laid a strong foundation for improved agricultural practices and empowered smallholder farmers to continue applying their knowledge and skills independently in the future. Overall, the project has had a transformative impact on the lives of these farmers, improving their livelihoods, promoting gender equality, and enhancing food security in the community.

Lead farmers and farmers from Guba Lafto shared that the impacts of the training on the lead farmers and their communities have been positive and transformative. The lead farmers have experienced improved agricultural practices, increased productivity, and enhanced living standards. One Lead farmer cited "***My standard of living has improved significantly.".*** They have been able to produce higher yields of crops like tomatoes, peppers, and cabbage by applying the knowledge gained. Additionally, they are sharing their newfound expertise with other farmers in their communities, leading to widespread adoption of modern farming techniques. This knowledge transfer has empowered local farmers to improve their agricultural practices, ultimately contributing to food security and economic development in the region. In this regard, another Lead Farmer shared, "***Many farmers have been educated by me and my friends. They have become productive, and this has led to an increase in income."***

The project's success was also evident in mobilizing communities' contributions, demonstrated by their 15% in-kind commitment for irrigation construction in the South Gondar area. Through these effective strategies, the project fostered sustainable agricultural practices for smallholder farmers, leading to positive impacts on livelihoods and agricultural productivity in the project area. Farmers were also seen to have been organizing themselves to get the seedlings and contribute money for seedling purchasing from Joytech.

Gender as a cross-cutting component: One noteworthy aspect of the project's impact is its contribution to gender equity and women's empowerment. It appears that both male and female lead farmers received similar training and had comparable experiences in implementing the knowledge and techniques acquired. Both male and female lead farmers actively participated in the training and expressed enthusiasm for applying what they learned in their farming practices. This demonstrates that both genders were equally interested in improving their agricultural skills and knowledge. Both male and female lead farmers indicated that they share their knowledge and experiences with other farmers in their communities. This knowledge-sharing aspect appears to be gender-neutral, with both men and women contributing to the dissemination of best practices.

"Women are benefitted as men equally." expressed smallholder farmer, Fogera. Another cited ***"Women owns on their income getting from vegetable sells."***

Specifically, the project provided training opportunities to both male and female extension workers, albeit with fewer women participants. Women benefited from training on improved agronomic practices, integrated pest management, and post-harvest handling. Additionally, some women received training as model farmers and group leaders, which enhanced their skills and knowledge in vegetable production. While there were challenges in reaching the planned number of women participants, a significant number of women were still trained, closely followed up, and engaged in field demonstrations.

One of the significant barriers faced by women in the project was security concerns related to the armed conflict. Women were reluctant to travel away from their homes due to the fear of sexual and gender-based violence (SGBV) attacks, which were prevalent in certain areas affected by the conflict.

This fear hindered their participation in project activities. The interviews with farmers and Lead farmers from Guba Lafto or Fogera did not specifically mention any gender-specific challenges faced by male or female lead farmers. Both groups seemed to implement the training without significant obstacles.

In this context, farmers from Fogera shared that initially, there were five male and three female participants, but as the project progressed, the number of women beneficiaries increased throughout the rounds. Women actively participated in training, gained essential knowledge and skills in vegetable farming, increased their income through vegetable sales, and even owned their income from these sales. They now have a more prominent role in decision-making regarding agricultural practices and sales. This shift not only benefits women but also strengthens the overall resilience and economic stability of the community.

There were no explicit mentions of how women benefiting would be different from men, but the evaluation sees a proper utilization of income when it reaches women, also the spending being more centric towards basic needs and fulfillment of needs than anything harmful like alcohol and frivolous spending. The project, by giving equal opportunities to both male and female participants, is contributing to the creation of an equitable society where women also enjoy agency and have a say in resources and decision-making.

Nevertheless, evaluation identifies The scope of improvement for future training programs should include a critical assessment of whether gender-focused content and gender-related issues in agriculture were adequately addressed during the training. To promote gender equality and maximize the effectiveness of these programs, future training initiatives should consider incorporating gender-sensitive approaches. Including gender-focused content in training can encompass various aspects, such as addressing gender disparities in access to resources and opportunities, recognizing the diverse roles and responsibilities of men and women in farming, and offering strategies to empower both genders in agricultural decision-making and income generation.

Environmental considerations: The project prioritized environmental sustainability throughout its implementation. Rigorous efforts were made to minimize the use of herbicides and chemicals, thereby reducing their environmental impact. To ensure eco-friendly vegetable production, targeted farmers received training on biological pest control methods, leading to the adoption of environmentally conscious pest and weed control mechanisms. Furthermore, the project introduced agronomic practices and technologies that align with environmental preservation. The local farming community had been heavily dependent on artificial fertilizers and intensive pesticide use for soil fertility and pest management. To diversify sustainable alternatives, the project organized training sessions and promoted the adoption of locally produced botanical fertilizers, alongside advocating for culturally adapted practices in insect pest management. Additionally, farmers were educated on the safe and responsible use and handling of pesticides, further contributing to the project's commitment to environmental stewardship.

SECTION 4: CONCLUSION AND LESSONS LEARNED

4.1 CONCLUSION

The project in Guba Lafto and Fogera stands as a testament to the potential of strategic partnerships and comprehensive interventions in transforming the livelihoods of small-scale farmers and boosting agricultural development.

Key findings from the project evaluation paint a nuanced picture of its impact and effectiveness. The project's relevance and coherence were underpinned by its strategic choice of regions, alignment with national policies, and complementarity with other development efforts. It effectively addressed challenges in vegetable farming, such as traditional methods and limited access to inputs, and contributed to multiple Sustainable Development Goals, showcasing its integration into broader development agendas.

In terms of effectiveness, the SVVC project succeeded in significantly improving the livelihoods of smallholder farmers. It adopted a holistic approach, addressing various facets of vegetable production, leading to notable increases in productivity and income. While external factors, including the COVID-19 pandemic and armed conflict, posed challenges to income targets, the project's impact on farmers' lives was evident, with income from 2023 exponentially from 4,353 Birr to 20,535 Birr. This represents a remarkable growth of 372% compared to the baseline. However, post-harvest management and market oversupply demand further attention to maximize effectiveness.

The evaluation highlights JoyTech's effective role in nurturing a thriving market and transferring knowledge, but seedling repurchase fell short due to cost and inflation. Enablers of success included improved institutional linkages and advisory support. Challenges stemmed from external factors impacting farmers' revenue and a complex marketing landscape. For Farmforce, their digital solution shows promise but faces challenges like connectivity, finances, and technical limitations. These findings emphasize the need for adaptive strategies and stakeholder coordination in agricultural development projects.

Efficiency was a paramount consideration throughout the project, with a focus on resource optimization and cost-effectiveness. The project's adaptability in the face of unforeseen challenges, coupled with transparent financial management, ensured efficient resource utilization and timely delivery of critical inputs.

Sustainability emerged as a crucial aspect of the SVVC project, with a comprehensive plan to ensure long-term impact. While the full realization of outcomes was not achieved, the project instilled fundamental skills in farmers, promoting their ability to continue independent practices. Government commitment, knowledge transfer, and resource-efficient practices further enhance sustainability.

The project's impact on the ground was tangible, with a significant real income increase throughout the project periods, positive effects on women and marginalized communities, and a resilient attitude among farmers, even in the face of adversity. Furthermore, the potential for job creation and economic growth in the region bodes well for the project's long-term impact.

To further enhance future projects of this nature, several recommendations emerge. Thorough needs assessments, and comprehensive risk analyses are essential for better alignment. Emphasizing marketing aspects and integrating sustainability and graduation plans can enhance project outcomes. Documenting lessons learned, considering longer project durations, and seeking government policy support are vital for meaningful impacts.

Reflection on the intent through evaluation lens: One of the project's remarkable aspects was its encompassing perspective. When evaluating the result framework and the three achieved outcomes, it becomes evident that the project aimed to provide holistic support to the farmers.

The initial outcome revolved around enhancing productivity through various approaches, including the provision of seedlings, educating farmers about agro-economic practices, ensuring market access to promote diversified livelihoods, and improving nutritional conditions. This outcome also concentrated on the consolidation of farmers into cohesive groups and cooperatives. This strategic step aimed to cultivate more enduring and sustainable results.

Both the two outcomes, observed from a sustainability standpoint, focused on expanding productivity into the market domain. This involved establishing links between small and medium agricultural enterprises and both national and international markets, with a significant emphasis on the enduring growth of productivity.

In spite of its well-intentioned goals, a significant project component involving the integration of mature farmers into national and international markets had to be excluded due to prevailing conflict circumstances.

4.2 LESSONS LEARNED

1. One significant lesson derived from the project pertains to a fundamental paradox. While the key performance indicators and outcomes displayed robust performance, a substantial portion of the program's original design remained unfulfilled due to external circumstances. This observation underscores the substantial potential inherent in the project had all the intended outcomes been achieved as envisioned. Despite the influence of external factors, the project exhibited commendable performance in the areas where activities could be successfully executed.
2. It is evident that the project's execution seemed to be grounded in good intentions. The evaluation process highlighted a limitation in terms of the extent of the feasibility study conducted. While a value chain assessment was carried out before project initiation, a comprehensive feasibility assessment was absent. Given that the project introduced a novel approach involving collaboration between private entities, NGOs, and the government, a thorough partnership feasibility assessment was essential to align the visions of all stakeholders. DF operated with a distinct theory of change with a vision to create a social impact. The private entities that their own intentions. The challenge lay in reconciling the two separate visions or agendas and addressing any potential risks or contradictions in advance. Unfortunately, this crucial step of aligning objectives was omitted. Although not a major impediment, its inclusion could have provided even more positive results.
3. Being a pilot project, it becomes imperative to extract insights from this experimental endeavor, assessing its feasibility for replication and scalability. Neglecting to capture these learnings and allowing the project to languish would render the expended resources and investments futile. It is of utmost importance for the initiating donor to take a vested interest in the project's outcomes and actively extract valuable lessons from the experience.
4. There exists an opportunity to enhance and reinforce the sense of collectivity among farmers within the project framework. This improvement could entail fostering stronger collaboration and cooperation among farmers, encouraging them to work collectively towards shared goals.

Additionally, there is potential to integrate partners with expertise in business skill development, thereby enriching the project's capacity to equip farmers with essential entrepreneurial skills. This strategic addition could empower farmers not only in terms of agricultural practices but also in terms of business acumen.

5. It is crucial to align the seedling planting season with the harvesting season of the main crops. This alignment considers factors such as residual moisture availability to complement irrigation, ease of management, sensitivity/tolerance to pests, and even cultural or religious aspects. For instance, planning vegetable cultivation during fasting periods can capitalize on market demand when certain religious followers abstain from consuming meat and meat products.

SECTION 5: RECOMMENDATIONS

5.1 PROGRAMMATIC RECOMMENDATIONS

Based on the lessons learned, the recommendations for future programming are as follows:

- Future project designs should be rooted in thorough needs assessments and in-depth value chain analyses. This will ensure that project activities align with the actual requirements on the ground and address existing challenges effectively.
- Conduct thorough risk analyses for future projects and develop comprehensive mitigation measures. This proactive approach will help the project better navigate unforeseen challenges and disruptions.
- Set clear parameters for beneficiary self-targeting based on factors like geographical coverage, feasibility of seedling distribution, management ease, and technical support efficiency. These criteria will contribute to a more targeted and impactful project.
- Emphasize the engagement of various stakeholders and value chain actors through implementing partners. Involving all relevant parties can lead to more holistic and sustainable project outcomes.
- Give greater emphasis to the marketing aspect of the project. This includes creating linkages between producers and markets, as well as providing farmers with the skills and knowledge needed to effectively market their produce.
- Integrate sustainability and graduation plans into the project design from the outset. This will ensure that the project's impact endures beyond its duration and that beneficiaries can continue to benefit.
- Systematically document lessons learned and evidence from the project. This documentation can provide valuable insights for future project iterations and contribute to the overall knowledge base.
- Considering the varying efficiency and effectiveness among extension worker categories, it is recommended to implement performance-based incentive systems for government extension workers. While private extension workers from JoyTech are acknowledged for their efficiency, incentivizing government-employed extension workers can help improve their performance and competence. This may involve salary enhancements, performance bonuses, or recognition programs to motivate them to provide better support to farmers.
- Considering the multi-faceted nature of the SVVC project and its potential for long-term impact, it is advisable to extend its duration. This recommendation stems from several key factors. Firstly, by extending the project period, there is an opportunity to consolidate and expand on the achievements made thus far, strengthening the foundations for sustainable

change. Moreover, as the SVVC project demonstrates success, there is potential for scaling up its interventions in new areas, amplifying its influence and reaching more smallholder farmers across Ethiopia. An extended project period facilitates the seamless expansion of proven methodologies. However, it's essential to recognize the potential risks. The project area has experienced conflicts and the ongoing challenges posed by the COVID-19 pandemic. These risks need to be factored into the project's extension plans, necessitating a flexible approach to implementation. Finally, it's imperative to consider the plight of smallholder farmers who have been repeatedly affected by conflicts. They require additional time and support to recover fully and continue their journey towards improved livelihoods. Extending the project period can better address these challenges and provide farmers with the stability needed for sustainable development.

By incorporating these takeaways and recommendations, the DF can enhance the quality, impact, and sustainability of future projects, ultimately contributing to positive development outcomes for the targeted communities.

5.2 RECOMMENDATIONS TO IMPROVE SUSTAINABILITY

Enhancing sustainability in seedling production and distribution requires a multifaceted approach that encompasses grassroots initiatives, innovative technologies, policy advocacy, and strategic collaborations, shared by different stakeholders. By empowering farmers, engaging youth, embracing technological advancements, and seeking policy support that are friendly for smallholder farmers, and improve the productivity by promoting hybrid seedlings, the agricultural landscape can be transformed into a resilient and sustainable ecosystem that caters to the needs of both farmers and the larger community.

1. Encouraging smallholder farmers to engage in localized seedling production within their small plots presents a promising avenue. By equipping farmers with the skills and knowledge to raise seedlings, they can actively contribute to sustaining seedling production. This decentralized approach empowers farmers to meet their own seedling needs while fostering self-reliance and reducing dependency on external sources.
2. Empowering youth groups to participate in business-oriented seedling production offers a dual benefit. Not only does it create entrepreneurial opportunities for the younger generation, but it also ensures a steady supply of seedlings to farmers.
3. Leveraging modern agricultural techniques, such as tissue culture, holds immense potential in producing high-quality and disease-resistant vegetable seedlings. Introducing tissue culture methods for seedling production can enhance the availability of improved seed varieties, contributing to improved crop quality and productivity for smallholder farmers.
4. To boost agricultural productivity and food security, it is vital for governments to champion policies that promote hybrid seedling adoption among smallholder farmers. Initiatives should include subsidies to make hybrid seedlings affordable, research and development efforts for locally adapted hybrids, quality assurance measures, and strengthened extension services tailored to hybrid seedling cultivation. Additionally, policies should facilitate market linkages, and support the establishment of seed banks and storage facilities.
5. Collaborating with agriculture input supply agencies, such as the inclusion of improved vegetable seeds in their importation and distribution plans, can play a transformative role in ensuring access to high-quality seeds. This collaboration can streamline the availability of seeds to smallholder farmers and align with broader agricultural development goals.

ANNEX

1. Terms of reference

Click here

2. Stakeholder mapping

Click here

3. List of interview participants

	Name	Position	Interview date
1	Ulf Flink	Country Director, DF	August 9
2	Sisay Kassahun	Country Program Coordinator, DF	August 2
3	Muchie Tebeje Ejigu	Program Advisor, DF	August 2
4	Yitagesu Shege	Areas Sales Manager, JoyTech	August 1
5	Inger Brodal	Senior Advisor, Food section, Norad	August 24
6	Mehraz Rafat	Senior Advisor, Department for Partnerships and Shared prosperity, Section for Private Sector and New Partnerships, Norad	September 5
7	Wabi Tesfaye		August 1, and August 20
8	Solomon Bizualem	Program Office Coordinator, WE-Action	August 21
9	FGD (Male: 5, Female 3)		August 1
10	Lead farmer - 5		
11	Development agent		August 23-August 25
12	Demissie Mulualem	Horticulture Team Leader, Woreda Agriculture Office, Fogera	
13	Alemante Getnet	Saving Expert, Woreda Cooperative Office, Fogera	
14	Degu Wondie	External Capital/Fund Expert, Woreda Finance Office, Fogera	
15	Addisu Fenta	Promoter, Fogera	
16	Wubaye Worku	Agro-dealer, Fogera	
17	Atinkut Salew	Agro-dealer, Fogera	
18	Belete Tarekegn	Agro-dealer, Fogera	
19	Ato Chane Sisay	Administration Office Head, Woreda Administration Office, Guba Lafto	
20	Ato Defaru Achnef	Agricultural vegetable and fruit irrigation group leader, Woreda Agriculture Office, Guba Lafto	

21	Ato Shegaw Mengistu	Head of office, Woreda Cooperative Office, Guba Lafto	
22	Ato Mola Zenebe	Budget preparation and government collaboration Expert, Woreda Finance Office, Guba Lafto	
23	Alem Yeshanew	Lead farmer, Guba Lafto	
24	Almaz Assefa	Lead farmer, Guba Lafto	
25	Atsede Chekol	Lead farmer, Guba Lafto	
26	Ayalew Sisay	Lead farmer, Guba Lafto	
27	Desele Milash	Lead farmer, Guba Lafto	
28	Ewinu Getahun	Lead farmer, Guba Lafto	
29	Birhanu Eriku	Lead farmer, Guba Lafto	
330	Fenta Ali Gubena	Lead farmer, Guba Lafto	
31	Melaku Ayino	Lead farmer, Guba Lafto	
32	Habte Mariyam	Lead farmer, Guba Lafto	

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