Ministry of Foreign Affairs

Independent Evaluation of the FDOV projects "Going Nuts" & "PPP Macadamia Value Chain Enhancement

Commissioned by the Netherlands Enterprise Agency

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Independent Evaluation of the FDOV projects “Going Nuts” & “PPP Macadamia Value Chain Enhancement”

Commissioned by Netherlands Enterprise Agency (RVO.nl)

July 2023

2023-0748

pwc

Private and confidential

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Executive Summary

This report concerns the evaluation of two FDOV projects in Malawi: “Going Nuts” (FDOV12MW01) & “PPP Macadamia Value Chain Enhancement” (hereafter referred to as: Macadamia VCE) (FDOV14MW16). Both projects received a subsidy from the Dutch government under the Facility for Sustainable Entrepreneurship and Food Security (FDOV), implemented by the Netherlands Enterprise Agency (RVO.nl). FDOV supported public-private partnerships aimed at improving private sector development and food security in developing countries. This evaluation concerns the fourth and fifth FDOV project evaluations that were carried out for RVO.nl as part of the overall impact evaluation of FDOV. This document includes overall conclusions and recommendations, specific answers to the evaluation questions, as well as the underlying analyses.

The projects

Going Nuts (FDOV12MW01) aimed to strengthen the groundnut value chain in Malawi by setting up an infrastructure for diversified quality groundnut products. First, it aimed to increase the sustainable production of quality groundnuts in Malawi by providing agricultural inputs (mostly seeds) and training to farmers. Second, the project aimed to build a reliable market relationship between smallholder farmers and a processor, Afri-Oils Ltd, to whom the farmers were expected to sell their groundnuts. The project also involved the establishment of a groundnut processing plant (processing building and machines).

Macadamia VCE (FDOV14MW16) aimed to strengthen the macadamia value chain in Malawi in a similar way as Going Nuts, while working with smallholder farmers that had to be newly introduced to macadamia farming. The project provided them with macadamia trees of 18 months old, and taught them how to grow these trees into mature trees that produce ample macadamia nuts after five to seven years of care. In addition, the project aimed to build market linkages by supporting farmers with selling this supply of high-quality macadamia to Sable Farming Ltd., a local processor and project partner. Sable Farming Ltd. in turn sells macadamia to Intersnack Procurement B.V., a Dutch project partner who sells the macadamia to the European retail market.

Conclusions on Relevance and Additionality

This evaluation starts by analysing the relevance and additionality of both projects. Overall, we conclude the following.

Both these FDOV projects are locally relevant in their design.

Going Nuts in its design is relevant for its contributions to strengthening the groundnut value chain in Malawi, and for its intended positive effects on income generation and food security (through improved availability and food safety).

- Relevant for end-beneficiaries – Going Nuts in its design is relevant for its contributions to strengthening the groundnut value chain in Malawi. Since groundnut production skills are lacking among smallholder farmers, which affects income generation, the project can be considered relevant with regards to improving the income position of end-beneficiaries. Although the project has a private sector development purpose, through its efforts to improve local food availability and safety, the project also explicitly addresses improving food security. The project specifically targeted groups which have no alternative means of income generation (subsistence farmers) and, ex-ante, is relevant for the enhancement of gender equality since the project would focus on female farmers to take active part in the implementation of this project.

- Relevant for local and governmental policies of host country – The project design is relevant for several local policies, although we also conclude that the policy environment does not support intended effects moving forward. We explain that the policy environment poses challenges to incentivising smallholder farmers to improve the quality of production (e.g., because of a large informal groundnut market).

Macadamia VCE in its design is relevant for its contributions to strengthening the macadamia value chain in Malawi, and for the opportunities it brings through a higher and more stable income for end-beneficiaries.

- Relevant for end-beneficiaries – This evaluation supports the idea that Macadamia VCE in its design is a locally relevant project. Macadamia VCE supports the development and the participation of smallholder farmers in the macadamia value chain, and is relevant for realising crop diversification, which can contribute to generating a more stable income. The intervention can also be considered relevant for its contribution to realising export potential. Relevance of the project for increasing local or regional food availability (beyond the farmers themselves) is more limited and also is no project objective since the production by participating farmers is intended for export to European markets (the Dutch market).

- Relevant for local and governmental policies of host country – Macadamia VCE is relevant for several local policies. Also, from project documentation, we can observe that the project has established relevant working relationships with (local) government representatives. Yet, the project design does not contain specific goals for improving policies.

The case for public support to Going Nuts is clear, and public funding for Macadamia VCE was also necessary.

The case for public support to Going Nuts is clear:

- Input additionality was present – Although a full-scale additionality assessment was not carried out, the available (limited) documentation suggested that, without the support from the Dutch government, the PPP consortium would not have existed, and project partners would not have been able to self-finance the project. Alternative financing possibilities that private sector partners may have had, however, were not explicitly considered in the project appraisal, nor was the question of whether a subsidy was the most adequate financing mechanism. Finally, investments to further the groundnut value chain most likely would not have taken place without the project.

- Development additionality of Going Nuts is clear – There were also good indications of development additionality. In particular, it seemed clear that the public contribution ensured a focus on public objectives in the project design, e.g., a focus on including (female) smallholder farmers in the groundnut value chain. For example, a convincing case was made that Afri Oils Ltd. would not have attempted to include smallholder farmers in their business model at this scale without public support, because of the risks involved. Also, as a result of the public contribution, the project covered a large geographical area.

We conclude that public funding was necessary for Macadamia VCE. Yet, we also point out that some important decisions are likely to take shape beyond the horizon of donor involvement.

- Input additionality was high at the start of the project – Implementation of the project would most likely not have happened without a public contribution. Input additionality was high at the start of the project, given that involving smallholder farmers was seen as too risky by market participants. However, this additionality was expected to diminish if the project were to be successful in demonstrating that there is a business case for involving smallholder farmers. The total private sector contribution was 26%: 21% contribution by Sable Farming Ltd. (part of which is used to expand the private processing facilities of Sable Farming Ltd.) and 5% by Intersnack Procurement B.V. The role of Intersnack Procurement B.V. goes beyond that of financier and includes that of advisor and future buyer of smallholder produce processed by Sable Farming Ltd.

- The development additionality of the project is clear – Prior to this project, there was no obvious business case for including (female) smallholder farmers in the macadamia value chain. However, the goal of the project was to show that, when some conditions are satisfied (e.g., farmers are provided with grafted plants, trained for multiple years, etc.) there will be a business case for including them. It seems clear that, given the high cost of fulfilling these conditions, and the uncertain outcomes, private partners would not have embarked upon such an investment without a public subsidy that reduced their risks. The effects of private ownership of certain assets (storage and trading centres and the equipment stored there) however are unclear at this moment. Also, we indicate that some important decisions (which may increase the level of entrepreneurial risk to which the macadamia farmers are exposed, thus possibly affecting the project's development additionality) are likely to take shape beyond the horizon of donor involvement.

Conclusions on Effectiveness, Impact and Sustainability

This evaluation primarily focuses on establishing the effectiveness and expected long-term impact of the projects. This evaluation also assesses the sustainability of the project results. Since Macadamia VCE is an on-going project, it is too early to assess the long-term impact and sustainability of the project. Any conclusions regarding the long-term impact and sustainability of Macadamia VCE are therefore preliminary, and relate to the likelihood that the long-term impact will materialise and will be sustainable.

Despite its best intentions, Going Nuts was not effective in establishing a structural market connection between producers and the processor. In particular, the project was not successful in linking the trained project farmers to Afri-Oils Ltd. (neither individually nor in organised structures). Key determinants include competition of Afri-Oils Ltd. with vendors[1] buying ungraded groundnuts (causing side-selling in large quantities and adding to the risk of the quality of groundnuts being inferior), working capital restraints of project partner Afri-Oils Ltd., and the lack of a logistical plan to handle supply offered for trade by DAPP Malawi farmers in Chiradzulu. Although the productivity of project farmers increased, the quality of their harvested groundnuts appeared not to have changed structurally (although this was difficult to assess, given that farmers were not linked to Afri-Oils Ltd).

While the project was somewhat effective on the supply side, it was not effective in terms of its private sector development objectives. On the one hand, project farmers did increase their productivity. On the other hand, the intended effects on the local processing capacity and processed nut exports did not materialise. Production by Afri-Oils Ltd. only increased up to 20% towards the target that was set, e.g. because project farmers continued to sell their groundnut produce via informal routes to markets. Although farmers still rely on selling ungraded groundnuts to vendors (potentially of inferior quality), increased productivity potentially also raised their incomes – given that informal exporters reportedly offer good prices (even though there was little incentive to improve quality). At the same time, farmers spoken with in focus groups reported hardly any income improvements and reported, for example, to require higher prices for their groundnuts and with less price volatility.

Figure 1 reflects these high-level findings, with colour boxes indicating what went well (green), what could have gone better (red), and which results are uncertain (orange).

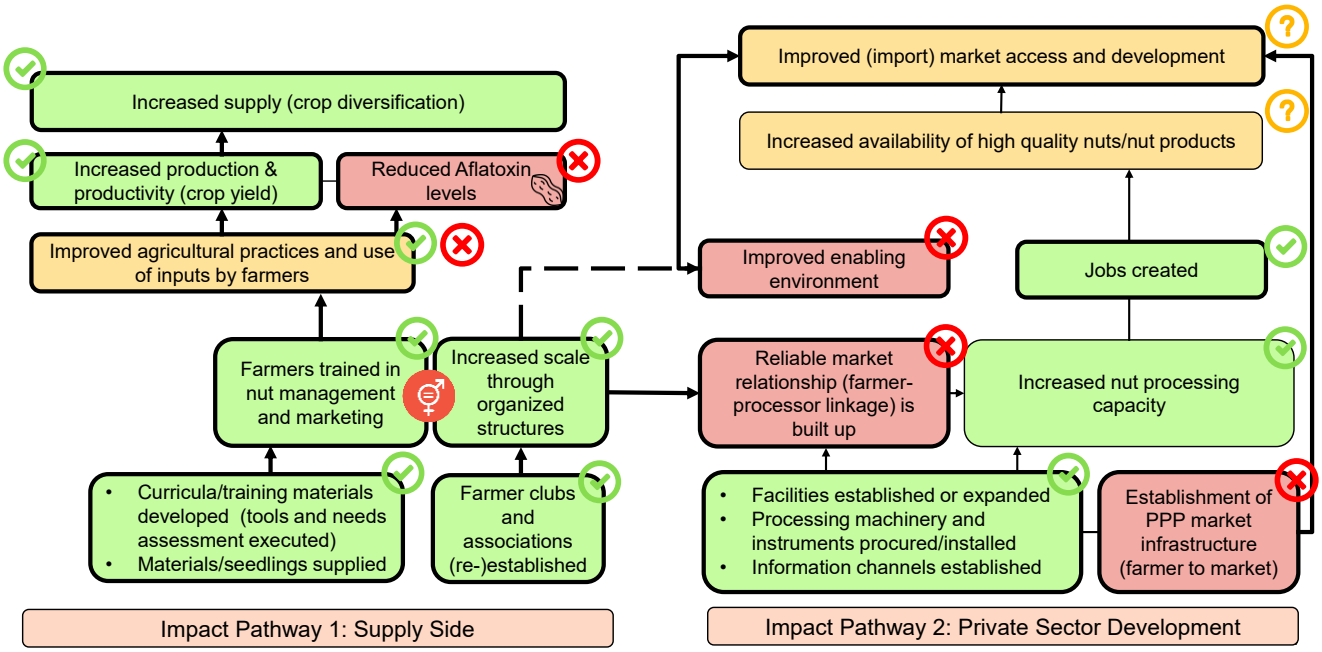

Figure 1: Colour-coded visualisation of the Theory of Change of Going Nuts

[1] In particular, Afri-Oils Ltd. could not compete with 'suitcase traders' who bought ungraded groundnuts from farmers at a more attractive price.

Macadamia VCE, which is still ongoing, has thus far been effective in achieving outputs and some short-term outcomes, but the conditions for achieving a long-term sustainable impact are not yet met.

Output level results so far are convincing. Farmers have been trained on agricultural practices relevant to macadamia farming, and they have received macadamia trees of 18 months old for free. Also, the farmers typically are aware of the business logic underpinning macadamia farming, and they have organised themselves in cooperatives. From a beneficiary perspective, this part of the project has gone well.

Similarly, supply-side outcome-level results achieved so far are promising. The current and stable tree survival rate of close to 90% points to a high level of commitment and adoption of good agricultural practices. Adoption of (certain) good agricultural practices is also mentioned by project partners and reflected in the M&E data. We indicate that despite significant training efforts in the field of integrated pest and disease management control, insect damage and disease are the main causes of tree damage. This has not resulted in trees dying or being in a bad condition at a large scale, yet may impact future quality of nut production if the issue is not addressed. Nut quality adversely affects the price farmers may receive for their produce. Moreover, current results in the domain of private sector development at short-term outcome-level are not yet achieved. Specifically, reliable market relationships are not yet built up.

Since Macadamia VCE is on-going and only small volumes of macadamia nuts have been harvested and sold so far, it is too early to assess the impact of the project. In chapter 10, we indicate three important conditions for reaching impact-level results, as well as the current project situation on these conditions:

1. Trusted relationships: We indicate that market relationships at the time of writing (October 2022) are fragile, and Sable Farming Ltd. indicates that they intend to further strengthen the relationship with project farmers (although there is no formal commitment yet).

2. Product quality and productivity: Low quality of first batches of produce delivered to Sable Farming Ltd. is explained as the result of premature harvesting. Project partners indicate that - provided with trees and training - smallholder farmers will be able to produce macadamia nuts that have the same quality (or even of a higher quality) compared to those produced by commercial estates – without using the equipment and inputs that commercial estates use (e.g., drip irrigation, chemical fertiliser, crop spraying inputs). In theory, this is because the limited size of smallholder farmers' orchards would allow farmers to devote relatively more time per tree. Also, farmers have been trained in applying low-cost alternatives to practices conducted by commercial estates. Yet in focus group discussions farmers reported (October 2022) to not have sufficient liquidity to obtain the inputs required to produce high-quality macadamia nuts.

   - On the one hand, the above may indicate project farmers are not convinced (yet) that they will be able to grow high-quality macadamia nuts in this way, although it may also indicate farmers do not (yet) fully understand the reasoning behind this (organic) way of macadamia farming. Regardless of whether risks will actually materialise, farmers also need to believe that there is low risk and they will be able to reach high-quality commercial production that is sustainable.

   - On the other hand, liquidity constraints of project farmers should not be overly deemphasised. Real-life examples (mentioned during Focus Group Discussions) include relevant concerns, e.g., about limited possibilities for irrigation.

   Although successful examples of smallholder farmer macadamia production exist, obstacles to value chain development in other countries (such as Kenya, a country in which the bulk of macadamia is produced by smallholder farmers) include those indicated in this evaluation – i.e., concerns over potentially low productivity and sub-optimal nut quality (compared to that of large-scale commercial macadamia estates). The effects of climate change, the impact of pests and diseases and lack of access to inputs are factors affecting low productivity in Kenya. Immature harvesting is mentioned as a key driver of low-quality nuts.

3. Contract arrangements: We point out that some important decisions, e.g., with regards to the contract farming arrangements with involved farmers, are likely to take shape beyond the horizon of donor involvement. This relates to, e.g., the distribution of risks between value-chain actors, and the level of entrepreneurial risk carried by the macadamia farmers.

Figure 2 reflects these high-level findings, with colour boxes indicating what went well (green) and which results are still uncertain (orange).

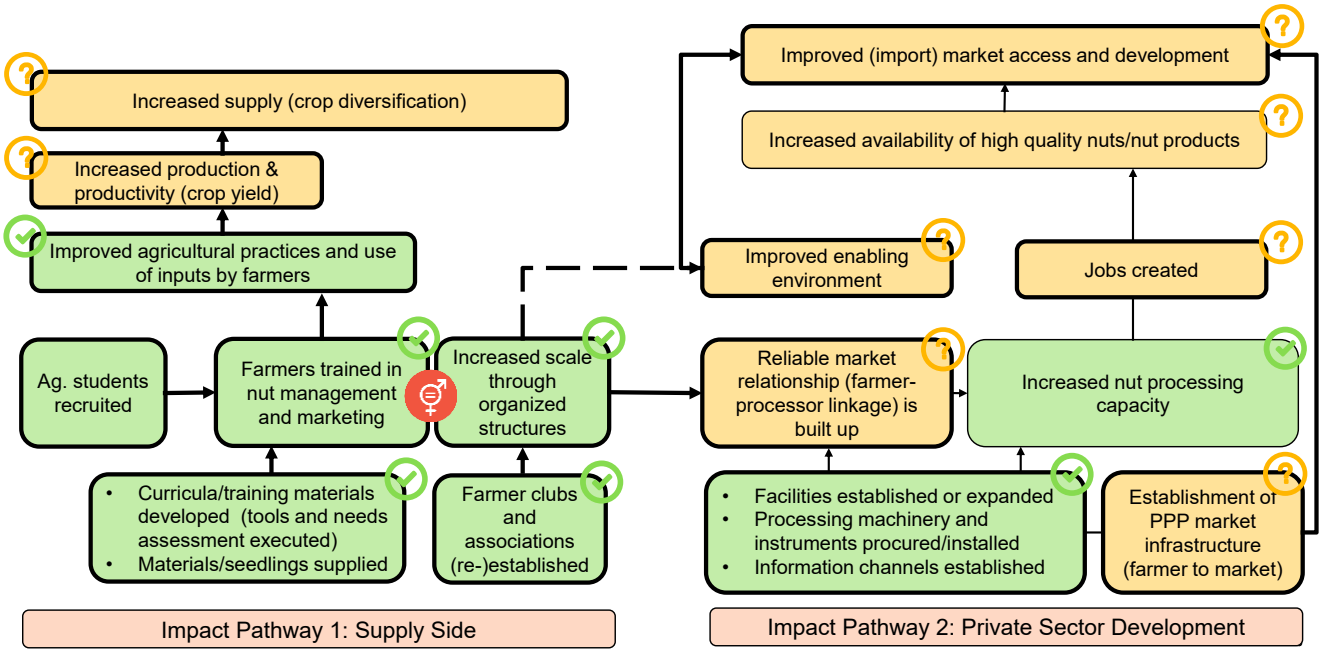

Figure 2: Colour-coded visualisation of the Theory of Change of Macadamia VCE

We conclude that it is unlikely that Going Nuts would soon lead to systemic change and we see no indications the project approach would be scalable. Macadamia VCE is yet to show to lead to systemic change, or sustainable continuity. The project has scaling potential, although this depends on smallholder farmers' access to grafted macadamia seedlings and availability of extension services.

It is unlikely that **Going Nuts** would soon lead to systemic change. The value-chain enhancement as envisioned by the project has not been generated. The groundnut farmers are currently yielding higher quantities of groundnuts thanks to the project, yet still not of structurally better quality, and it is our impression they still sell them to whomever offers to buy them first for reasons explained (e.g., because it's convenient, quick, simple and makes little demands from them, compared to selling via formal routes to markets). Afri-Oils Ltd. has increased processing and testing capacity, yet currently (at the time of evaluation; October 2022) buys groundnuts from only one trusted party. No ongoing relation has been established between Afri-Oils Ltd. and the end-beneficiaries.

- Little to no contribution of the business case and/or revenue model to continuity and sustainability – Following the above, we conclude that the business case does not contribute much to continuity and sustainability of project results.

- Relevant design of CSR plans – The designed CSR plans were relevant. Both project documentation and project stakeholders reflect this notion. The CSR aspects considered were relevant to the context of Malawi and the groundnut sector.

- Little effects of CSR plans of private partners in consortia – Little effect can be observed from the CSR plans of Afri-Oils Ltd. Project documentation indicates that Afri-Oils Ltd. has few systems in place, although they intend to improve that. Still, noise reduction within the factory has been attended to, and wages are above minimum wage.

- No major positive or negative influence on project's direct natural environment – The project has no major positive or negative influence on its direct natural environment, nor has it contributed to combatting global climate change.

Macadamia VCE is yet to show to lead to systemic change or sustainable continuity. This is mainly because the project is still ongoing and many of the trees are yet to generate fruit. Basic short-term outcome benefits are likely to continue. In chapter 10, we indicate important conditions for reaching impact-level results. If these conditions are met, Macadamia VCE is likely to contribute to systemic change and results then are also likely to be sustainable. The project has scaling potential, although this depends on smallholder farmers' access to grafted macadamia seedlings and availability of extension services.

- Conclusion on contribution of the business case and/or revenue model to continuity and sustainability is pending – Several elements of the business case may contribute to continuity and sustainability, whilst other elements present a risk (see chapter 11). Project reporting suggests that the project is now in the hands of the farmers themselves who will carry on growing macadamia nuts beyond the duration of the project (with continued, but more limited, support from Sable Farming Ltd.). Their position in the value chain however is somewhat uncertain. Also, since access to grafted macadamia seedlings is limited, it is difficult for farmers to replace damaged trees, to expand macadamia orchards that are working well or show promise, or to bring new smallholder farmers into macadamia farming.

- Relevant design of CSR plans – The CSR plans of the project partners are not very extensive, yet they do take elements into account that are relevant to the Malawian context.

- Some effects of CSR plans of private partners in consortia – Project documentation reports that the two companies involved act in line with those policies (e.g., concerning maximum working hours and child labour). The expansion of processing capacity at Sable Farming Ltd. is not expected to provide additional jobs. No mechanism has been established to ensure fair prices yet (as indicated, some important decisions are likely to take shape beyond the horizon of donor involvement).

- No major positive or negative influence on project's direct natural environment – Project reporting is optimistic on the positive influence of the project on the natural environment, although this influence shouldn't be overestimated given the size and scope of the project.

Main recommendations

The basic concepts of both projects are highly relevant and hold great potential. If these projects are successful, they can improve the position of the smallholder farmers and the companies involved, and they may have lasting socio-economic impact on the communities in which these farmers live and work.

To ensure that public funds are spent on PPP-driven private sector development projects in a manner that is additional, we have the following recommendations. For each recommendation, we denote in brackets which of the relevant actors in the ecosystem should take on this recommendation.

- Explicitly address input- and development additionality in project appraisals (RVO.nl & NL-MFA). Current criteria are not explicitly linked to the DCED standards for additionality and do not (explicitly) distinct between input and development additionality. The current ex-ante additionality assessment as performed by RVO.nl can be improved to make a more convincing case for the additionality of the commitment of public resources.
- Include an assessment of other funding possibilities in project appraisals (RVO.nl). We note that alternative financing possibilities are hardly addressed in the project appraisal, for example, the question whether a subsidy is the most adequate financing mechanism (or other funding instruments, such as a so-called soft loan) is not addressed.
- Assess the complementarity of the project to other (donor) initiatives (RVO.nl & NL-MFA). Currently no analysis of potential overlap or synergies with other donor activities, projects or programmes is made by RVO.nl, while this is relevant for assessing additionality.

To improve the extent to which PPP-driven private sector development projects are effective and generate lasting impact, we have the following recommendations:

- Ensure that projects that focus on a value chain are comprehensive in their approach (RVO.nl & NL-MFA). To make a value chain operate more efficiently, it is important that the approach is well thought-out and includes all relevant value-chain actors that are necessary to increase the efficiency of the value chain. The Mid-Term Review of FDOV also emphasised the importance of focusing on integrated value chain development (i.e., a focus on value chain linkages rather than on individual companies).

- Make sure that project targets are realistic; limit the scope of projects that tend to be too ambitious (RVO.nl & NL-MFA). Ambitions now sometimes comprise implementing complex interventions in challenging contexts. More attention should be paid to setting realistic ambitions for PPP projects. For example, to make a strong case for public support, project partners might tend to increase or inflate the number of end-beneficiaries that the project intends to reach. Instead, project partners and RVO.nl should focus on making sure that project targets are realistic in relation to the project budget, duration and given the PPP-composition.

- Assumptions in a Theory-of-Change (ToC) should be substantiated (project implementers & RVO.nl). By requiring a Theory of Change (ToC) in the project application phase, underlying the cooperation within a PPP, it is possible to assess the impact of the project and (try) to compare this to what have would happened anyway. Assumptions underlying a ToC should be substantiated by project partners and critically reflected on by RVO.nl. Macadamia VCE implicitly assumes that smallholder farmers can reach the same quality of production as commercial estates, but the conditions under which this may be assumed are not entirely clear (and it is too early to assess whether this assumption holds true). Payment conditions are also important in this regard; such as the extent to which the project is able to offer attractive prices to its participants, considering the price dynamics on the local market (versus the world market) and the project requirements in terms of crop quality, administration, time spend on meetings, et cetera.

- Working capital requirements should be considered in the project design (project implementers & RVO.nl). Although operational expenditures should not be covered by the donor, working-capital restrictions can have a significant impact on participating end-beneficiaries – whose economic conditions often cannot suffer late buying and/or payment. The perspective of end-beneficiaries and their economic reality is crucial to consider in the project design.

- Having a strong coordinating project partner on-board is important for successful PPP-collaboration (project implementers & RVO.nl). A dedicated project partner focusing on project implementation, can

contribute to project effectiveness. A similar recommendation was made in the Mid-Term Review of FDOV, in which professional project management through a specialised partner (acting as a project secretariat) was recommended. In the case of Macadamia VCE and Going Nuts, Dutch NGO Sympany+ has played a crucial role in the coordination of the projects and in facilitating cooperation between project partners.

- Sufficient attention should be devoted to cost and risk sharing in PPPs (project implementers & RVO.nl). It is important that the ambitions of the donor (and of project partners) in terms of cost and risk sharing are reflected in the implementation, for example in contract agreements that are settled between project partners and end-beneficiaries. Such agreements should reflect the goals that were agreed to by the PPP and the donor (e.g., pro-poor market development), for example, by incentivising quality of production or by signalling long-term commitment. This resembles a recommendation from the Mid-Term Review of FDOV, in which it is mentioned that Private Sector Development in itself is not sufficient, unless it is inclusive, creating equal opportunities and benefits for all, and is sustainable.
- Clear communication and price transparency is key (project implementers). To build sustainable farmer-processor linkages, it is important that local processors/buyers ensure clear communication and transparency about the terms and conditions for supply.
- Business cases and revenue models should be clearly beneficial to all value-chain actors (project implementers & RVO.nl). Close attention needs to be paid to not only the direct costs and earnings for each value-chain actor that contributes to the business case, yet also to the risks, opportunity costs, and trade-offs that each value-chain actor faces. Value-chain actors that are underserved may discontinue their participation in value-adding activities that underpin the business case. Consequently, financial continuity of the project benefits will be at risk, and positive project results may be lost.

To allow Dutch government organisations to assist project implementors during project design, project inception and project implementation, we have the following recommendations:

- Ensure active involvement of Dutch embassies or other diplomatic missions (such as consulates) active in the host country (RVO.nl). The policy dialogue on PPP-projects is also conducted by the Embassies. The teams at RVO.nl should build on that expertise to make choices upfront about the shape and direction of PPP-projects. Also, it is important to compare proposed interventions to previous, similar initiatives, and assess whether lessons learned from past experiences have been taken into account.
- Intensify project monitoring activities (RVO.nl). For both projects, monitoring activities may have identified part of the challenges described in this evaluation report at an earlier stage. Earlier awareness of certain issues could have induced alterations (or an assessment of the necessity of alterations) in the project approach on the side of the project implementors and on the side of RVO.nl.

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1. Introduction

1.1. Evaluation of FDOV12MW01 (Going Nuts) and FDOV14MW16 (PPP Macadamia Value Chain Enhancement)

This report concerns the evaluation of the FDOV projects "Going Nuts" (FDOV12MW01) & "PPP Macadamia Value Chain Enhancement" (FDOV14MW16). In 2012, the Ministry of Foreign Affairs of the Netherlands (MFA) initiated the Facility for Sustainable Entrepreneurship and Food Security (FDOV). FDOV is one of the instruments introduced as part of the 'A World to Gain' agenda for aid, trade, and investment. The agenda refocused Dutch aid to include not only the eradication of extreme poverty and sustainable inclusive growth, but also success for Dutch companies abroad. This requires the involvement of the Dutch private sector in development policy. FDOV supports public-private partnerships (PPPs) in the field of food security (FS) and private sector development (PSD). In these PPPs, private companies, public bodies, NGOs, and research institutions work together to promote sustainable, inclusive economic development aimed at improving food security and private sector development in developing countries.

FDOV is implemented by the Netherlands Enterprise Agency (RVO.nl) and it organised two calls for proposals, in 2012 and in 2014. Proposals were assessed according to a procedural assessment framework. The highest scoring projects were approved and have since started to operate. FDOV, with a total programme budget of €103m, has awarded subsidies to 46 projects in 28 countries in Africa, Asia, Latin America, and Eastern Europe. In 2018, FDOV was succeeded by the SDG Partnership facility (SDGP).

RVO.nl selected the consortium of PwC, SEO, and AIGHD to conduct an impact evaluation of a selection of FDOV projects. Three out of five project evaluations have been performed and completed. These are FDOV12KE09 ("Flying Food"), FDOV12VN05 ("Growing out of poverty with potato"), FDOV14KE63 ('Food for All"). While two projects had been selected in Ethiopia, because of the aggravation of political unrest and the civil war, it was decided to select alternatives for the remaining two project evaluations. After a careful selection process with RVO.nl, the evaluation team and the Steering Group, two projects in Malawi were selected: "Going Nuts" (FDOV12MW01) & "PPP Macadamia Value Chain Enhancement" (FDOV14MW16) (hereafter: Macadamia VCE).

The evaluation primarily focuses on establishing the effectiveness and impact of the selected projects. This requires a mapping of the possible impact pathways for each project and assessing to what extent steps along these pathways have been taken. For each project, we started with an analysis of project design. A key question here is whether the intervention was designed in such a way that it benefits the target group and is relevant for the local context. Our project evaluations also assess the sustainability of each project, considering the extent to which the project has succeeded in creating the environment needed in terms of available inputs, socio-economic and institutional context to sustain the project after public funding ends (including the potential of the project to drive positive changes beyond the individual value chain, i.e., systemic change).

It is important to note that tropical cyclones Ana and Gombe (and most recently, cyclone Freddy), and the worldwide COVID-19 pandemic, have affected project implementation. These, and other, challenging circumstances have posed unforeseen challenges to the projects and required quick adaptation and investment of (additional) resources from implementing parties. It is also important to note that any conclusions regarding possible impact and sustainability of Macadamia VCE are preliminary, since Macadamia VCE is an on-going project.

1.2. Evaluation context

Malawi is a landlocked country in southern Africa. It shares its borders with Mozambique (in the south-east/south-west), Zambia (in the north-west) and Tanzania (in the north-east). Its population reached 19 million people in 2020[2]. According to the World Bank, poverty levels remain high in Malawi due to climate shocks, low agricultural productivity and slow structural transformation.[3] Food insecurity is high with an estimated 1,1 million people facing high-level food insecurity in September 2021 (>5% of population). The national poverty rate was

[2] World Bank (2022). Population, total – Malawi. Retrieved from: https://data.worldbank.org/indicator/SP.POP.TOTL?locations=MW
[3] World Bank (2022). The World Bank in Malawi. Retrieved from: https://www.worldbank.org/en/country/malawi/overview#1

around 50% in 2019.[4] Below, we briefly describe Malawi's economy, introduce the commodities relevant to this evaluation (the groundnut and the macadamia nut) and provide related context regarding Malawi's environment.

1.2.1. The agricultural sector is the most important sector of Malawi's economy

Agriculture: The agricultural sector is the most important sector of Malawi's economy, accounting for 22.66% of Malawi's GDP in 2020[5]. 76% of the population is active in the agricultural sector[6]. According to the World Bank, low productivity in the agricultural sector is one of the main drivers of poverty in Malawi[7]. This is particularly due to the focus on food self-sufficiency and a lack of income to afford, for example, fertiliser[8]. Another important factor is that most of the agricultural land in Malawi is degraded, due to continuous cultivation, or of marginal quality, due to utilisation of hills[9].

Export: In 2019, agricultural products accounted for 92.9% of exports in Malawi[10]. The most exported agricultural commodity is unmanufactured tobacco, with a value of USD 498m. Other agricultural commodities that Malawi exports are cane/beet sugar, tea, and dried leguminous vegetables. The groundnut export valuation was equal to USD 40m in 2019. Groundnuts contribute relatively little to export revenues.[11] On the world market, Malawi is the seventh exporter of macadamia nuts (3% of the world production)[12]. Malawi exported 549 metric tonnes (MT) of macadamia kernels to Europe in 2021, of which more than half was exported to the Netherlands. The main export markets however are the United States and South Africa[13]. Export worth in 2018 was around GBP 18m. No finished macadamia products are exported from Malawi[14].

Business climate: Malawi ranks 109 out of 190 economies in the "Doing Business" ranking of the World Bank's 2020 Doing Business report. The formal sector is stagnant and providing limited opportunities, while Malawi's informal economy is large and many people are in informal employment.[15] According to the World Bank, trade policies and an unpredictable business environment hamper investments and commercialisation.[16]

Gender inequality

Malawian women have little access to, and control over, production factors such as capital, land, agricultural inputs and technology. In addition, their access to markets is limited because of transport costs and cultural norms restricting women's travel possibilities. Agricultural products of female farmers are reported to be of low value and quality (affecting market prices), due to limited access to processing or value adding technology. Intra-household food distribution patterns also disadvantage women (and children), as men tend to consume the most nutritious foods (rather than women and children).[17]

1.2.2. Groundnuts are grown predominantly by smallholder farmers, macadamia production is in the hands of commercial estates

The **groundnut** (e.g., peanut) is regarded the most important legume produced in Malawi. It is a widely grown crop in smallholder farming communities. The **macadamia** is a sub-tropical evergreen nut, of which different

[4] Ibid.
[5] Statista (2022). Share of economic sectors in the GDP in Malawi 2020. Retrieved from: https://www.statista.com/statistics/520594/share-of-economic-sectors-in-the-gdp-in-malawi/
[6] World Bank (2022). World Development Indicators. Retrieved from: https://databank.worldbank.org/source/world-development-indicators#
[7] World Bank (2021). The World Bank in Malawi. Retrieved from: https://www.worldbank.org/en/country/malawi/overview#1
[8] Benson, T. (2021). Disentangling food security from subsistence agriculture in Malawi. DOI:10.2499/9780896294059
[9] Mungai, L. M., Messina, J. P., & Snapp, S. (2020). Spatial pattern of agricultural productivity trends in Malawi. DOI:10.3390/su12041313
[10] World Trade Organization (2022). Malawi Trade Profile. Retrieved from: https://www.wto.org/english/thewto_e/countries_e/malawi_e.htm#tradeProfilesStat
[11] Gourichon, H., Cameron, A. & Pernechele, V. (2017). Assessing the policy environment for cash crops in Malawi: what could hinder the achievement of the National Export Strategy objectives? Retrieved from: https://www.fao.org/3/i7444e/i7444e.pdf
[12] CBI (2019). The European market potential for macadamia nuts. Retrieved from: https://www.cbi.eu/market-information/processed-fruit-vegetables-edible-nuts/macadamia-nuts/market-potential
[13] CBI (2019). The European market potential for macadamia nuts. Retrieved from: https://www.cbi.eu/market-information/processed-fruit-vegetables-edible-nuts/macadamia-nuts/market-potential
[14] Zuza, E.J., Maseyk, K., Mhagwat, S., Ammott, A., Rawes W., Araya, Y.N. (2021). Review of Macadamia Production in Malawi: Focusing on What, Where, How Much Is Produced and Major Constraints. DOI: 10.3390/agriculture11020152
[15] BTI Transformation Index (2022). Country report: Malawi. Retrieved from: https://bti-project.org/en/reports/country-report/MW
[16] World Bank (2021). The World Bank in Malawi. Retrieved from: https://www.worldbank.org/en/country/malawi/overview#1
[17] The Republic of Malawi. National Gender Policy (2015). Retrieved from: https://cepa.rmportal.net/Library/government-publications/National%20Gender%20Policy%202015.pdf

varieties are grown in Malawi. The macadamia nut is considered as a key export product[18]. The groundnut is an annual crop that matures in about four months (harvesting from mid-April to end of May), while macadamia is a tree crop that matures after four-seven years. Both the groundnut and macadamia nut are produced by smallholders and commercial entities.

Groundnut: The groundnut is an important cash- and staple crop and is widely grown in Malawi, *predominantly by smallholder farmers*[19]. Although nearly all the districts grow groundnuts, production is concentrated in the orange districts shown in Figure 4[20] (striped districts represent the project regions). The productivity of groundnut farmers is low due to farmers' inability to economically access certified seed and follow recommended agronomic practices[21]. The groundnut is the third commodity in Malawi, 27% of the land used for production of legumes is used for groundnuts. According to FAO-statistics, total groundnut production has surpassed 250,000 MT in 2012 and has been over 350,000 MT for most years after then.[22]

Figure 4: Main districts growing groundnuts

Figure 3: Main districts growing macadamia

Macadamia: Macadamia is currently a well-established crop with total hectarage increasing, from 5,280 hectares (ha) in 1996 to 9,660 ha in 2019 (+83%) with a rapid increase of immature orchards between 2012 and 2019 – indicating the future potential of the macadamia industry. Production, for the majority, is *in the hands of (seven) commercial estates*; only a small share of macadamia land is under management of

[18] Malawi Investment and Trade Centre (2022). Export Products. Retrieved from: https://mitc.mw/trade/index.php/groundnuts-export-product
[19] Future Agricultures (2018). Groundnut commercialisation trends in Malawi. Retrieved from: https://www.future-agricultures.org/blog/groundnut-commercialisation-trends-in-malawi/.
[20] Kaiyatsa, S., Matita, M., Chirwa, E., & Mazalale, J. (2020). The Groundnuts Fairtrade Arrangement and its Spillover Effects on Agricultural Commercialisation and Household Welfare Outcomes: Empirical Evidence from Central Malawi. DOI:10.22004/ag.econ.303707
[21] Nyondo, C et all. (2018). Systematic analysis of groundnut production, processing and marketing in Malawi. DOI:10.22004/ag.econ.275674
[22] Food and Agriculture Organization of the United Nations. (1997). FAOSTAT statistical database. Retrieved from: https://www.fao.org/faostat/en/#data/QCL

smallholder farmers (~16%)[23]. Figure 3[24] illustrates the districts in which macadamia nuts are mainly produced (orange) and regions of the FDOV project (striped).

1.2.3. Smallholders mainly rely on rain-fed agriculture, which makes them vulnerable to weather shocks

The climate in Malawi is tropical and sub-tropical in the mountains. The period October to April is the main rainfall season for Malawi[25]. Figure 5[26] illustrates the agroecological zones based on elevation above sea level and the districts. A large share of the Malawi population participates in smallholder farming and smallholders mainly rely on rain-fed agriculture, which makes them vulnerable to weather shocks[27]. Climate change can pose a risk for this form of production as the combined effects of reduced precipitation and increased temperatures are likely to negatively affect certain climate-sensitive crops[28]. Conversely, certain climate resilient species such as groundnuts, are comparatively less affected by climate change[29]. Malawi has a suitable climate and altitude conditions for macadamia production, but production is more vulnerable to climate change as it is a more sensitive crop. A recent study predicts that climate change will reduce the suitable areas for macadamia production in Malawi by 18%[30].

Natural and economic shocks

Malawi is recognised as a country that is prone to natural and economic shocks, limiting the country's ability to "achieve sustained economic growth, address structural vulnerability, and to break the cycle of food insecurity". *Economic shocks* are driven by a high dependence on an unstable agricultural sector. *Climatic shocks* are driven by weather-related events (droughts, dry spells, floods) and reinforced due to poor soil and land management practices. Both types of shocks drive food insecurity and malnutrition and deepen poverty through its health and productivity effects.[31] The 'poor'[32] are most vulnerable to such shocks.[33]

The ability of households to cope with shocks and stresses is particularly limited due to low levels of agricultural diversification.[34] There is a high dependence on maize (occupying 60% of cultivated land) and tobacco[35] and the country in general is heavily dependent on rainfed agriculture, making it reliant on "seasonal livelihoods and one rainy season".[36] The increased weather vulnerability of the Malawian agricultural sector, caused by "traditional crop production methods, declining soil fertility, over-dependence on maize, and undeveloped livestock sector" and worsened as a result of climate change, leads to reduced productivity and elevated food insecurity. Maize yields are expected to decline significantly due to precipitation changes, while there is also a need for an alternative to tobacco as this vital cash crop is facing a negative market trend.[37] It is clear the agricultural sector must adapt to meet food and nutrition security goals and other national development objectives (i.e., broad-based growth, poverty reduction, employment, smallholder farmer income generation). Crop diversification is believed to be essential for addressing smallholder farmer' issues[38], who have limited livelihood options other than subsistence farming.

[23] Zuza, E. J., Maseyk, K., Bhagwat, S., Emmott, A., Rawes, W., & Araya, Y. N. (2021). Review of Macadamia Production in Malawi: Focusing on What, Where, How Much Is Produced and Major Constraints. DOI:10.3390/agriculture11020152.
[24] Adapted from Zuza et al. (2020). Legend: orange regions are primary production regions. Striped regions are project regions (orange stripes are both primary production and project regions).
[25] Malawi Meteorology Services (n.d.). Climate of Malawi. Retrieved from: https://www.metmalawi.gov.mw/dccms_climate.php
[26] Adapted from Mungai, L. M., Messina, J. P., & Snapp, S. (2020). Spatial pattern of agricultural productivity trends in Malawi. DOI:10.3390/su12041313
[27] Benson, T. (2021). International Food Policy Research Institute Disentangling food security from subsistence agriculture in Malawi. Retrieved from: https://ebrary.ifpri.org/digital/collection/p15738coll2/id/134416
[28] Hunter. R., Crespo. O., Coldrey, K, Cronin, K, New, M. (2020). Research Highlights – Climate Change and Future Crop Suitability in Malawi.
[29] Ibid.
[30] Zuza, E. J., Maseyk, K., Bhagwat, S. A., de Sousa, K., Emmott, A., Rawes, W., & Araya, Y. N. (2021). Climate suitability predictions for the cultivation of macadamia (Macadamia integrifolia) in Malawi using climate change scenarios. DOI:10.1371/journal.pone.0257007
[31] Government of Malawi (2018). Malawi National Resilience Strategy (NRS): Breaking the Cycle of Food Insecurity Duration.
[32] In 2011 50.7% of the country's population lived below the national poverty line of a yearly expenditure of MKW 37,002 or less (81% under the international poverty line of USD 2 per day).
[33] Government of Malawi (2018). Malawi National Resilience Strategy (NRS): Breaking the Cycle of Food Insecurity Duration.
[34] Ibid.
[35] Warnatzsch, E.A.; Reay, D.S.; Leggieri, M.C.; Battilani, P. Climate Change Impact on Aflatoxin Contamination Risk in Malawi's Maize Crops. DOI:10.3389/fsufs.2020.591792
[36] Government of Malawi (2018). Malawi National Resilience Strategy (NRS): Breaking the Cycle of Food Insecurity Duration.
[37] Zuza, E. J., Maseyk, K., Bhagwat, S., Emmott, A., Rawes, W., & Araya, Y. N. (2021). Review of Macadamia Production in Malawi: Focusing on What, Where, How Much Is Produced and Major Constraints. DOI:10.3390/agriculture11020152
[38] Ibid.

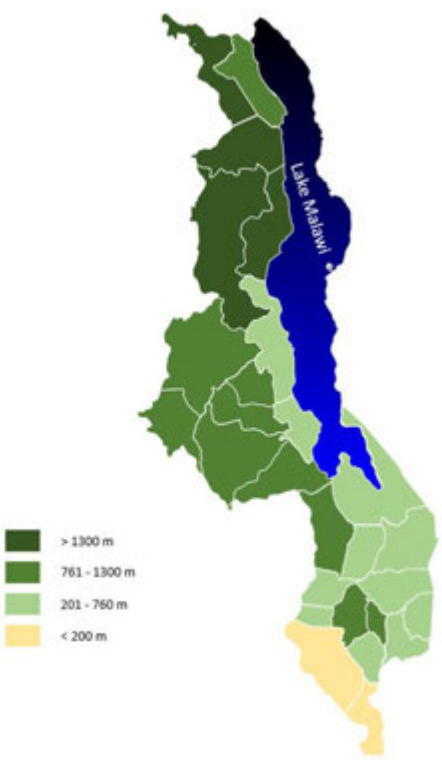

Figure 5. Agroecological zones

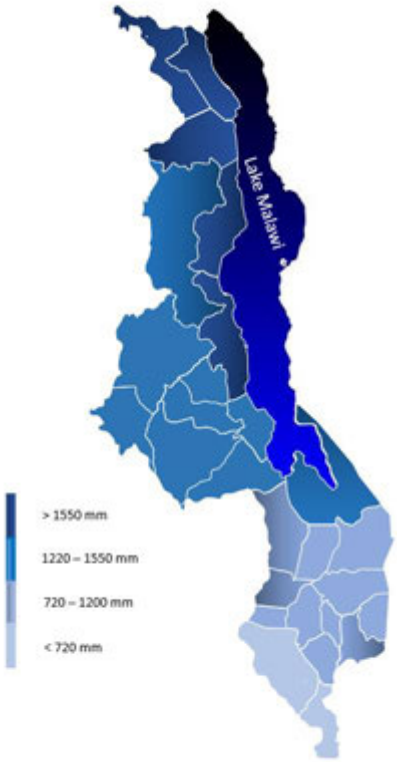

Figure 4. Rainfall zones

1.3. Going Nuts aimed to connect smallholder farmers to both the domestic and international market of groundnut products

Going Nuts aimed to connect smallholder farmers to both the domestic and international market of groundnut products. Therefore, it intended to set up an infrastructure for diversified quality groundnut products and to find a solution for the aflatoxin problem, which destroyed the (export) market for groundnuts in Malawi. Half of the processed groundnut products of the project was intended for the export market[39]. The project has been completed, as shown in Table 1.

Going Nuts	
Project number	FDOV12MW01
FDOV Call	I
Formal Start Date	July 1, 2013
Formal End Date	August 31, 2021 (extended by one year due to COVID-19 pandemic)
Location	Lilongwe + rural areas of Malawi
Project budget	€2,995,000: 50% FDOV

Table 1: project details Going Nuts (FDOV12MW01)

Partnership composition: The partnership consists of three main partners. The lead partner is Dutch NGO Sympany+[40]. The main local private partner is Afri-Oils Ltd., a groundnut processing company near Lilongwe. DAPP Malawi, a local NGO focusing on mobilising and training people at the Bottom of the Pyramid (in agriculture, health, and education)[41], was responsible for training and organising smallholder farmers in Chiradzulu and Dowa districts. These are among the districts where DAPP Malawi was operating at the time of the project conceptualization and design.

Project activities: The project activities of Going Nuts focused on the supply side pathway and, primarily, the private sector development pathway. The activities were implemented in Lilongwe (Afri-Oils Ltd.'s factory) and at groundnut growing rural areas of Malawi, and included:

- Training of 48,400 farmers (8,400 by DAPP Malawi, 40.000 by NASFAM and Exagris Africa Ltd.) in groundnut management and marketing, to increase yields and diminish risks for aflatoxin, improving food safety.
- Setting up an infrastructure and peanut processing plant, to increase the quantity and quality of the groundnut production and link smallholder farmers to (international) markets.

Market context: According to the project plan, at the time of inception, domestic competition was limited. Reportedly, there were two companies blanching for the domestic retail market, but these companies did not process more than five metric tonnes (MT) a month each. Furthermore, the project plan points out that although there were some informal exporters of raw kernels, no other business was targeting the premium markets in South Africa and Europe. Afri-Oils Ltd. (previously known as Afri-Nut[42]), a local private partner in the partnership, intended to be the only company in Malawi specialising in groundnut oil and the only company exporting to the region and Europe[43].

The world groundnuts crop is substantial. According to project documentation, a relatively small proportion comes onto the international market due to heavy (and increasing) domestic consumption in countries such as China, India, Indonesia, Sudan, and Nigeria[44].

Current status: Due to the COVID-19 pandemic, the project had been extended by one year and thus formally ended on August 31st, 2021 (initial end date: June 30th, 2020). The project submitted their final report to RVO.nl in September 2022.

[39] Sympany+ (2012). Project Plan. FDOV12MW01: Going Nuts
[40] At first, this was Stichting Humana. In 2015, Stichting Humana merged with KICI (Kleding Inzameling voor Charitatieve Instellingen) to form Sympany+.
[41] Sympany+ (2012). Project Plan. FDOV12MW01: Going Nuts
[42] Throughout the report, we refer to Afri-Oils Ltd.
[43] Sympany+ (2012). Project Plan. FDOV12MW01: Going Nuts
[44] Ibid.

1.4. Macadamia VCE aims to involve smallholder farmers in the macadamia value chain

Macadamia VCE aims to involve smallholder farmers in the macadamia nut value chain and to improve each link in the chain.

PPP Macadamia value chain enhancement	
Project number	FDOV14MW16
FDOV Call	II
Formal Start Date	September 1, 2015
Expected End Date	August 31, 2023
Location	Thyolo area + Mzimba area
Project budget	€2,845,000: 50% FDOV

Table 2: project details Macadamia VCE (FDOV14MW16)

While Malawi is a major producer of macadamia nuts, in 2012 only 1% was produced by smallholders[45]. Also, according to project documentation, macadamia production was not interesting for most smallholder farmers, due to a lack of access to good planting material, knowledge of production techniques and lack of access to and knowledge of the macadamia market. According to project documentation, the production of macadamia by smallholder farmers in Malawi is fairly new and started from a narrow population base and little domestic consumption. The project plan mentions a base potential for "more than hundred thousand farmer households in the Malawian macadamia growing areas".[46]

Partnership composition: The partnership consists of four main partners and an affiliated knowledge institute. The lead partner is the Dutch NGO Sympany+[47]. The main local private partner is Sable Farming Ltd. (100% subsidiary of Global Tea and Commodities Ltd.), which produces and processes macadamia since 1989. Dutch private partner Intersnack Procurement B.V. (100% subsidiary of Intersnack Group GmbH & Co. KG) is involved as the buyer in the project (selling to retailers, European end-buyers). DAPP Malawi, a local NGO focusing on mobilising and training people at the Bottom of the Pyramid (in agriculture, health, and education)[48], is responsible for training and organising smallholder farmers.

Project activities: The project activities of Macadamia VCE focus on the supply side pathway and the private sector development pathway, and include:

- Supply from Sable Farming Ltd. nurseries to ensure that smallholder farmers have access to 'certified' materials and grafted plants[49];
- Organising 3,000 farmers (≥50% female) in farmer clubs, providing them with agricultural training and introducing the macadamia tree as cash crop;
- Educating and assisting farmers in Thyolo and Mzimba area through training to cultivate macadamia nuts;
- Introducing macadamia agronomy and management module at the agriculture course of the Mikolongwe Vocational Training College;
- Expansions of logistical capacity through development of four buying and storage centres, expansion of the processing facilities of Sable Farming Ltd., establishment of information channels on macadamia nuts management and market (product information, prices and payment) and providing market access.

Market context: According to the project plan, due to limited global supply, macadamia nuts are relatively high priced. Although macadamia nuts are not a mainstream product, global demand is also reported to be high[50]. Driven by changes in consumption patterns of consumers, the European demand for macadamia is expected to increase further in the long term[51].

[45] Sympany+ (2014). Project Plan. FDOV14MW16: PPP Macadamia Value Chain Enhancement
[46] Ibid.
[47] At first, this was Stichting Humana. In 2015, Stichting Humana merged with KICI (Kleding Inzameling voor Charitatieve Instellingen) to form Sympany+.
[48] Sympany+ (2012). Project Plan. FDOV12MW01: Going Nuts
[49] In the evaluation report, we also refer to grafted plants as seedlings.
[50] Sympany+ (2014). Project Plan. FDOV14MW16: PPP Macadamia Value Chain Enhancement
[51] CBI (2019). The European market potential for macadamia nuts. Retrieved from: https://www.cbi.eu/market-information/processed-fruit-vegetables-edible-nuts/macadamia-nuts/market-potential

Current status: The project is currently ongoing and expected to be completed by 2023. In the 2020/2021 reporting period, the project conducted intended training and planting activities despite the COVID-19 pandemic[52]. The COVID-19 pandemic did slow down some of the activities due to, for example, precautionary measures. A milestone that was reached in this period is that the first macadamia nuts were harvested in Thyolo.[53] At the time of this evaluation, only the first higher-level results of the projects' results chain thus are visible. This also means that certain conclusions regarding effectiveness, impact and sustainability are preliminary.

[52] Sympany+ (2021). Annual Progress Report 1 April 2020 to 1 April 2021. FDOV14MW16: PPP Macadamia Value Chain Enhancement
[53] Ibid.

1.5. Evaluation Questions

The evaluation addresses the following evaluation questions grouped by OECD-DAC criteria. We indicate questions where the PPP approach and set-up of the partnership (P) is of particular importance.

Table 3: Evaluation Questions

Relevance[54]	
Q1	**Is the intervention locally relevant?**
1.1	To which degree did projects research and design their intervention according to needs of end-beneficiaries?
1.2	To which degree are projects relevant for local and governmental policies of host countries?
1.3	To what extent are the projects designed to contribute to Malawi's trade and export strategy more specifically?
Additionality	
Q2	**To what extent were the projects additional according to the DCED definition?**
2.1	To what extent was the ex-ante additionality assessment in line with evidence?
2.2 (P)	Was public funding necessary for the implementation of the project?
2.3	How can ex-ante additionality assessment be improved?
2.4 (P)	What difference has the public contribution made to the achievement of project/public goals?[55]
Effectiveness & Impact	
Q3	**To what extent are the projects effective in reaching their outcome and impact objectives?**
3.1	What changes related to outcome and impact can be observed in comparison to the project baseline?
3.2 (P)	What was the contribution or attribution (net effect) of the intervention (design of the project, project duration, the partners, the cooperation/coordination within the partnership, etc.) to the observed effects?
3.3 (P)	Is the engagement of civil society effective in keeping the focus on public (development) objectives?
3.4	Did the projects reach the desired end-beneficiaries (women, youth, vulnerable groups, farmers, policy makers, etc.) and how are they benefitting?
3.5	What are some of the unexpected direct or indirect effects of the project interventions to target beneficiaries?[56]
Q4 (P)	**What are the key determinants (both internal and external to the project) for inducing or hampering the intended and unintended effects?**

[54] Question 1.2 in part also captures the new OECD-DAC criterion "coherence".
[55] And in what form (in-cash or in-kind), if any, was the (local) public contribution to achievement of project goals?
[56] And/or are there any spillover-effects to other non-project communities or value chains as a result of the project interventions?

Sustainability

Q5	**Did the project/ intervention lead to systemic change and/or was the intervention scalable? If yes, in what way?**
Q6 (P)	**To what extent do the benefits of the project (outcome & impact level) continue after FDOV-funding ceased and how was this influenced by the business case and/or revenue model?**
6.1	What specific elements of the business case and/or revenue model introduced by the project contribute to continuity and sustainability?
Q7	**What is the CSR performance of the selected FDOV projects?**
7.1	How relevant were the designed CSR plans?
7.2	What effects can be observed of CSR plans of private partners in consortia?
7.3	To what extent did the projects have a major positive or negative influence on their direct natural environment or contributed (combatting) global climate change?

2. Theory of Change

The Theory of Change (ToC) for the FDOV programme consists of three Impact Pathways[57] that are explicitly or implicitly part of the FDOV results chain. The impact pathways provide a lens for the assessment of individual FDOV projects' impact. An integrated ToC (Figure 6), combining both projects of this evaluation, is (re)constructed based on project documentation. The reconstructed ToC was validated in stakeholder interviews. Both projects have a primary focus on the Private Sector Development (PSD) pathway, although important activities are included in the Supply Side pathway (in which farmers are envisioned as future suppliers of high-quality produce, necessary for the private sector development aimed at). Both project do not have explicit goals or indicators on the Demand Side pathway. The impact pathways for the Going Nuts project are described followed by the impact pathways for Macadamia VCE.

2.1. Going Nuts

Project specific elements, only relevant to the Going Nuts project (which has ended), are indicated in the ToC (Figure 6) by the following symbol: 

Impact Pathway 1: Supply Side

Going Nuts aimed to increase the sustainable production of quality groundnuts by providing agricultural inputs and training to farmers. These farmers, who would deliver produce directly or indirectly Afri-Oils Ltd. (or to other processors), were expected to be reached through various channels with a focus on smallholder and female farmers. This was expected to lead to improved agricultural practices (for instance, soil management and post-harvest handling and storage), use of improved inputs (i.e., lime and improved seed varieties) by farmers, and as a result increased productivity and increased supply of high-quality groundnuts with lower aflatoxin levels. Increased productivity was also expected to be achieved through economies of scale originating from the (re-)established farmer clubs and associations. Altogether, this was expected to contribute to sustainable income growth, diversification of agricultural sales/exports, and improved food security – the latter relating both to availability and safety (reduced levels of aflatoxin).

Evaluation focus: Despite the continued investments to mitigate aflatoxin contamination, evidence of long-term success is limited[58]. With this in mind, for the supply side, the evaluation focus was on the project's efforts to improve yields and reduce aflatoxin levels through improved agricultural practices and inputs.

Impact Pathway 2: Private Sector Development

Going Nuts aimed to create opportunities for private sector development, by setting up an infrastructure for diversified quality groundnut products. This was expected to include the establishment of a groundnut processing plant (processing building and machines) and a reliable market relationship between smallholder farmers and a local processor (Afri-Oils Ltd.). This would increase processing capacity and was expected to result in increased availability of high-quality and diverse groundnut products. The improved enabling environment (access to finance, greater ability to influence local policies and leverage better deals with lead buyers) that was expected from the (re-)established farmer clubs and associations, the establishment of a sustainable market infrastructure and increased availability of high-quality groundnut products would all contribute to improved market access and market development. This was expected to enable smallholder farmers to become linked to regional, domestic and international markets and in turn lead to increased sales of groundnut products. Thereby, private sector development (and more stable incomes) would be achieved.

Evaluation focus: Aflatoxin contamination of groundnuts produced in Malawi prohibits the (international) export of groundnuts and has negative health effects. Significant losses have been reported as a result of the shift in Malawi's groundnuts export markets from EU/developed country markets to East- and South African markets with lower aflatoxin standard enforcements. The focus on the PSD-side therefore was on the ability of the

[57] Impact Pathway 1: Supply Side, 2: Private Sector Development, 3: Demand Side.

[58] Njoroge, Samuel. (2018). A Critical Review of Aflatoxin Contamination of Peanuts in Malawi and Zambia: The Past, Present, and Future. Plant Disease. Retrieved from: https://www.researchgate.net/publication/325859676_A_Critical_Review_of_Aflatoxin_Contamination_of_Peanuts_in_Malawi_and_Zambia_The_Past_Present_and_Future

project to increase, diversify and expand (export) sales (improved market access and development) including towards markets that have stricter standards on aflatoxin levels (export diversification).

Furthermore, focus was on the extent to which smallholder farmers are benefiting from the (expected) improved market position of the processor, e.g., through better terms and conditions of supply (e.g., commitment of processor to project farmers and fair crop prices).

2.2. Macadamia VCE

Project specific elements, only relevant to the Macadamia VCE project (on-going), are indicated in the integrated ToC (Figure 6) by the following symbol: 

Impact Pathway 1: Supply Side

Macadamia VCE aims to introduce and increase the production of macadamia nuts by smallholders (who are organised in farmer clubs and associations through the project) by providing agricultural inputs and training until the macadamia trees grow nuts after approximately five years. This includes training on *intercropping*, to bridge the years that macadamia trees do not yet produce nuts but do occupy part of the land that could otherwise be used for production. In addition, a module on macadamia agronomy and management is developed and included in a one-year agricultural course at the Mikolongwe Vocational Training College (institutionalised through accreditation/TEVET-system). The increased awareness of the business case for growing macadamia and the improved agricultural skills and knowledge as a result of the agricultural training and education would lead fe/male farmers to establish and manage macadamia orchards (using grafted plants provided by the project). As a result, the macadamia supply would increase – leading to an uptake of the sales of macadamia nuts. Altogether, this would contribute to sustainable income growth, improved year-round cash flow for farmers and diversification of agricultural sales/exports.

Evaluation focus:

- Macadamia requires a long-term commitment. Increased, stable income in the short and longer run depends on the ability of farmers to realise *intercropping* and the ability to successfully grow macadamia respectively. For the supply side, the evaluation focus therefore was on the project's efforts and success to broaden the agricultural development base (crop diversification) through capacity building in macadamia nut production.

- Proving the business case is required for macadamia to interest a larger group of producers (realise scale). The evaluation focus was on the (capacity building) efforts of the project in terms of farmer mobilisation (demonstration effect/scaling potential).

Impact Pathway 2: Private Sector Development

The project aims to create opportunities for private sector development, by setting up an infrastructure for supply of high-quality macadamia nuts by smallholder farmers. To achieve this, macadamia storage and trading centres are established, processing facilities are expanded, and a reliable market relationship between smallholder farmer and processor is built up. This would increase the availability of high-quality macadamia nuts supplied by smallholder farmers. The improved enabling environment (for instance, accessibility and visibility for the macadamia markets) that is expected from the establishment of farmer clubs and associations, the established sustainable market infrastructure (farmer to processor) and the increased availability of high-quality macadamia nuts would all contribute to improved market access and market development. This would enable smallholder farmers to become linked to regional, domestic, and international markets and in turn lead to increased sales of macadamia nuts. Therefrom private sector development (and support to more stable incomes) would be achieved.

Evaluation focus: Given that production of macadamia is currently predominantly organised through larger estate farms, the evaluation focus on the PSD-side was on the extent to which smallholders are successfully involved through the project's attempts to realise an inclusive, equitable and empowering involvement of smallholders in the macadamia sector.

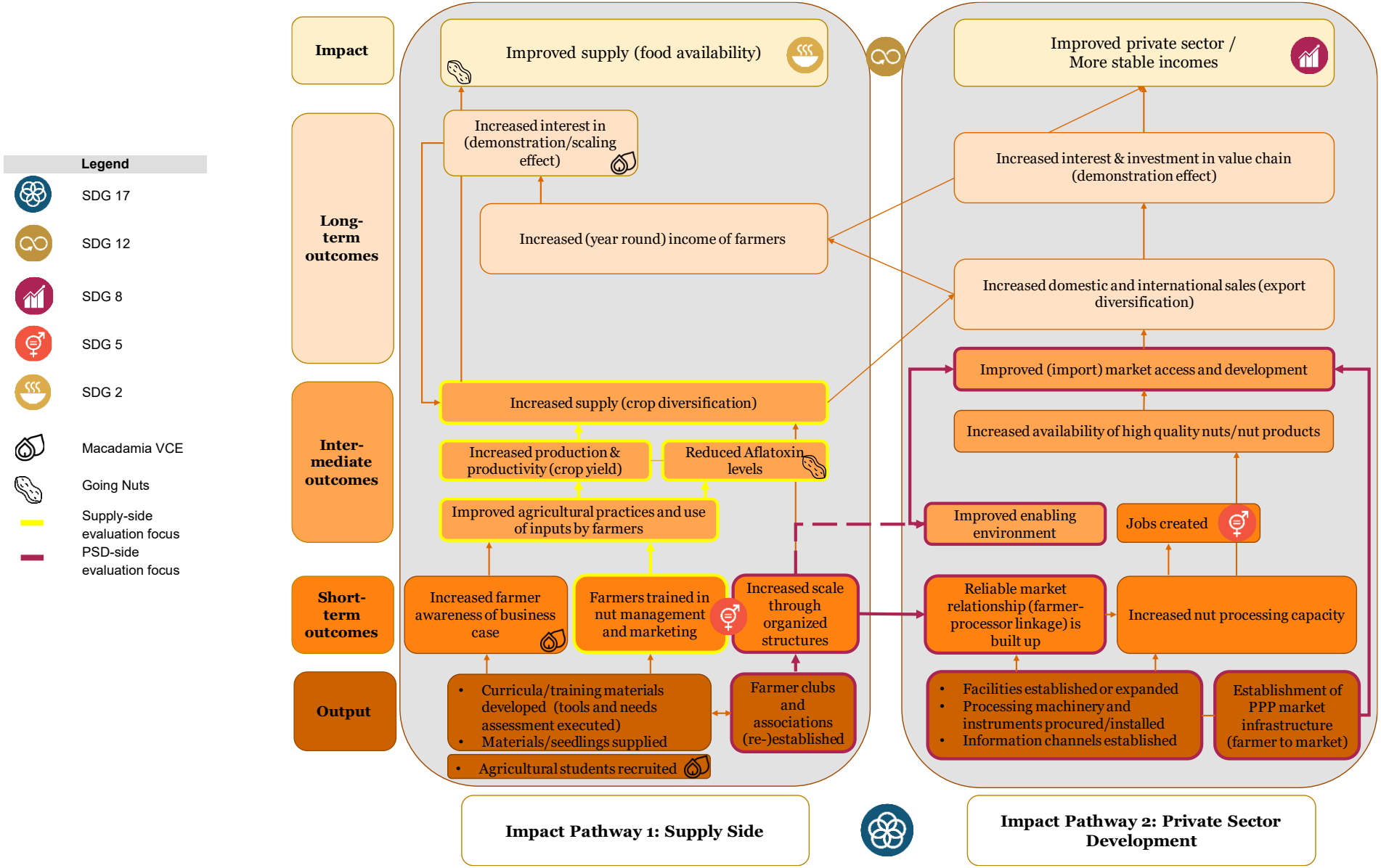

Figure 6: (Re)constructed Theory of Change for Going Nuts and Macadamia VCE

3. Methodology

We describe the evaluation methods that were used to assess the project according to the focus areas discussed in the previous chapter.

The evaluation uses contribution analysis[59] as primary evaluation method. We rely on qualitative and quantitative information sources, for which we conducted literature review, document review (both internal and external documentation[60]), analyses of project M&E data (SMS survey data from end-beneficiaries and monitoring data from involved private partners), Key Informant Interviews and Focus Group Discussions.

The evaluation team visited Lilongwe, Blantyre, Chiradzulu (Going Nuts project location, southern region of Malawi), Dowa (Going Nuts project location, central region of Malawi), Mzimba (Macadamia VCE project location, north-western Malawi) and Thyolo (Macadamia VCE project location, southern region of Malawi) between 25 September and 6 October 2022. The field visit consisted of a mix of the following activities: visiting the main assets (processing facilities, equipment, etc.) financed through the projects, interviewing end-beneficiaries (e.g., through Focus Group Discussions) and interviewing stakeholders (such as government representatives, through Key Informant Interviews).

Our analyses are based on desk study, Key Informant Interviews and Focus Group Discussions. They respectively represent insights derived from desk study of project reports and M&E data and -documentation, interviews with project partners and stakeholders, and Focus Group Discussions with local beneficiaries. Below we describe the various sources of information in more detail.

Desk study – Compiling information to answer the questions starts with a desk study. We reviewed project documentation extensively and analysed M&E data in aggregated form using frequency distributions for categorical variables while mean, minimum and maximum statistics are reported for continuous variables.

Key Informant Interviews – Part of the evaluation questions require perspectives, information, and insights from stakeholders in The Netherlands, the Dutch policymaking ecosystem and from local stakeholders and experts. These include (local) representatives from the Netherlands Ministry of Foreign Affairs and RVO.nl, representatives from implementing project partners, and external experts. The interviews served to acquire perspectives, information, and insights along with their rich context and important nuances. The interviews were specifically tailored to the interviewee group and formulated in a semi-structured way. Key Informant Interviews (virtual and in-person) have been held with the following respondents. A more detailed overview can be found in Annex A.

- Sympany+ – *Dutch project partner (NGO) involved in both projects*
- DAPP Malawi – *Local project partner (NGO) involved in both projects*
- Afri-Oils Ltd. – *Local project partner (private) Going Nuts*
- Intersnack Procurement B.V. – *Dutch project partner (private) Macadamia VCE, 100% subsidiary of Intersnack Group GmbH & Co. KG*
- Sable Farming Ltd. – *Local project partner (private) Macadamia VCE, 100% subsidiary of Global Tea and Commodities Ltd.*
- RVO.nl – *Current and previous project advisor to Going Nuts and Macadamia VCE*
- NL Ministry of Foreign Affairs – *Policy officer Public-Private Partnerships*

[59] See, for example, Mayne, J. (2012). Contribution analysis: Coming of age? Evaluation, 18(3), 270–280. DOI: 10.1177/1356389012451663

[60] Internal documents refer to the documents that have been provided by RVO.nl and project partners. These documents include, for example, progress reports and survey data. External documents refer to the documents that have been collected from other sources, such as national statistics and evaluation reports.

- Consulate (Honorary) of the Kingdom of the Netherlands in Lilongwe (Malawi)
- National Smallholder Farmers Association of Malawi (NASFAM)
- Agricultural Commodity Exchange (ACE), Malawi
- Malawian Ministry of Agriculture, Irrigation and Water Development
- AgDevCo – *Social impact investor and project developer working in the African agriculture sector, shareholder of Afri-Oils Ltd*.
- International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
- Highland Macadamia Co-operative Union Limited (HIMACUL)
- Subject-matter expert 1 (macadamia production in Malawi)
- Subject-matter expert 2 (macadamia production in Malawi)

Focus Group Discussions – For both projects we gathered data from different project locations through Focus Group Discussions (FGDs) with end-beneficiaries of both projects (selected through purposive sampling). Local NGO project officers assisted the evaluation team in selecting and mobilising farmers (communicating to them in advance). Table 4 and Table 5 provide an overview of the FGDs that have been conducted by the evaluation team. For Macadamia VCE, in both project locations FGDs have been conducted and a total of 182 participants was interviewed through eleven FGDs. In carrying out the FGDs for Going Nuts, the evaluation team experienced difficulties in reaching end-beneficiaries, mainly because this project formally ended already in 2020. For Going Nuts, three FGDs and one KII were conducted with a total of 44 participants. Besides, for both projects, the evaluation team spoke with NGO representatives directly involved in the training of farmers and collected their experiences.

Participants for the FGDs were carefully selected to aim for representativeness. Attention was devoted to the time, place, and composition of the FGDs. Group size, group homogeneity in terms of gender and age and possibility of imbalance of power in discussions were considered to ensure a safe environment for an open discussion. The FGDs were conducted in the local language.

Project location	Male-only FGD	Female-only FGD	Mixed FGD	Total
Thyolo district	1, 19 participants	1, 22 participants	n/a	5, 91 participants
	1, 15 participants	1, 12 participants	1, 23 participants (12 males, 11 females)	
Mzimba district	1, 17 participants	1, 13 participants	1, 18 participants (8 males, 10 females)	6, 91 participants
	1, 7 participants	1, 15 participants	1, 21 participants (13 males, 8 females)	
Total	4 (58 participants)	4 (62 participants)	3 (62 participants)	11, 182 participants

Table 4: FGDs Macadamia VCE

Project location	Male-only FGD	Female-only FGD	Mixed FGD	Total
Chiradzulu district	n/a	1, 18 participants	1, 9 participants (3 males, 6 females)	2, 27 participants
Dowa district	n/a	n/a	n/a	2 (1 KII), 17 participants
	n/a	n/a	1, 16 participants (7 males, 9 females), 1 KII with Cooperative Chairperson	
Total	n/a	1, 18 participants	2, 25 participants	4 (1 KII), 44 participants

Table 5: FGDs Going Nuts

Limitations

- The projects for this evaluation were selected one year *after* the last project year of Going Nuts and one year *prior* to the last project year of Macadamia VCE. Since Macadamia VCE is an on-going project, it is too early to assess the impact of the project. The focus of the evaluation therefore was on the output- and outcome level results of the project. Any conclusions regarding possible impact and sustainability of Macadamia VCE are preliminary.
- Before the start of this evaluation study, it was decided not to use a quasi-experimental research design (e.g., to establish a counterfactual) to evidence attribution for this evaluation. The main sources of information are qualitative (interviews, focus group discussions), although where possible complemented with M&E data collected by project partners during implementation. Analyses of (limitedly available) M&E data are based on the information the evaluation team received from various parties and on the assumption that this information is correct and complete.
- It is important to note that FGDs for this project were conducted with a more limited group of respondents, as difficulties were experienced in reaching end-beneficiaries for “Going Nuts”, since this project had already ended at the time of evaluation.

I. FDOV12MW01: Going Nuts

4. Relevance

Q1	Is the intervention locally relevant?
1.1	To which degree did projects research and design their intervention according to needs of end-beneficiaries?
1.2	To which degree are projects relevant for local and governmental policies of host countries?[61]

In this chapter, we describe that Going Nuts is relevant for its contributions to strengthening the groundnut value chain in Malawi, and for its intended positive effects on income generation and food security (through improved availability and food safety). We explain that the project was designed to meet the needs of end-beneficiaries. Their participation in the design and implementation of the project is somewhat unclear. We indicate that the project is in harmony with local policies. However, the policy environment does not support intended effects moving forward.

This chapter assesses whether the project's interventions are locally relevant for the end-beneficiaries and locally relevant for policies. To assess the ex-ante relevance of the project to end-beneficiaries' needs, two dimensions will be employed[62]. The first dimension, *responsiveness to beneficiaries' needs*, entails "that efforts should focus on areas of greatest need". The second dimension, *ownership and participation in the project's design and implementation*, entails that it is clear who was involved in the design and who was not and, in turn, how this affects the intervention's design and implementation. To assess the ex-ante relevance of the projects for local and governmental policies the projects will be compared to policies introduced by the Malawian government.

4.1. The design of Going Nuts is relevant for its contributions to strengthening the groundnut value chain in Malawi, and for its positive effects on income generation and food security (Q1)

In its design, Going Nuts is relevant for its contributions to strengthening the groundnut value chain in Malawi, and for its positive effects on income generation. Groundnut production skills are lacking among smallholder farmers, which affects income generation. Improvements in the quality of groundnut production would allow smallholder farmers to become linked to the groundnut value chain if a market would be readily available. In its design, the project, in which farmers would not only be trained but also sustainably linked to a local processor of groundnuts (Afri-Oils Ltd.), would thus contribute to improved income generation through the increased sales of quality groundnuts. Private sector development was the main purpose of the project.

Although the project has a private sector development purpose, through its efforts to improve local food availability and safety, the project also explicitly addresses improving food security. Trainings would focus on increasing yields and quality of groundnut production by smallholder farmers in different project locations[63]. Increasing yields can improve food security through increasing peoples' access to groundnuts. Derlagen and Phiri (2016) argue that groundnut consumption is important for tackling nutritional anaemia, which is a major problem in Malawi[64]. Groundnuts are also specifically mentioned in the country's Agricultural Sector Wide Approach as a crop of which production and consumption will be promoted to achieve improved nutrition at the household level. According to the FAO the groundnut is an important crop in volume and value, "owing to the fact that it is consumed widely by Malawian households, with 60 percent of the production consumed or sold

[61] Under sub-question 1.2., we also answer sub-question 1.3: *To what extent are the projects designed to contribute to Malawi's trade and export strategy more specifically?*
[62] OECD (2021). Applying Evaluation Criteria Thoughtfully.
[63] "Improved access to food and sufficient quality: The Going Nuts project will approach this ambition in two ways: first the quality of groundnuts will be increased through intensive groundnut management training. In this way farmers are able to decrease aflatoxin levels of the groundnuts in their field. A part of the groundnuts will end up in the own household or in domestic markets, which will increase peoples' access to safe food. The second way this ambition can be approached is through increase of income. The effect of the Going Nuts intervention will be that farmers will be able to increase their income through quality product sales." Sympany+ (2012). Project Plan. FDOV12MW01: Going Nuts
[64] Derlagen, C., & Phiri, H. (2019). Analysis of incentives and disincentives for groundnuts in Malawi. DOI:10.21955/GATESOPENRES.1115952.1

directly on the local market".[65] High levels of aflatoxin contamination of groundnuts are a major health risk for consumers[66]. The trainings provided by the project are therefore, if successful, also relevant for improving food safety since these would advance the reduction of aflatoxin levels in groundnuts.

The project specifically targeted groups which have no alternative means of income generation (subsistence farmers). Ex-ante, the project is also relevant for the enhancement of gender equality since the project would focus on female farmers to take active part in the implementation of this project[67]. Female farmers can be indicated as vulnerable in the Malawian context, as they tend to have limited access to knowledge on agricultural practices, markets, and microfinance services.[68]

The project design is relevant for several local policies, the policy environment however does not support intended effects moving forward. Although the project is in line with several relevant policies, we explain that the policy environment poses challenges to incentivising smallholder farmers to improve the quality of production. From Key Information Interviews, we can observe that the informal groundnut market in Malawi, not subject to the same controls and restrictions as the formal sector, is considerable of size. Hence, quality standards are not always enforced. It has been stated that, as a formal company in a structured market, project partner Afri-Oils Ltd. finds itself in a position where it must compete with informal traders. This situation would pose significant barriers to (international) competitiveness. For Afri-Oils Ltd., this would have led to major constraints on its ability to be profitable. (See 4.3/Annex B2).

4.2. The project was designed to meet the needs of end-beneficiaries, their participation in the design and implementation of the project however is somewhat unclear (Q1.1)

To a large degree, the project was designed according to the needs of end-beneficiaries. In general, having organised structures (at scale) is considered a prerequisite and preferred by buyers over dealing with individual farmers. Trainings are required to improve yields and quality of groundnut production and to reduce aflatoxin-levels; indeed, low groundnut productivity in Malawi is closely linked to the inability of smallholder farmers to access certified seeds and to followed recommended agronomic practices.[69] Linkage to a processing company, able to process nuts into high-quality products suitable for high-value markets, or another trustworthy party offering fair prices is also considered key – both by stakeholders and farmers themselves (see 6.1). Such a structure would allow farmers to sell their quality produce at a good price and would thereby contribute to sustainable income growth and local availability of quality groundnuts and groundnut products.

The project was less relevant because of a number of omissions in the project design. We note that the methods for smallholder farmers to communicate with the local processor (Afri-Oils Ltd.) were limitedly addressed in the design. Also, the selection of distant project locations (i.e., Chiradzulu) has limited the project's relevance due to the distance to Afri-Oils Ltd. These and other challenges, such as aggregation and transport, are further addressed in paragraph 6.1.

It is uncertain whether smallholder farmers have been consulted and whether ownership and participation were encouraged in the implementation. Although project partners did consider participation and ownership as prerequisites for the sustainability of results, it is not clear what this meant for the design of the project (whether targeted end-beneficiaries were consulted in the design of the project) and in practice (whether ownership and participation in the implementation was encouraged among end-beneficiaries). Project partners indicated that in other projects for which DAPP Malawi and Sympany+ were already collaborating, the challenges addressed by Going Nuts became apparent.

Detailed analyses for this evaluation question are included in Annex B1.

[65] Gourichon, H., Cameron, A. & Pernechele, V. (2017). Assessing the policy environment for cash crops in Malawi: what could hinder the achievement of the National Export Strategy objectives? Retrieved from: https://www.fao.org/3/i7444e/i7444e.pdf
[66] Gelli, A., Donovan, J., Margolies, A., Aberman, N., Santacroce, M., Chirwa, E., ... & Hawkes, C. (2020). Value chains to improve diets: Diagnostics to support intervention design in Malawi. DOI: 10.1016/j.gfs.2019.09,006
[67] Sympany+ (2012). Project Plan. FDOV12MW01: Going Nuts
[68] Farnworth, C. R., Stirling, C. M., Chinyophiro, A., Namakhoma, A., & Morahan, R. (2018). Exploring the potential of household methodologies to strengthen gender equality and improve smallholder livelihoods: Research in Malawi in maize-based systems. DOI:10.1016/j.jaridenv.2017.10,009
[69] Nyondo, C et all. (2018). Systematic analysis of groundnut production, processing and marketing in Malawi. DOI:10.22004/ag.econ.275674

4.3. The project is in harmony with local policies, the policy environment however does not support intended effects moving forward (Q1.2)

The project design is relevant for several local policies. According to project documentation, the project is well-aligned with several local policies, such as the Malawi Growth and Development Strategy (MGDS, 2011-2016) and the Agriculture Sector Wide Approach (ASWAp, 2011-2015). The relevance of the project has also been mentioned in several Key Informant Interviews. According to project documentation, the project is also relevant for the country's National Export Strategy (NES).

The policy environment however does not support intended effects moving forward. From Key Informant Interviews, we can observe that the informal sector in Malawi is large. This seems to confirm what has also been suggested Nyondo et al. (2018), who amongst others report absence of well-developed structured markets and dominance of informal trade (only about one percent of the total traded groundnuts in Malawi is sold through the formal market). Most groundnut producers sell their groundnuts through informal market channels. Consequently, significant price variability between farmgate and lean season (retail) market prices exists.[70] According to Key Informants, aflatoxin standards in Malawi and some neighbouring countries are hardly enforced. According to the FAO, indeed, a clear policy to reduce aflatoxin levels in groundnut production to regain the confidence of world markets is lacking in Malawi.[71] Although dedicated authorities exist (e.g., Malawi Bureau of Standards), concerns remain at the production side. The above poses challenges to incentivising smallholder farmers to improve the quality of production (e.g., because of a large informal market).

From project documentation, we can observe that the project has established relevant working relationships with (local) government representatives. Government representatives were involved, at least to some extent, from the inception of the project onwards and reportedly were included in some of the project activities. From conversations with stakeholders and our field visit it is unclear whether these relationships have continued after the ending of the project and to what effect.

Detailed analyses for this evaluation question are included in Annex B2.

[70] Nyondo, C et all. (2018). Systematic analysis of groundnut production, processing and marketing in Malawi. DOI:10.22004/ag.econ.275674

[71] Gourichon, H., Cameron, A. & Pernechele, V. (2017). Assessing the policy environment for cash crops in Malawi: what could hinder the achievement of the National Export Strategy objectives? Retrieved from: https://www.fao.org/3/i7444e/i7444e.pdf

5. Additionality

Q2	To what extent were the projects additional according to the DCED definition?
2.1	To what extent was the ex-ante additionality assessment in line with evidence?
2.2	Was public funding necessary for the implementation of the project?
2.3	How can the ex-ante additionality assessment be improved?
2.4	What difference has the public contribution made to the achievement of public goals?

In this chapter we describe that the case for public support to the project is clear. We explain that although a full-scale additionality assessment was not carried out, the available (limited) documentation suggested that, without the support from the Dutch government, the PPP consortium would not have existed and project partners would not have been able to self-finance the project. We indicate there were also good indications of development additionality. In particular, it seemed clear that the public contribution ensured a focus on public objectives in the project design, e.g., a focus on including (female) smallholder farmers in the groundnut value chain. We point out that the ex-ante additionality assessment by RVO.nl can be improved to make a more convincing case for commitment of public resources.

This chapter assesses the ex-ante additionality of the project. For this assessment, we refer to the definition of additionality provided by the Donor Committee for Enterprise Development (DCED). The DCED defines additionality as "the net positive difference that is expected to result from a donor-business partnership"[72]. The DCED further differentiates between input additionality and development additionality[73]:

- **Input additionality**: The focus of input additionality is on whether the public resources committed to a project are additional to the resources that would normally have been invested by the applicant/beneficiary and/or another donor. Input additionality also takes into account the timing of the additional public investment and whether the applicant/beneficiary would have been able to self-finance the project within a reasonable time frame.

- **Development additionality**: Development additionality refers to the expected development-relevant net results (outputs, outcomes and impacts, i.e., related to the scale, scope, quality, target group or location of the project or partner activities) that are expected as a result of 'additional' public inputs. Development additionality is in this sense about the expected impacts.

RVO.nl has a two-stage procedure for assessing projects: a first voluntary, informal preliminary stage (intake), and later a formal assessment stage. In the informal stage the applicant submits a Concept Note which provides a low-threshold opportunity to receive feedback and guidance from RVO.nl on how to improve the quality of the project proposal. The formal assessment stage begins after the formal project proposal has been submitted. We have translated some of the RVO.nl assessment criteria as relating to either input additionality or development additionality.

[72] DCED (2014). Demonstrating additionality in private sector development initiatives. A Practical Exploration of Good Practice for Challenge Funds and other Cost-Sharing Mechanisms. Retrieved from: https://www.enterprise-development.org/wp-content/uploads/DCED_Demonstrating-Additionality_final.pdf
[73] Ibid.

5.1. The case for public support to the project is clear (Q2)

Input additionality was present – Although a full-scale additionality assessment was not carried out, the available (limited) documentation suggested that, without the support from the Dutch government, the PPP consortium would not have existed and that project partners would not have been able to self-finance the project. Alternative financing possibilities that private sector partners may have had, however, were not explicitly considered in the project appraisal, nor was the question of whether a subsidy was the most adequate financing mechanism. Finally, investments to further the groundnut value chain most likely would not have taken place without the project.

Development additionality of Going Nuts is clear – Also, it seemed clear that the public contribution ensured a focus on public objectives in the project design, e.g., a focus on including (female) smallholder farmers in the groundnut value chain. By requiring a Theory of Change (ToC) in the project application phase (underlying the cooperation between Sympany+, Afri-Oils Ltd. and DAPP Malawi), it is possible to assess the impact of the project (and the business activities of Afri-Oils Ltd.) and compare this to what have would happened anyway.

- It seems unlikely that trainings would have taken place at the scale and quality as achieved by the project – in which in-depth knowledge about groundnut production and training of smallholder farmers was combined to enable knowledge building throughout the value chain. Without trainings, there would be a lesser chance that higher yields (and some quality improvements in production) would be achieved by groundnut producing smallholder farmers in Malawi.
- The project covered a large geographical area. Without public funding it is unlikely that farmers in remote rural areas such as Chiradzulu would have been able to trade with Afri-Oils Ltd. or receive adequate agricultural training. At the same time, the development additionality was limited to some extent because farmer groups that previously existed were targeted.[74]
- Also, a convincing case was made that Afri Oils Ltd. would not have attempted to include smallholder farmers in their business model at this scale without public support, because of the risks involved. Most likely, the benefits would not have been perceived as outweighing the costs: weaknesses of smallholder farmers for participating in high-end markets include a lack of knowledge about “modern markets, modern technology and proper use of modern inputs”, limited access to capital, quantities of product that are too small and heterogeneous in quality and haphazard supply. Similarly, transaction costs likely would have been perceived as too high (e.g., because of expected difficulties with contract enforcement when helping cooperatives with production and marketing).[75]

5.2. Although a full-scale additionality assessment was not carried out, the available (limited) documentation suggested that, without the support from the Dutch government, the PPP-consortium would not have existed (Q2.1)

Although a full-scale additionality assessment was not carried out, the available (limited) documentation suggested that, without the support from the Dutch government, the PPP consortium would not have existed. Available cash flow analyses seem to support the decision of RVO.nl to commit public resources to the project. Although project advisors of RVO.nl recall the outcome of the application, it was challenging to provide additional insights to the decision to commit public resources.

Investments to further the groundnut value chain most likely would not have taken place without the project. Since there is little to no incentive for individual parties to foster smallholder farmers’ participation and women participation in the value chain and to promote the use of good agricultural practices, it is unlikely that such investments would have taken place.

[74] Only in one project location, Chiradzulu, new farmer clubs were established.
[75] Van der Meer, C.I.J. (2006): Exclusion of Small-scale Farmers from coordinated supply chains. Market failure, policy failure or just economies of scale? DOI: 10.1016/j.jrurstud.2018.09.020

It is not clear from the documentation whether a full-scale ex-ante additionality assessment was carried out. There was a prior cash flow analysis[76] which showed that the project was not commercially viable due to a negative cumulative cash flow over the course of the project. No subsequent documentation says otherwise.

By requiring a detailed Theory of Change (ToC) as part of the description of the intervention strategy, a clear story about the net benefits of the project was presented by the project. This however has not been explicitly linked to the (development) additionality of the intervention by RVO.nl.

5.3. Project partners were not able to self-finance the project, other funding possibilities however have not been explored (Q2.2)

The case for public support to the project is clear, since according to project documentation, none of the project partners involved was able to self-finance the project. Without the required public support, the project would have not been established. Involved parties would not have been able to implement the activities individually, and it is our impression that Afri-Oils Ltd. would not have been willing to pursue efforts to include smallholder farmers in their business model without the FDOV-support (due to perceived risks not outweighing the benefits of participating in the project). Although this does not seem probable from project documentation and Key Informant Interviews (because of the level of risks involved), it remains somewhat uncertain if Afri-Oils Ltd. would have been able to receive support from a commercial provider or through other funding instruments (e.g., through a so-called soft loan).

Table 6 indicates the contribution of project partners and whether this was an in-kind or in-cash contribution. The project was financed for 25% by Sympany+ and for 25% by Afri-Oils Ltd., in addition to the 50% budget contribution by the Dutch Ministry of Foreign Affairs (FDOV).

Partner	Type	Main roles	In-cash %	In-kind %	In-cash €	In-kind €	Total €	Total %
FDOV	Public	Funding	100%	0%	€ 1,497,000	€ 0	€ 1,497,000	50%
Sympany+	(Dutch) NGO	Lead, Coordination	93%	7%	€ 696,495	€ 52,505	€ 749,000	25%
DAPP Malawi	(Local) NGO	Training	0%	0%	€ 0	€ 0	€ 0	€0
Afri-Oils Ltd.	Private partner	Buying, Processing, Advice, Training	71%	29%	€ 532,950	€ 216,050	€ 749,000	25%
Total					€ 2,726,445	€ 268,555	€ 2,995,000	100%

Table 6: In-cash and in-kind contributions to Going Nuts

[76] Netherlands Enterprise Agency | RVO.nl (n.d.) Assessment form complete qualification proposal FDOV (stage 2). FDOV12MW01: Going Nuts

In Figure 7 it is visible that most of the budget (68%) has been spent on hardware investments. The remaining 32% of the budget was spent on technical assistance (23%), while project management (5%: referring to staff costs) and monitoring and evaluation (4%) together accounted for 9% of the budget.

Additionality of the public contribution to the project has been reinforced through the additional funds that have been leveraged from private party AgDevCo. Afri-Oils Ltd. has been able to leverage additional funds due to the involvement of the Dutch government in the project.

Detailed analyses for this evaluation question are included in Annex B3.

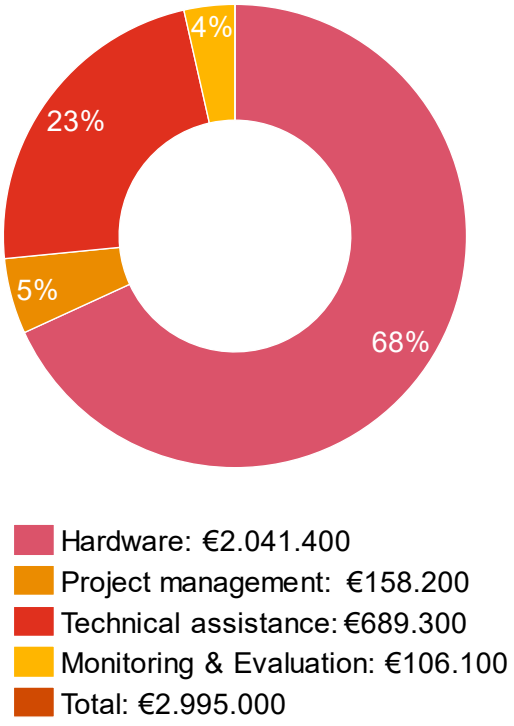

Figure 7: Total expenditure by cost category

5.4. The ex-ante additionality assessment by RVO.nl can be improved to make a more convincing case for commitment of public resources (Q2.3)

The current ex-ante additionality assessment as performed by RVO.nl can be improved to make a more convincing case for the commitment of public resources. RVO.nl carries out assessments of project proposals as part of their decision-making process to grant funding to a project or not. Questions about additionality are briefly addressed as part of this process, but there is no full-scale ex-ante additionality assessment. The cash flow analyses of the beneficiaries and the project consortia cover additionality to some extent but not fully.

As part of project assessments, to assess both aspects of additionality, no clear set of criteria was used. Current criteria are not (explicitly) linked to the DCED standards for additionality and do not (explicitly) distinct between input and development additionality. RVO.nl guidelines (scope and depth) for assessing additionality are not communicated externally, while this could enhance accountability. We provide recommendations for improving the ex-ante additionality assessment in chapter 13.

Alternative financing possibilities that private sector partners may have had are not explicitly considered in the project appraisal, neither is the question whether a subsidy is the most adequate financing mechanism (or other funding instruments, such as a so-called soft loan). Furthermore, although financial experts were involved in the project appraisal procedure, subject-matter experts (e.g., on the value chain) were not.

An important aspect that is missing in the current approach is a description and analysis of the donor ecosystem at the time of inception. There is no documentation on what other donors are doing in the particular field, and no analysis of potential overlap or synergies with other donor activities, projects, or programmes is present.

5.5. The public contribution has assured an ex-ante focus on public objectives in the project design (Q2.4)

The public contribution to the project has assured a focus on including (female) smallholder farmers in the groundnut value chain. Without public support, smallholder farmers (who for a significant part are women) would likely not be involved in growing groundnuts to sell to a formal, commercial processor. From Afri-Oils Ltd.' point of view, it would likely have been more commercially attractive to trade with larger estates that are better equipped to deal with issues around aflatoxin contamination and produce at a larger scale. Furthermore, the project explicitly addressed women's participation, and this contributed to gender equality as a public goal.

As a result of the public contribution, the project covered a large geographical area. Without public funding it is unlikely that farmers in remote rural areas such as Chiradzulu would have been able to trade with Afri-Oils Ltd. or to receive adequate agricultural training. The scale of the project is also important. Over 40,000 farmers indirectly have received agricultural training. This means that upskilling is an important public goal to which the project has contributed.

This evaluation question is answered based on the different analyses presented above.

6. Effectiveness and Impact

Q3	To what extent are the projects effective in reaching their outcome and impact objectives?
3.1	What changes related to outcomes and impact can be observed in comparison to the project baseline?[77]
3.2	What was the contribution or attribution (net effect) of the intervention (design of the project, project duration, the partners, the cooperation within the partnership, etc.) to the observed effects?[78]
3.3	Is the engagement of civil society effective in keeping the focus on public objectives?
3.4	Did the projects reach the desired end-beneficiaries (women, youth, vulnerable groups, farmers, policy makers, etc.) and how are they benefitting?
3.5	What are some of the unexpected direct or indirect effects of the project interventions to target beneficiaries?
Q4	What are the key determinants (both internal and external to the project) for inducing or hampering the intended and unintended effects?

In this chapter we describe the effectiveness and impact of the project. We explain that despite its best intentions, Going Nuts was not effective in establishing a structural market connection between producers and the processor. In the sub-sections below, we explain that while the project was somewhat effective on the supply side, it was not effective in terms of its private sector development objectives. Also, we describe that the contribution of the public-private partnership to improved effectiveness and efficiency of the intervention is limited.

6.1. Despite its best intentions, Going Nuts was not effective in establishing a structural market connection between producers and the processor (Q3)

Farmers have been trained on agricultural practices relevant to groundnut farming, and they have been encouraged to make use of high-quality inputs such as improved seed varieties. From a beneficiary perspective, this part of the project has gone reasonably well. In general, however, smallholder farmers still experience a lack of access to high-quality inputs, mainly due to financial constraints and limited availability. This limits the ability of smallholder farmers to implement the practices taught by the project.

Despite its best intentions, Going Nuts was not effective in establishing a structural market connection between producers and the processor. In particular, the project was not successful in linking the trained project farmers to Afri-Oils Ltd. (neither individually nor in organised structures). Key determinants include competition of Afri-Oils Ltd. with vendors buying ungraded groundnuts (causing side-selling in large quantities and adding the risk of the quality of groundnuts being inferior), working capital restraints of project partner Afri-Oils Ltd. and the lack of a logistical plan to handle supply offered for trade by DAPP Malawi farmers in Chiradzulu. Although the productivity of project farmers increased, the quality of their harvested groundnuts appeared not to have changed structurally (although this was difficult to assess, given that farmers were not linked to Afri-Oils Ltd).

While the project was somewhat effective on the supply side, it was not effective in terms of its private sector development objectives. On the one hand, project farmers did increase their productivity. On the other hand, the intended effects on the local processing capacity and processed nut exports did not materialise. Production by Afri-Oils Ltd. only increased up to 20% towards the target that was set, e.g. because project farmers continued to sell their groundnut produce via informal routes to markets. Although farmers still rely on selling ungraded groundnuts (potentially of inferior quality) to vendors, increased productivity potentially also raised their incomes – given that informal exporters reportedly offer good prices (even though there was little incentive to improve quality). At the same time, farmers spoken with in focus groups hardly reported any income

[77] Instead of presenting the answers to evaluation questions 3.1, 3.2, 3.5 and 4 separately, we present our findings per impact pathway in paragraph 6.2.
[78] Instead of presenting the answers to evaluation questions 3.3 and 3.4 separately, we present our findings integrally in paragraph 6.3.

improvements and reported, for example, to require higher prices for their groundnuts and with less price volatility.

Jobs have been created through firm expansion, although the stability of these jobs seems to be rather poor. Job creation for women has been limited. The enabling environment has improved somewhat, but since the supply of groundnuts from smallholder farmers and the communication and transport between project partner Afri-Oils Ltd. and project farmers has not increased or improved much it has not become easier for Afri-Oils Ltd. to buy groundnuts directly from the project smallholder farmers. Structures that have been set up have not been very beneficial to the enabling environment; economies of scale have not been reached. Market access for target groundnut farmers has not improved.

The contribution of the public-private partnership to improved effectiveness and efficiency of the intervention is limited. (Local) expertise and experience of project partners have contributed to project effectiveness and the PPP-approach also contributed to the efficiency of the intervention. At the same time, a lack of certain location-specific knowledge and realistic business expectations has limited project effectiveness and the efficiency of the intervention. While the project was in harmony with local policies, attention to the policy environment in objectives was limited. On paper, interests of project partners were well aligned. But in practice, project partners seem to have worked at cross purposes. It is somewhat unclear to what extent local authorities were involved in the project design and implementation; hence it is unclear to what extent efforts to improve extension services were congruent with existing institutional arrangements. Monitoring and evaluation processes were included in the project design. In practice, however, the project did not capture the right information to control project effectiveness (such as aflatoxin levels of groundnuts produced by project farmers).

6.2. While the project was somewhat effective on the supply side, it was not effective in terms of its private sector development objectives (Q3.1, Q3.2, Q3.5, Q4)

Specific changes can be observed related to outputs and outcomes on the two impact pathways of the (re)constructed Theory of Change of the project. On the supply side pathway, farmer clubs and associations have been (re-)established, use of improved seed varieties has been encouraged and farmers have been trained, although it is unclear which farmers have been trained and when. Organised structures have increased scale to some extent. Farmers understand the groundnut management practices that have been taught by the project, but experience issues in applying these practices. Although the productivity of project farmers increased, the quality of their harvested groundnuts appeared not to have changed structurally (although M&E data is lacking, we can observe this from project documentation and Key Informant Interviews). It is unclear whether aflatoxin levels have been reduced structurally, but this seems unlikely. Although farmers still rely on selling ungraded groundnuts (potentially of inferior quality) to vendors, increased productivity potentially also raised their incomes – given that informal exporters reportedly offer good prices (even though there was little incentive to improve quality). At the same time, farmers spoken with in focus groups hardly reported any income improvements and reported, for example, to require higher prices for their groundnuts and with less price volatility.

On the private sector development pathway, the project has successfully expanded and diversified Afri-Oils Ltd.' processing infrastructure. Afri-Oils Ltd. contributed to knowledge building; information channels however have not been established sustainably. Despite its best intentions, Going Nuts was not effective in establishing a structural market connection between producers and the processor, although project partners estimate that in the past years at least 10% of Afri-Oils' purchases were made through the cooperatives involved in the project. Processing capacity of Afri-Oils Ltd. has increased, up to ~60% of the target that was set. Only around half of the realised capacity has been in use to date (October 2022). Jobs have been created; stability of these jobs however seems to be rather poor. Job creation for women has been limited. Availability of high-quality nuts/nut products has increased, however, production by Afri-Oils Ltd. only increased up to 20% to the target that was set. The project contributed to improved market access and development, and consequently to increased international sales. No demonstration effects can be observed.

Below, we provide more details to these results per pathway at output and outcome level. Key determinants (both internal and external to the project) for inducing or hampering the intended and unintended effects are indicated by the following symbol: 

Supply side outputs

Farmer clubs and associations have been (re-)established. As intended, DAPP Malawi recruited 2,400 female farmers in Chiradzulu. These farmers were enrolled into farmer clubs. Furthermore, the project re-established DAPP Malawi farmer clubs in Dowa (6,000 farmers).

Use of improved seed varieties has been encouraged. From the project plan, no clear goals on the supply of inputs (seeds and other materials) to the 48,400 project farmers can be distilled. Involved project farmers have been encouraged to use improved seed varieties, instead of so-called farm-saved seed. At least in some years, some smallholder farmers have received inputs (mainly improved seed varieties, such as CG7-seed) through the project.

Smallholder farmers have reported that they have only received inputs at the very beginning of the project. Farmers soon returned to the practice of using farm-saved seed. In general, smallholder farmers interviewed still experience a lack of access to high-quality inputs, such as improved seed varieties, mainly due to financial constraints and limited availability.

Key determinants at the supply side output-level. Trainings on groundnut production provided by project partner DAPP Malawi were organised in groups. Farmers reported that working in these groups helped them remind one another of what they learned from extension workers. Demonstration plots have served as an effective extension tool to increase the adoption rate of Good Agricultural Practices.

Supply side outcomes

Farmers have been trained, although it is unclear which farmers have been trained when. During the project, smallholder farmers have followed a training programme on groundnut management practices, including aflatoxin control. According to project documentation, the project trained a total of 73,625 farmers between 2016 and 2020. Such reports on the number of farmers trained by the project seem to be somewhat unreliable, for two reasons. First, project documentation indicates that some of the involved organisations did not register farmer attendance at trainings. Secondly, since only one of the organisations that provided trainings on behalf of the project (DAPP Malawi) received a financial compensation for these trainings (to 8,400 farmers), the reported number of farmers trained by the project may be at risk of being inflated.

Organised structures have increased scale to some extent. Approximately 15-20% of the involved farmers (those organised and trained by DAPP Malawi) have benefited to some extent from the structures (farmer clubs) that have been set up by the project. From our Focus Group Discussions, we can observe that farmers have been reached through the structures that have been set up, resulting in the participation of (women) farmers in, for example, trainings on groundnut management practices. Findings from interviews with project partners support this.

However, none of the smallholder farmers spoken with has indicated that the farmer clubs that were (re-)established were still fully operational at the time of evaluation (October 2022). Rather, from Focus Group Discussions in Chiradzulu and Dowa it is our impression that most farmer clubs are either no longer existing or no longer functioning as before (e.g., because meeting frequency has declined).

Farmers understand the groundnut management practices that have been taught by the project, but experience issues in applying these practices. From the Focus Group Discussions, we can observe that farmers trained understand the groundnut management practices that have been taught by the project. Farmers reported trainings to have been very beneficial, and they now consider themselves to be knowledgeable on modern and cost-effective ways of farming. While farmers are trained on improved agricultural practices, they appear to find difficulty in putting what they have learned into practice, for different reasons (such as access to high-quality seeds, access to fertiliser and pesticides and concerns over the *Mandela Cork* drying method). Other concerns related to groundnut production that were mentioned in focus groups include heavy and erratic rains damaging crops, diseases and pests damaging crops and reducing their quality and lack of access to and availability of seeds. From project documentation, some improvements in the use of improved inputs can be observed (e.g., use of improved seed varieties by some farmers in some years).

Project documentation and M&E data do not provide a reliable source of information to track the use of agricultural practices or the use of inputs by project farmers. The lack of a traceability system within the project would have made it impossible to trace quality of production and to properly manage the (Afri-Oils Ltd.) supplier base consisting of project farmers. At the same time, it is mentioned in project documentation that towards the

end of the project (beginning of 2019) trainings would have not yet led to improved agricultural practices or the use of improved inputs (the adoption rate of best practices had turned out low).

Although the productivity of project farmers increased, the quality of their harvested groundnuts appeared not to have changed structurally (although this was difficult to assess, given that farmers were not linked to Afri-Oils Ltd). M&E reports indicate groundnut productivity of project farmers has been very volatile, fluctuating from season to season, with rainfall having the biggest impact on the project since irrigation was not available to any of the project farmers. In Chiradzulu a significant increase in production has been realised, although M&E data indicates yields are still substandard.

From Focus Group Discussions, it follows that productivity has increased (mainly due to the practice of *double-row planting*, introduced by the project) whereas the quality of the harvested groundnuts seems to have not. This seems to be mainly due to the limited possibility for smallholder farmers to apply the practices taught. Project documentation supports this idea. Beginning of 2019, towards the end of the last training activities, it is reported that the project had not yet brought forth the desired quality improvements in groundnut production. It then also is mentioned that there is still too little evidence that the best practices promoted are achieving the quality of groundnuts that project partner Afri-Oils Ltd. is aiming at.

It is unclear whether aflatoxin levels have been reduced (because of lacking M&E data on this topic), although this seems unlikely. An important focus of the project (on the supply side) was on reducing aflatoxin levels[79]. However, it is uncertain how effective the project has been in this regard. Very little project documentation or M&E data on aflatoxin measurements exists. M&E data submitted by the project to RVO.nl includes the average score of farmers on a so-called 'aflatoxin management knowledge quiz', however, the sample size (88 farmers) and composition (only farmers who were not part of the intensive training programme provided through DAPP Malawi) poses challenges to the interpretation of this data with regards to the contribution of the project to the observed changes. Provided that in 2019 the project did not see a significant change in quality by training farmers, it seems unlikely that significant changes in aflatoxin contamination of groundnuts produced by project farmers were realised at that time. In several Focus Group Discussions, aflatoxin was not mentioned by farmers as in their top-five concerns.

Project farmers would be linked to Afri-Oils Ltd., amongst others to ensure a feedback loop; a test-and-learn approach for increasing the quality of production by project farmers. Since a structural market connection to Afri-Oils Ltd. has not been established, the aflatoxin-tests that are carried out by Afri-Oils Ltd. in their lab results in information that exists separately from the project and thus does not reach project farmers. Furthermore, from conversations with project partners and other stakeholders, it follows that since most vendors (to which most smallholder farmers sell, as it is convenient, quick and simple) have little or no quality requirements (i.e., makes little demands from them, compared to selling via formal routes to markets), there is little incentive for project farmers to increase quality of production.

Effect on income development of end-beneficiaries is uncertain (although M&E data is lacking). Although farmers still rely on selling ungraded groundnuts (potentially of inferior quality) to vendors, increased productivity potentially also raised their incomes – given that informal exporters reportedly offer good prices (even though there was little incentive to improve quality). At the same time, farmers spoken with in focus groups hardly reported any income improvements and reported, for example, to require higher prices for their groundnuts and with less price volatility.

Key determinants at the supply side outcome-level include limited ability of project farmers to put what they have learned into practice (mainly due to limited access to high-quality inputs, such as seed varieties, fertiliser and pesticides), concerns over some practices taught (*Mandela Cork* method), challenges with regard to the aggregation of supply (due to lack of trust within farmer organisations and absence of nearby aggregation centres), economic pressures leading to quality-reducing post-harvest practices (adding of water to increase the weight of supply) and consumption of low-quality groundnuts. The lack of a traceability system within the project has made it impossible to trace quality of production and to properly manage the (Afri-Oils Ltd.) supplier base consisting of project farmers.

[79] "Low quality, low yield and groundnuts highly contaminated by aflatoxin are the real bottlenecks for private sector development and food security", Sympany+ (2012). Project Plan. FDOV12MW01: Going Nuts.

Private sector development outputs

The project has successfully expanded and diversified Afri-Oils Ltd.' processing infrastructure. This allows the company to process larger volumes of groundnuts, to meet processing standards required by markets, and to realise product diversification and handling of grade-outs. The project investments have also allowed Afri-Oils Ltd. to intensify aflatoxin testing. Process efficiency has increased by streamlining product flow and optimising storage and handling of groundnuts.

Afri-Oils Ltd. contributed to knowledge building; information channels however have not been established sustainably. Project partner Afri-Oils Ltd. has been involved in knowledge building, mainly through its contribution to the trainings conducted by the project. Since a structural market connection to Afri-Oils Ltd. has not been established, farmers currently still lack access to information (on groundnut production, market information, etc.). In that sense, the situation for smallholder farmers has not improved in a sustainable way.

Key determinants at the private sector development output-level. The appropriate investments in project partner Afri-Oils Ltd.' processing infrastructure have allowed the company to process larger volumes of groundnuts, to meet processing standards required by markets and to realise product diversification and handling of grade-outs.

Private sector development outcomes

Despite its best intentions, Going Nuts was not effective in establishing a structural market connection between producers and the processor. One of the primary objectives of the project was to build up a regular and reliable market relationship between Afri-Oils Ltd. and project farmers. This would enable targeted smallholder farmers to become linked to (high value) markets. Despite its best intentions, the project has not been successful in realising a sustainable farmer-processor linkage between the involved (48,400) smallholder farmers and Afri-Oils Ltd. Still, project partners estimate that at least 10% of Afri-Oils' purchases were made through the cooperatives involved in the project. In project documentation, and in conversations with project partners and other stakeholders, competition of Afri-Oils Ltd. with vendors buying ungraded groundnuts (causing side-selling in large quantities and adding the risk of the quality of groundnuts being inferior) has been mentioned as a fundamental underlying problem. Other explanations that have been raised include the absence of a logistical plan to handle supply offered for trade by DAPP Malawi farmers in Chiradzulu, high costs because of persisting inefficiencies, safety concerns, concerns over the possibility to enforce contracts, and concerns over the quality of production by smallholder farmers.

We can also observe this from Focus Group Discussions. Project farmers overwhelmingly reported that the most reliable way to market groundnuts is to sell to local vendors, that they lack a formal market in their community, that they lack access to any formal markets in general, and that they lack information on good markets.

Processing capacity of Afri-Oils Ltd. has increased, up to ~60% of the target that was set. Only around half of the realised capacity has been in use to date (October 2022). Overall, the project has improved the operational efficiency of the Afri-Oils Ltd. factory. Project investments have allowed Afri-Oils Ltd. to produce properly cleaned, sized, and graded groundnut products as required by markets. Investments have also allowed to diversify the processing capacity of Afri-Oils Ltd., allowing the company to produce groundnut oil and groundnut cake. In the project plan, a production increase from 2,000 MT/yr. processed groundnuts (2012) to 20,000 MT/yr. within ten years (2022) was envisioned[80]. Current processing capacity is around 7,000 MT per year, implying that approximately 60% of the target set has been reached. In all years except for 2021 (3,900 MT), less than 2,500 MT has been processed by Afri-Oils Ltd., meaning that only around half of the realised capacity has been in use.

The enabling environment has been improved somewhat. Farmers have been trained in groundnut management practices but lack access to high-quality inputs. Processing capacity of Afri-Oils Ltd. has improved, but this cannot be said for the supply of groundnuts from smallholder farmers, nor for the communication and transport between Afri-Oils Ltd. and farmers. In 2022, Afri-Oils Ltd. depended on one party that buys groundnuts directly from smallholder farmers (from individual farmers, not from cooperatives) that were not necessarily involved in the project. Structures that have been set have not been beneficial to the enabling environment.

[80] Implying a capacity increase to 20,000 MT/yr.

Jobs have been created; stability of these jobs however seems to be rather poor. Job creation for women has been limited. The project has served as a driver for job creation through firm expansion (see Figure 17). However, it can also be observed that (large) lay-offs took place. Hence, job stability seems to be rather poor. It is our impression that management and qualified jobs remained with male employees, whereas lower-paid and temporary work has been carried out mainly by female employees. It is uncertain whether indirect employment creation has been achieved.

Production by Afri-Oils Ltd. only increased up to 20% towards the target that was set, e.g. because project farmers continued to sell their groundnut produce via informal routes to markets. Availability of high-quality nuts/nut products has increased, but only through the capital expenditures of the project and not due to the involvement (training) of project farmers. As mentioned, a production increase from 2,000 MT to 20,000 MT groundnuts per year was foreseen. Groundnut processing by Afri-Oils Ltd. increased significantly between 2015 and 2018. From Figure 15 (see B4), a production decline can be observed in 2018 and 2019. In 2020, Afri-Oils Ltd. processed around 2,000 MT of groundnuts – meaning that in terms of quantity, although an increase can be observed, in the last project year production only returned to levels comparable to 2012. In 2021, production was around 3,900 MT – meaning that approximately 20% of the target set had been reached. The project has been somewhat effective in realising product diversification. In 2017, Afri-Oils Ltd. managed to produce limited amounts of groundnut oil and groundnut cake. In April 2022, approximately 20% of the total production was used for groundnut oil and groundnut cake production. Before the FDOV-project, Afri-Oils Ltd. did not produce these products.

The project contributed to improved (import) market access and development, and consequently to increased international sales. The project has been successful in diversifying the company's customer base and in accessing new regional markets. At the start of the project, in 2015, Afri-Oils Ltd. only sold groundnut products to domestic clients. Project documentation indicates export by Afri-Oils Ltd. increased over the project period, from 56 MT in 2016 to 2,123 MT in 2020[81]. The project aimed to export half of the production, mainly to South Africa and Europe. In conversations with project partners and stakeholders, reaching European markets has been mentioned as an overly ambitious and somewhat unrealistic target. Indeed, no exports to Europe have been realised and there are no indications that Afri-Oils Ltd. will be able to do so in the future. Production currently cannot comply with European Union maximum levels for aflatoxin. Currently, Afri-Oils Ltd. exports 60% of its processed groundnuts. 40% of the processed groundnuts are sold domestically.

No demonstration effect can be observed. We have not come across examples of other projects or investments that have taken place as a result of the project. The risk perception of British social impact investor AgDevCo, currently the majority shareholder of Afri-Oils Ltd., has been positively affected by the project.

Key determinants at the private sector development outcome-level include competition of Afri-Oils Ltd. with local vendors and informal exporters buying ungraded quality groundnuts at similar prices (potentially of inferior quality), the lack of a logistical plan to handle supply offered for trade by DAPP Malawi farmers in Chiradzulu, working capital restraints of project partner Afri-Oils Ltd., high costs because of persisting inefficiencies, quality demands that could not be satisfied by project farmers, late issuing of contracts by Afri-Oils Ltd. (only just before the buying season or during the buying season), Afri-Oils Ltd. reportedly offering comparatively low prices, groundnuts produced and processed in Malawi that remain difficult to export and price volatility.

Detailed analyses for this evaluation question are included in Annex B4.

6.3. The contribution of the public-private partnership to improved effectiveness and efficiency of the intervention is limited (Q3.2, Q3.3)

(Local) expertise and experience of project partners have contributed to project effectiveness, the PPP-approach contributed to the efficiency of the intervention. The contribution of project partner DAPP Malawi (a local NGO), experienced in setting up and working with farmer clubs in the Malawian context, can be considered indispensable for reaching end-beneficiaries in selected project locations. The appropriate training topics, relevant for increasing yields and quality of groundnut production, and methodology were chosen and

[81] *Total export sales between July 2020 and February 2020.

implemented accordingly. The appropriate capital expenditures were proposed and successfully implemented by Afri-Oils Ltd. (local private partner). Without the involvement of Sympany+ (Dutch NGO), cooperation between public and private partners would not have existed or at least would not have gone as smooth as in the project; all project partners have expressed their appreciation for the coordinating role of Sympany+. Through the network of Afri-Oils Ltd. and DAPP Malawi, several other parties (such as local research institutes) have been involved in knowledge building activities in the value chain. It can be confidently stated that the PPP-approach has enhanced the efficiency of the development intervention. Also, the project has brought partners together that were not connected before (which can be relevant for stimulating for institutional change).

At the same time, a lack of certain location-specific knowledge and realistic business expectations has limited project effectiveness and the efficiency of the intervention. Even though civil society was included in the partnership, not all end-beneficiaries' interests seem to have been sufficiently represented in the project. Rather, the involvement of DAPP Malawi seems to have resulted in reliance on previous investments of DAPP Malawi. For example, including Chiradzulu (an area in which DAPP Malawi had worked on empowering female smallholder farmers before) as a project location was not a sensible decision, since in general it is considered a less suitable area for growing groundnuts. Since Chiradzulu is more than 300 kilometres away from project partner Afri-Oils Ltd., this also points to a lack of realistic business expectations in the project despite the involvement of a private partner. Similarly, the target of training 48,400 farmers, 40,000 farmers of which would be trained by organisations who did not receive funds for their training activities and linking these farmers to Afri-Oils Ltd. may be considered unrealistic in relation to the project budget.

On paper, interests of project partners were well aligned. In practice, project partners seem to have worked at cross purposes. The business case and public objectives were well-defined in the project plan. However, in practice the business case for including project farmers in the supplier base of Afri-Oils Ltd. has remained somewhat unclear (at least for project partner Afri-Oils Ltd.). This has affected the commitment of Afri-Oils Ltd. to source directly from project farmers, who were organised in groups and trained to improve quality of production and were promised to be linked to an off-taker subsequently. This relates to some trade-offs which the project tried to balance (mainly between efficiency and inclusiveness). In the absence of a policy environment supporting intended effects moving forward, the alignment of interests (and allocation of costs, risks, and benefits) within the partnership could have contributed to partnership effectiveness.

It is somewhat unclear to what extent local authorities were involved in the project design and implementation; hence it is unclear to what extent efforts to improve extension services were congruent with existing institutional arrangements. Subsequently, potential for institutional change and long-term commitment of local authorities in general is unclear.

Monitoring and evaluation processes were included in the project design. In practice, however, the project did not capture the right information to control project effectiveness. For example, to monitor if project farmers were producing safe food, the following indicator was selected: "% of samples of processed groundnuts with aflatoxin levels below 4 ppb." Since a direct link between project farmers and Afri-Oils Ltd. (who was made responsible for capturing this indicator) was not established, it has turned out not to be possible for the project to monitor the effectiveness of the project with regards to improving the quality of groundnut production using this indicator.

Detailed analyses for this evaluation question are included in Annex B5.

7. Sustainability

Q5	**Did the project/ intervention lead to systemic change and/or was the intervention scalable? If yes, in what way?**
Q6	To what extent do the benefits of the project (outcome & impact level) continue after FDOV-funding ceased and how was this influenced by the business case and/or revenue model?[82]
Q6.1	What specific elements of the business case and/or revenue model introduced by the project contribute to continuity and sustainability?
Q7	**What is the CSR performance of the selected FDOV projects?**
Q7.1	How relevant were the designed CSR plans?
Q7.2	What effects can be observed of CSR plans of private partners in consortia?
Q7.3	To what extent did the projects have a major positive or negative influence on their direct natural environment or contributed (combatting) global climate change?

In this chapter we describe the sustainability of the project. We describe that it is unlikely that Going Nuts would soon lead to systemic change, and that although basic short-term outcomes are likely to persist, no major impact should be expected soon. We explain that the value chain has not effectively been enhanced (at least, not to the extent envisioned in the project plan), and that accordingly the business case does not contribute much to continuity and sustainability of project results. We see no indications the project approach would be scalable.

In this chapter we also describe that the CSR performance of the project is limited. We describe that although the designed CSR plans are relevant, very little effect can be observed from their implementation. We explain that the project has no major influence on the natural environment one way or the other.

7.1. It is unlikely that Going Nuts would soon lead to systemic change (Q5)

We conclude that it is unlikely that Going Nuts would soon lead to systemic change. The (part of the) groundnut value chain that this project aimed to enhance, suffers from problems described in the previous chapters. Participating farmers are currently yielding higher quantities of groundnuts thanks to the project, yet still not of structurally better quality, and it is our impression they still sell them to whomever offers to buy them first for the reasons as explained (i.e., because it's convenient, quick, simple and makes little demands from them, compared to selling via formal routes to markets). Afri-Oils Ltd. has increased processing and testing capacity, yet currently buys groundnuts from only one trusted party. No ongoing relation has been established between Afri-Oils Ltd. and the end-beneficiaries.

Detailed analyses for this evaluation question are included in Annex B6.

7.2. Basic short-term outcome benefits are likely to continue, but no major impact should be expected (Q6, Q6.1)

Through the straightforward revenue model of farming and processing groundnuts, basic short-term outcome benefits are likely to continue. However, no major impact should be expected.

Some benefits of the intervention are likely to last, in particular at the output- and short-term outcome level of the Theory of Change (ToC) of the project. The capacity of project partner Afri-Oils Ltd. has been strengthened, and established infrastructure on their site is expected to last (although not all established capacity so far has been in use). Furthermore, capacities of individuals and communities have been strengthened. Continued

[82] Instead of presenting the answers to evaluation questions 6 and 6.1 separately, we present our findings integrally in paragraph 0.

benefits for these groups include improved knowledge and practice of groundnut management practices (although this may deteriorate over time) and subsequent higher yields.

The value-chain enhancement as envisioned by the project has not been generated. Project farmers are currently yielding higher quantities of groundnuts thanks to the project, yet still not of structurally better quality, and it is our impression they still sell them to whomever offers to buy them first for the reasons as explained (i.e., because it's convenient, quick, simple and makes little demands from them). Afri-Oils Ltd. has increased processing and testing capacity, yet currently buys groundnuts from only one trusted party. No ongoing relation has been established between Afri-Oils Ltd. and the end-beneficiaries.

No major impact should be expected from the project's business case, for the reasons as described – some of which are structural. Also, Afri-Oils Ltd.'s production capacity of 7,000 MT (which has not been in full use to date) only equals 2-3% of the total groundnut market in Malawi.

Detailed analyses for this evaluation question are included in Annex B7.

7.3. The CSR performance of Going Nuts is limited (Q7)

Both when considering CSR on the side of Afri-Oils Ltd. and when considering CSR of the entire project, performance is limited. The designed CSR plans are relevant, yet little effect can be observed from the CSR plans of Afri-Oils Ltd. The project is not likely to have a major influence on the environment, neither positively nor negatively.

Some overlap may be perceived in the concept of CSR on the one hand and the development goals of the project, which might lead to reason that when the project achieves part of its development goals, this would add to their CSR performance. This is not a line of reasoning we support.

The designed CSR plans were relevant (Q7.1). Both project documentation and project stakeholders reflect this notion. The CSR aspects considered were relevant to the context of Malawi and the groundnut sector.

Little effect can be observed from the CSR plans of Afri-Oils Ltd. (Q7.2). Project documentation indicates that Afri-Oils Ltd. has few systems in place, although they intend to improve that. Still, noise reduction within the factory has been attended to, and wages are above minimum wage.

The project is not likely to have no major positive or negative influence on its direct natural environment, nor has it contributed to combatting global climate change (Q7.3). Project reporting says little on the influence of the project on the natural environment. Project stakeholders have little to say about the project's impact on the immediate natural environment or on combatting climate change. Looking at the project, this may make sense: little harm is done by planting and processing groundnuts, and any pesticides used are not at quantities that would have major negative influence on the direct natural environment. Vice versa, any environmental benefits generated through more efficient groundnut farming would be small and would most likely be offset by increase in fuel emissions through increases in road transportation of produce.

Detailed analyses for this evaluation question are included in Annex B8.

II. FDOV14MW16: PPP Macadamia Value Chain Enhancement

8. Relevance

Q1	Is the intervention locally relevant?
1.1	To which degree did projects research and design their intervention according to needs of end-beneficiaries?
1.2	To which degree are projects relevant for local and governmental policies of host countries?[83]

In this chapter we describe that Macadamia VCE in its design is a locally relevant project. Macadamia VCE supports the development of the macadamia value chain. The project is also relevant for realising crop diversification, which can contribute to generating a more stable income. We explain that the project was designed to meet the needs of end-beneficiaries and that the target group was consulted in the design. We indicate that the project design is relevant for local policies, yet does not contain specific goals for improving policies.

This chapter assesses whether the project's interventions are locally relevant for the end-beneficiaries and locally relevant for policies. To assess the ex-ante relevance of the project to end-beneficiaries' needs, two dimensions will be employed[84]. The first dimension, *responsiveness to beneficiaries' needs*, entails "that efforts should focus on areas of greatest need". The second dimension, *ownership and participation in the project's design and implementation*, entails that it is clear who was involved in the design and who was not and, in turn, how this affects the intervention's design and implementation. To assess the ex-ante relevance of the projects for local and governmental policies the projects will be compared to policies introduced by the Malawian government.

8.1. Macadamia VCE in its design is relevant for its contributions to strengthening the macadamia value chain in Malawi, and for the opportunities it brings through a higher and more stable income for end-beneficiaries (Q1)

By design, Macadamia VCE supports the development and the participation of smallholder farmers in the macadamia value chain. In Key Informant Interviews it has been stressed that, to successfully involve smallholder farmers in the Malawian macadamia value chain and to 'build volumes', access to quality seedlings is required as well as access to extension services and other technical support. Access to quality seedlings for smallholder farmers is very limited (due to limited availability and high costs) and the availability of "agricultural extension staff and macadamia experts in the macadamia value chain in Malawi is minimal, and this has become less available after the completion of the Farm Income Diversification Programme and MSDP projects"[85]. The project has responded well to these challenges by including the supply of grafted plants (free of cost) to project smallholder farmers and an intensive training programme on macadamia cultivation in the project design. The training programme was aimed at tackling important challenges in macadamia cultivation, such as dealing with pests and diseases. Also, necessary investments in infrastructure and equipment as well as efforts to build up a relationship between project farmers, a processor (Sable Farming Ltd.) and end buyer (Intersnack Procurement B.V.) were foreseen in the design: Sable Farming Ltd. involves smallholder farmers in their business model, thereby transferring its capacity and providing access to processing facilities and the Dutch market through Intersnack Procurement B.V., a long-term client of Sable Farming Ltd.

The project is also relevant for realising crop diversification, which can contribute to generating a more stable income. In recent years the government of Malawi has intensified its efforts for crop diversification to reduce malnutrition and food insecurity. Crop diversification is perceived as a viable option to increase resilience in

[83] Under sub-question 1.2., we also answer sub-question 1.3: *To what extent are the projects designed to contribute to Malawi's trade and export strategy more specifically?*
[84] OECD (2021). Applying Evaluation Criteria Thoughtfully.
[85] Zuza, E. J., Maseyk, K., Bhagwat, S., Emmott, A., Rawes, W., & Araya, Y. N. (2021). Review of Macadamia Production in Malawi: Focusing on What, Where, How Much Is Produced and Major Constraints. DOI:10.3390/agriculture11020152

agricultural systems, contributing to the food security of households.[86] Income growth may help securing nutrient consumption, yet this depends on how additional income is spent.

Economically, Malawi currently still heavily relies on the export of raw tobacco, while tobacco revenues are unstable.[87] Generally, stakeholders perceive the introduction of macadamia farming among smallholder farmers as a good opportunity to diversify sources of (cash crop) income for these households. Indeed, according to the Malawi Macadamia Association, the growth of the macadamia industry in Malawi is "driven by the erosion of margins on traditional cash crops, such as coffee, tobacco and latterly tea, and the drive to identify a suitable long-term substitute".[88] Respondents have indicated that Malawi provides a suitable climate for growing macadamia and that the country has a good reputation for macadamia processing. Extensive areas of Malawi (up to 57%) are considered suitable for the cultivation of macadamia.[89] Furthermore, a worldwide increase in consumption and production of the nut is projected[90].

The intervention can also be considered relevant for its contribution to realising export potential. Malawian exports have grown much slower than imports, which has resulted in an unsustainable trade deficit in which agricultural imports structurally have surpassed agricultural exports. This has made the country "vulnerable to aid fluctuation, foreign exchange shocks and adverse weather events".[91] The project's investments in the development of the macadamia sector provide relevant support to the production, productivity, and expansion of export since macadamia is mostly produced for export.

Relevance of the project for increasing local or regional food availability (beyond the farmers themselves) is more limited. Relevance for enhancing better local and regional availability of affordable and nutritious food is rather limited; just a fraction of the produced nuts (those of a lower grade that are not exported) can be expected to be used for household consumption and domestic or regional trade, since the project aims to export the supply from smallholder farmers to the Dutch market. Increasing local or regional food availability thus also is not a project objective. Still, macadamia nuts are considered a healthy snack and the "nutritional profile can also help consumers meet certain dietary requirements"[92].

The project has a focus on commercially viable farmers and has clear inclusion objectives. Since the project targeted smallholder farmers holding larger plots of land and provided the necessary skills and equipment that are needed to successfully grow macadamia, the project is less relevant for reaching those furthest behind (e.g., rural subsistence farmers). This focus is in line with the commercial success focus of FDOV, in which commercially viable farmers (land size, market orientation) are the primary target group.[93] The project intended for a 50/50 distribution of male and female farmers in the project.[94]

The project design is relevant for several local policies; however, the project has no specific goals for improving policies for doing business in the macadamia sector. The project is in line with several relevant policies. However, no project activities related to improving policies for doing business in the macadamia sector (e.g., concerning fair price-setting) were included in the project design.

[86] Mango, N., Makate, C., Mapemba, L. et al. (2018). The role of crop diversification in improving household food security in central Malawi. DOI: 10.1186/s40066-018-0160-x
[87] Gourichon, H., Cameron, A. & Pernechele, V. (2017). Assessing the policy environment for cash crops in Malawi: what could hinder the achievement of the National Export Strategy objectives? Retrieved from: https://www.fao.org/3/i7444e/i7444e.pdf
[88] Malawi Macadamia Association (2021). Malawi Macadamia Industry Roadmap. Retrieved from: https://hubble-live-assets.s3.amazonaws.com/mma/file_asset/file/91/Macadamia_Industry_Roadmap_RELEASE_FINAL.pdf
[89] Ibid.
[90] Justin P. du Toit, Flora J. Nankhuni, and Joseph S. Kanyamuka (2018). Can Malawi Increase Its Share of the Global Macadamia Market? Opportunities and Threats to the Expansion of Malawi's Macadamia Industry (poster presented at World Bank 22nd ICABR Conference in Washington DC on June 13, 2018). Retrieved from: https://www.canr.msu.edu/fsp/outreach/presentations/macadamia-poster-june2018.pdf
[91] Gourichon, H., Cameron, A. & Pernechele, V. (2017). Assessing the policy environment for cash crops in Malawi: what could hinder the achievement of the National Export Strategy objectives? Retrieved from: https://www.fao.org/3/i7444e/i7444e.pdf
[92] CBI (2019). The European market potential for macadamia nuts. Retrieved from: https://www.cbi.eu/market-information/processed-fruit-vegetables-edible-nuts/macadamia-nuts/market-potential
[93] KIT Royal Tropical Institute (2017). Aid & Trade in Dutch Development Cooperation. A brief review of external evaluations of Aid and Trade programmes from 2013-2017. Retrieved from: https://www.kit.nl/wp-content/uploads/2018/08/5989a53dacc28_KIT_Aid_Trade_Report_06.pdf
[94] Sympany+ (2014). Project Plan. FDOV14MW16: PPP Macadamia Value Chain Enhancement

8.2. The project was designed to meet the needs of end-beneficiaries, the target group was consulted in the design (Q1.1)

The project is well-timed and relevant for end-beneficiaries. Smallholder activity in macadamia production in Malawi is still limited whereas world demand for macadamia is high[95] and involvement of smallholder farmers supported by the industry. While the scale of the project is relatively small, its novelty implies a potentially large impact on indirect beneficiaries via demonstration effects. In the project 3,000 farmers planted a total of approximately 300,000 macadamia trees. The farmers who participate in the project are expected to be the future 'lead farmers' on macadamia management. "They will contribute to the scaling process of the number of macadamia trees as there is base potential of more than hundred thousand farmer households in the Malawian macadamia growing areas"[96]. This assumes access to inputs and technical support for smallholder farmers who are not part of the project.

The project is less relevant to those furthest behind, as it only targeted smallholder farmers holding 5 acres or more.[97] The average landholding size of smallholder farmers in Malawi is around 0.7 ha[98], meaning the project did not target the most vulnerable groups (e.g., rural subsistence farmers). This focus is in line with the commercial success focus of FDOV. Concerning other selection criteria, the project can be considered relevant in the light of addressing gender inequality in Malawi, as it aimed at least 50% of the participating farmers to be female.

According to stakeholders and compared to challenges identified in secondary sources, the project by design is relevant for addressing challenges faced by smallholder farmers in cultivating macadamia[99]. First, a significant challenge faced in promoting smallholder planting of macadamia trees is the lack of access to quality seedlings, due to the limited availability of certified seedlings and high investment costs. The project responded to this challenge by providing grafted plants, produced by project partner Sable Farming Ltd., to 3,000 smallholder farmers to grow at their own plots.

Second, climate change poses a significant threat to macadamia production in Malawi, mainly due its effects on land suitability, with extreme weather events (heatwaves, flooding, and droughts) mentioned as the key challenges to production[100]. The project plan[101] outlines that the regions selection for the project, amongst other criteria, are based on the suitability of the weather to carry out macadamia cultivation long term under rain-fed conditions (under the assumed climate change)[102]. The project thus considered the exposure of the project locations to future climate risks (climate/geophysical hazards). Although Thyolo district (one out of the two selected regions for implementation) to date is Malawi's most productive and largest macadamia growing area, this district is also considered a vulnerable area with a significant risk of losing suitable areas for macadamia production due to climate change, if climate-smart agriculture is not applied. [103]

Third, pests and diseases pose a serious challenge to productivity in the macadamia value chain. Common pests include fruit borers, tropical nut borers, stink bugs, and termites. Pest attacks on macadamia orchards and a lack of knowledge in pest management and postharvest handling has been identified as a key risk in the project plan, and mitigating measures were suggested accordingly (i.e., training of farmers in Integrated Pest Management to control pests)[104].

Fourth, Zuza et al. (2021) explain that for macadamia production to be a profitable activity, a sophisticated infrastructure and equipment ("storage sheds, drying racks, a good network of roads, and a processing factory

[95] Zuza, E. J., Maseyk, K., Bhagwat, S., Emmott, A., Rawes, W., & Araya, Y. N. (2021). Review of Macadamia Production in Malawi: Focusing on What, Where, How Much Is Produced and Major Constraints. DOI:10.3390/agriculture11020152
[96] Sympany+ (2014). Project Plan. FDOV14MW16: PPP Macadamia Value Chain Enhancement
[97] Ibid.
[98] Muyanga, Milu & Nyirenda, Zephania & Lifeyo, Yanjanani & Burke, William. (2020). The Future of Smallholder Farming in Malawi. DOI: 10.13140/RG.2.2.33903.87201.
[99] Zuza, E. J., Maseyk, K., Bhagwat, S., Emmott, A., Rawes, W., & Araya, Y. N. (2021). Review of Macadamia Production in Malawi: Focusing on What, Where, How Much Is Produced and Major Constraints. DOI:10.3390/agriculture11020152.
[100] Ibid.
[101] Sympany+ (2014). Project Plan. FDOV14MW16: PPP Macadamia Value Chain Enhancement
[102] In addition, in the projects' risk assessment "ensuring that macadamia is grown in areas which will not suffer severe climate change for the next 40 years" is mentioned as mitigating measure to the risk posed to the project by climate change.
[103] Zuza, E. J., Maseyk, K., Bhagwat, S. A., de Sousa, K., Emmott, A., Rawes, W., & Araya, Y. N. (2021). Climate suitability predictions for the cultivation of macadamia (Macadamia integrifolia) in Malawi using climate change scenarios. DOI:10.1371/journal.pone.0257007
[104] Sympany+ (2014). Project Plan. FDOV14MW16: PPP Macadamia Value Chain Enhancement

within the vicinity of production areas") are required. The project has responded to this challenge by setting up farmer clubs and expanding logistical capacity through the development of four storage and trading centres and the expansion of processing facilities. One production area is in the vicinity of the processing factory (Thyolo, 1,500 farmers), while the other production location is far from close (Mzimba, 1,500 farmers) with 600 kilometres to bridge.

Lastly, reportedly, dialogue and communication in the macadamia value chain is lacking[105]. According to the project plan, it is the ultimate goal to achieve a sustainable relationship between smallholder farmers, processor, and end buyer (and with affiliated knowledge institutes and the Mikolongwe Vocational Training institute). However, a strategy to ensure involvement of the (local) government (and to improve policies, e.g., for doing business in the macadamia sector) is lacking in the set-up of the project, which might affect the sustainability of the project.

Detailed analyses for this evaluation question are included in Annex B9.

8.3. The project design is relevant for local policies, yet does not contain specific goals for improving policies (Q1.2)

The project design is relevant for several local policies. According to project documentation, the project is well-aligned with several local policies, such as the Malawi Growth and Development Strategy (MGDS, 2011-2016) and the Agriculture Sector Wide Approach (ASWAp, 2011-2015). The project would also be in line with the industries' approach at the time of inception, which was favourable towards the involvement of smallholder farmers in the macadamia sector. The relevance of the project for supporting the country's agricultural exports has also been mentioned in several Key Informant Interviews. According to project documentation, the macadamia has been identified as an important crop for development in the National Export Strategy (NES).

The project design does not contain specific goals for improving policies. We can observe from project documentation that no project activities related to improving policies for doing business in the macadamia sector (e.g., concerning fair price-setting) were included in the project design – although the project did intend to provide farmers with reliable access to fair market conform prices. FDOV aimed to fund proposals that also incorporate activities striving to improve legislation relating to "doing business in the sector, subsector or chain concerned (...)"[106].

The project has established relevant working relationships with (local) government representatives, according to project documentation. Government representatives were involved, at least to some extent, from the inception of the project onwards and reportedly were included in some of the project activities.

Detailed analyses for this evaluation question are included in Annex B10.

[105] Zuza, E. J., Maseyk, K., Bhagwat, S., Emmott, A., Rawes, W., & Araya, Y. N. (2021). Review of Macadamia Production in Malawi: Focusing on What, Where, How Much Is Produced and Major Constraints. DOI:10.3390/agriculture11020152.
[106] FDOV policy (no. MINBUZA-2014.313047), retrieved from: https://english.rvo.nl/sites/default/files/2014/08/FDOV%20policy%20English%20version.pdf

9. Additionality

Q2	To what extent were the projects additional according to the DCED definition?
2.1	To what extent was the ex-ante additionality assessment in line with evidence?
2.2	Was public funding necessary for the implementation of the project?
2.3	How can the ex-ante additionality assessment be improved?
2.4	What difference has the public contribution made to the achievement of public goals?

In this chapter we describe that public funding was necessary for the project. We explain that implementation of the project would most likely not have happened without a public contribution. Public funding contributed to a focus on public goals somewhat (development additionality is clear), but some important decisions are likely to take shape beyond the horizon of donor involvement. We point out that the ex-ante additionality assessment by RVO.nl can be improved to make a more convincing case for commitment of public resources.

This chapter assesses the ex-ante additionality of the project. For this assessment, we refer to the definition of additionality provided by the Donor Committee for Enterprise Development (DCED). The DCED defines additionality as "the net positive difference that is expected to result from a donor-business partnership"[107]. The DCED further differentiates between input additionality and development additionality[108]:

- **Input additionality**: The focus of input additionality is on whether the public resources committed to a project are additional to the resources that would normally have been invested by the applicant/beneficiary and/or another donor. Input additionality also takes into account the timing of the additional public investment and whether the applicant/beneficiary would have been able to self-finance the project within a reasonable time frame.

- **Development additionalit**y: Development additionality refers to the expected development-relevant net results (outputs, outcomes and impacts, i.e., related to the scale, scope, quality, target group or location of the project or partner activities) that are expected as a result of 'additional' public inputs. Development additionality is in this sense about the expected impacts.

RVO.nl has a two-stage procedure for assessing projects: a first voluntary, informal preliminary stage (intake), and later a formal assessment stage. In the informal stage the applicant submits a Concept Note which provides a low-threshold opportunity to receive feedback and guidance from RVO.nl on how to improve the quality of the project proposal. The formal assessment stage begins after the formal project proposal has been submitted. We have translated some of the RVO.nl assessment criteria as relating to either input additionality or development additionality.

[107] DCED (2014). Demonstrating additionality in private sector development initiatives. A Practical Exploration of Good Practice for Challenge Funds and other Cost-Sharing Mechanisms. Retrieved from: https://www.enterprise-development.org/wp-content/uploads/DCED_Demonstrating-Additionality_final.pdf
[108] Ibid.

9.1. Public funding was necessary for the project, but some important decisions are likely to take shape beyond the horizon of donor involvement (Q2)

Input additionality was high at the start of the project – Implementation of the project would most likely not have happened without a public contribution. Input additionality was high at the start of the project, given that involving smallholder farmers was seen as too risky by market participants. However, this additionality was expected to diminish if the project were to be successful in demonstrating that there is a business case for involving smallholder farmers. The total private sector contribution was 26%: 21% contribution by Sable Farming Ltd. (part of which is used to expand the private processing facilities of Sable Farming Ltd.) and 5% by Intersnack Procurement B.V. The role of Intersnack Procurement B.V. goes beyond that of financier and includes that of advisor and future buyer of smallholder produce processed by Sable Farming Ltd.

The development additionality of the project is clear – By requiring a Theory of Change (ToC) in the project application phase (underlying the cooperation between Sympany+, Sable Farming Ltd., Intersnack Procurement B.V., and DAPP Malawi), it is possible to assess the impact of the project (and the business activities of Sable Farming Ltd.) and compare this to what would have happened anyway.

- Prior to this project, there was no obvious business case for including (female) smallholder farmers in the macadamia value chain. However, the goal of the project was to show that, when some conditions are satisfied (e.g., farmers are provided with grafted plants, trained for multiple years, etc.) there will be a business case for including them. It seems clear that, given the high cost of fulfilling these conditions, and the uncertain outcomes, private partners would not have embarked upon such an investment without a public subsidy that reduced their risks.

- The effects of private ownership of certain assets (storage and trading centres and the equipment stored there) however are unclear at this moment.

- As illustrated in the following paragraphs and further explained in chapter 10, some important decisions (which may increase the level of entrepreneurial risk to which the macadamia farmers are exposed, thus possibly affecting the project's development additionality) are likely to take shape beyond the horizon of donor involvement.

9.2. Implementation of the project would most likely not have happened without a public contribution (Q2.1)

Implementation of the project would most likely not have happened without a public contribution. Available assessment forms seem to support the idea that the project would not have been implemented without a public contribution, although RVO.nl itself also concludes that the business case was limitedly presented. Risks for smallholder farmers were addressed to a limited extent. Similar to what the was case for the additionality assessment of the Going Nuts project (chapter 5), RVO.nl project advisors did recall the outcome of the additionality assessment, it was challenging to provide insights on the extent to which RVO.nl considered the project to be additional at the time of the appraisal of the project or at the time of project inception.

It is not clear from the documentation whether a full-scale ex-ante additionality assessment was carried out. Ex-ante assessments are made before the start of project. RVO.nl seemed to agree with the project's analysis that the project would only become financially sustainable after seven years, at the end of the project period, thereby justifying the decision to commit public resources. RVO.nl also agrees that the project is not commercially viable (only after 14 years), which is also reported as a risk to the success of the project. At the same time, RVO.nl concluded that the business case was limitedly presented, followed by the statement that "there is no doubt that the outcome will be positive for all parties, including the farmer".

It is unclear from project documentation whether other funding options have been explored. Statements of RVO.nl related to 'effectiveness and additionality' (in project assessment documentation) are not convincing, for example, it is mentioned that investments for smallholder farmers are almost zero in practice[109] – which is true only in monetary terms.

[109] Netherlands Enterprise Agency | RVO.nl (n.d.) Assessment FDOV-proposal. FDOV14MW16: PPP Macadamia Value Chain Enhancement

9.3. Project partners would not have been able to implement the project individually (Q2.2)

Project partners would not have been able to implement the project individually. We are convinced that the contributions to DAPP Malawi and Sympany+ are additional since these parties would not have carried out the project activities without public support. Also from the beneficiary side, public funding was necessary as farmers would not have the means or capacity to grow macadamia trees by themselves.

Table 7 indicates the contribution of project partners and whether this was an in-kind or in-cash contribution.

Partner	Type	Main roles	In-cash %	In-kind %	In-cash €	In-kind €	Total €	Total %
FDOV	Public	Funding	100%	0%	€ 1,422,500	€ 0	€ 1,422,500	50%
Sympany+	(Dutch) NGO	Lead, Coordination	100%	0%	€ 639,500	€ 0	€ 639,500	22%
DAPP Malawi	(Local) NGO	Training	0%	100%	0	€ 50,000	€ 50,000	2%
Intersnack Procurement B.V.	(Dutch) Company	Buying, Advice	56%	44%	€ 75,000	€ 58,000	€ 133,000	5%
Sable Farming Ltd.	(Local) Company	Inputs, training, buying, processing	81%	20%	€ 483,000	€ 117,000	€ 600,000	21%
Total			92%	8%	€ 2,620,000	€ 225,000	€ 2,845,000	100%

Table 7: In-cash and in-kind contributions to Macadamia VCE

As can be observed from Table 7, the project is financed up to 26% by private partners: Intersnack Procurement B.V. (5%) and Sable Farming Ltd. (21%). 24% of the budget is funded by NGOs Sympany+ (22%) and DAPP Malawi (2%), in addition to the public contribution by the Dutch government (50%). Contributions by these parties are largely made in-cash, except for 24% of companies' contribution (44% of Intersnack Procurement B.V.'s contribution and 20% for Sable Farming Ltd.) and 7% of the contributions by NGOs (100% for DAPP Malawi).

Figure 8 indicates how funds were spent. 37% is spent (or will be spend) on hardware, while staff costs made up 36%. 22% of the budget was spent on technical assistance, leaving a remainder of 4% spent on monitoring and evaluation. The project meets the condition for public funding of a 50% consortium contribution with regards to the total budget at exactly 50%. The required 25% of private company contribution is met with a contribution of 26%. The private sector contribution represents 76% of in-cash contributions.

The total private sector contribution was 26%: 21% contribution by Sable Farming Ltd. (part of which is used to expand the private processing facilities of Sable Farming Ltd.) and 5% by Intersnack Procurement B.V. The role of Intersnack Procurement B.V. however goes beyond that of financier and includes that of advisor and future buyer of smallholder produce processed by Sable Farming Ltd. Intersnack Procurement B.V. also did eventually exceed its initial contribution.

There might have been a business case for investments in the processing capacity of Sable Farming Ltd., without public support. Currently, demand for macadamia is high, while supply seems to be at maximum capacity, and land scarcity limits opportunities for increases in supply by commercial estates in Malawi. Involving smallholder farmers in macadamia farming (through a public contribution to tree provision and long-term training) would increase the supply of in-demand macadamia nuts.

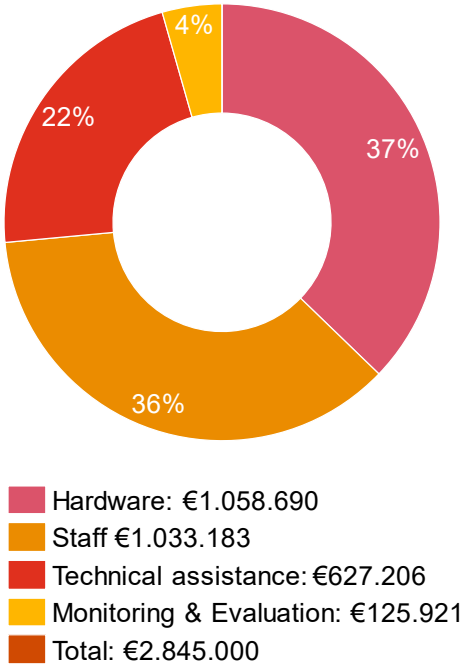

Figure 8: Total expenditure by cost category

It is unclear whether Sable Farming Ltd. would have been able to unlock the appropriate investments to expand processing capacity. Anticipating on increased supply from donor-supported farmers, the company might have been able to unlock the appropriate investments otherwise, for instance through its mother company Global Tea and Commodities Ltd., through a commercial provider or through other funding instruments (e.g., through a so-called soft loan). We note that such questions have not been raised by RVO.nl, or at least not as part of the formal assessment procedure.

Detailed analyses for this evaluation question are included in Annex B11.

9.4. The ex-ante additionality assessment by RVO.nl can be improved to make a more convincing case for commitment of public resources (Q2.3)

The ex-ante additionality assessment conducted by RVO.nl is quite limited. Our conclusions here are similar to our findings in chapter 5.4.

We also note that the role of the Consulate (Honorary) of the Kingdom of the Netherlands may be considered somewhat limited. For example, in assessment documentation of RVO.nl, it is stated that no official response on the proposal was submitted. However, according to assessment documentation, the impression gained from email-contact and interaction seemed to show that the project proposal was supported.

9.5. The public contribution contributed to a focus on public goals, but some important decisions are likely to take shape beyond the horizon of donor involvement (Q2.4)

The public contribution to the project has assured a focus on including (female and more remote) smallholder farmers in the macadamia value chain. Smallholder farmers probably would not have been involved in the value chain at this scale. The project had clear inclusion objectives from the inception of the project onwards, which can also be considered a result of the FDOV focus. To achieve scale, not only farmers in the traditional macadamia growing areas were considered. The inclusion of smallholder farmers in Mzimba, northern Malawi, in the macadamia value chain also is a result of the focus of the project on public goals.

The coordinated investments in the macadamia value chain would not have come about without the FDOV-support. The PPP-structure has facilitated a unique cooperation in the Malawian macadamia sector, one that is unprecedented in terms of collaboration (farmer, processor, end-buyer) and scale (300.000 trees).

The effects of private ownership of certain assets (storage and trading centres and the equipment stored there[110]) are unclear at this moment. It is unlikely that the appropriate infrastructure investments (a.o., setting-up of storage and trading centres) would have taken place (some still have to take place) without the public contribution. As explained in chapter 8, investments in infrastructure and equipment are relevant for smallholder farmers since post-harvest handling is important to maintain quality. Future access to the facilities mentioned, managed by Sable Farming Ltd., will be restricted to those farmers selling to Sable Farming Ltd., which seems more in favour of commercial interests (secured supply) than development-relevant results (flexibility). At this moment, it is unclear what the post-harvest handling process for project farmers with desire to sell to other buyers would look like.

Some important decisions are likely to take shape beyond the horizon of donor involvement, which may increase the level of entrepreneurial risk to which the macadamia farmers are exposed, thus possibly affecting the project's development additionality. Up to date, only some project farmers have been able to harvest macadamia nuts since most trees have not matured yet. Hence, only small batches have been delivered to Sable Farming Ltd. so far. The first larger batches are expected in the coming 1-2 years. Collaboration and trust between project farmers, Sable Farming Ltd. and Intersnack Procurement B.V. will then become even more important. Some important conditions for reaching impact-level results, as well as the current project situation on these conditions (relevant for assessing whether the involvement of the Dutch government/RVO.nl contributed to a focus on public goals) are further described in chapter 10.

This evaluation question is answered based on the different sources of information presented above. Additional (detailed) analyses are included in Annex B12.

[110] Cooperatives remain the owner of the land on which these are built.

10. Effectiveness and Impact

Q3	To what extent are the projects effective in reaching their outcome and impact objectives?
3.1	What changes related to outcomes and impact can be observed in comparison to the project baseline?[111]
3.2	What was the contribution or attribution (net effect) of the intervention (design of the project, project duration, the partners, the cooperation within the partnership, etc.) to the observed effects?[112]
3.3	Is the engagement of civil society effective in keeping the focus on public objectives?
3.4	Did the projects reach the desired end-beneficiaries (women, youth, vulnerable groups, farmers, policy makers, etc.) and how are they benefitting?
Q4	What are the key determinants (both internal and external to the project) for inducing or hampering the intended and unintended effects?

In this chapter we describe the effectiveness and potential impact of the project. We show Macadamia VCE, which is still ongoing, has thus far been effective in achieving outputs and some short-term outcomes, but that the conditions for achieving a long-term sustainable impact are not yet met. Since Macadamia VCE is on-going and only small volumes of macadamia nuts have been harvested and sold so far, it is too early to assess the impact of the project. We indicate important conditions for reaching impact-level results, as well as the current project situation on these conditions. We also describe that the contribution of the public-private partnership to improved effectiveness and efficiency at output-level is clear, and that it is too early to assess the added value of the PPP for reaching higher-level results (outcome).

10.1. Macadamia VCE, which is still ongoing, has thus far been effective in achieving outputs and some short-term outcomes, but the conditions for achieving a long-term sustainable impact are not yet met (Q3)

The project recruited agricultural students and (re-)established farmer clubs and associations successfully. Participating farmers typically are aware of the business logic underpinning macadamia farming. DAPP Malawi recruited 3,000 farmers in Mzimba and Thyolo, with an equal division over female and male farmers. These farmers were enrolled into farmer clubs and in each of these clubs, five farmers were appointed as committee members (so-called step-up farmers or lead farmers). The project also trained a total of around 60 students on sustainable agriculture and macadamia nut production at the Mikolongwe Vocational School. These activities were in line with the project plan.

Project partner Sable Farming Ltd. distributed the intended 300,000 macadamia seedlings of 18 months old among smallholder farmers in Thyolo and Mzimba. Both districts each received approximately 150,000 seedlings. Although with some minor delays, this has allowed for a strong start of the project. The seedlings distributed were in good condition, and those that were weak or less than 18 months old were partly sent back to Sable Farming Ltd. The project established an out-grower nursery, which, as planned, was closed after the distribution of seedlings in both project locations was finished. According to project documentation, most workers previously employed in the nursery were transferred into other activities of Sable Farming Ltd., thereby staying employed.

Smallholder farmers have followed a training programme on sustainable agriculture and macadamia nut production. In this programme, farmers have been trained in a wide range of relevant topics. The agricultural training programme was taught by sixteen farming instructors (initially), who were educated by the project, mainly in 2016/2017, to conduct the smallholder farmer training sessions. DAPP Malawi has tracked

[111] Instead of presenting the answers to evaluation questions 3.1, 3.2, 3.5 and 4 separately, we present our findings per impact pathway in paragraph 6.2.
[112] Instead of presenting the answers to evaluation questions 3.3 and 3.4 separately, we present our findings integrally in paragraph 10.3.

attendance for each session to indicate the participation of farmers in its training activities. Farmers were trained in macadamia production, sustainable agriculture and post-harvest practices. Besides trainings, from 2019 onwards, per year about 45 'club actions' were conducted in all the 90 farmer clubs. Club actions so far have included a wide range of activities that were conducted in farmers' macadamia orchards, homesteads, fields, and gardens.

The current and stable tree survival rate of close to 90% points to a high level of commitment and adoption of good agricultural practices. From 2019 onwards, the project conducted twelve monthly checks on tree survival. Currently, 87% of the planted trees are in good condition, 1% in mild condition, and 12% died. This may be considered an impressive result, in particular in the light of the impacts of, amongst others, tropical cyclones Ana and Gombe and the worldwide COVID-19 pandemic on project implementation. Despite these setbacks, project farmers and partners have remained highly committed. Farmers in Mzimba received tree seedlings later than farmers in Thyolo and this is reflected in the tree growth data at an aggregated level. From these figures, we can observe that tree growth is slower in Mzimba compared to Thyolo.

Adoption of (certain) good agricultural practices is also mentioned by project partners and reflected in the M&E data. M&E data indicates that almost all farmers practice *intercropping*, and most farmers surveyed by the project report to use the agronomic practice of *mulching*. A fair share of the farmers adapts the frequency of watering in the dry season. M&E data also indicates an increase in the use of *crop rotation* (a practice that helps to reduce the spread of pests and disease) between 2017 and 2022. Project farmers have also been trained in the construction of firewood saving stoves, which uses less firewood than traditional three-stone cooking fires and which saves farmers time. M&E data indicates that an increasing number of farmers owned a firewood saving stove and a majority of the farmers uses the firewood saving stove twice a day or more.

Despite significant training efforts in the field of integrated pest and disease management control, M&E data indicates that insect damage and disease are among the main causes of tree damage. In Mzimba, in almost all years between 2019 and 2022, the majority of those surveyed by the project indicated that insect damage was the main cause of tree damage. In Thyolo, disease and insect damage together made up around half of the indicated main causes of tree damage. M&E data indicates that disease and insect damage have become an increasing issue for smallholder farmers in maintaining good macadamia tree conditions. This has not resulted in trees dying or being in a bad condition at a large scale, but may impact future quality of nut production if the issue is not addressed.

Anticipating on an increase in supply – from project farmers – Sable Farming Ltd. is expanding its processing facilities and procuring and installing additional processing machinery. Due to COVID-19, the hardware realisation of the project has been delayed. Project partners show a high level of commitment to complete the project as planned and to sustain the connections that have been set up. These include the information channels have been established by linking smallholder farmers in Thyolo and Mzimba to DAPP Malawi, Sable Farming Ltd. and (indirectly) Intersnack Procurement B.V. Job creation thus far has been limited, and it seems that no additional jobs will be created through the expansion of the capacity of the Sable Farming Ltd. factory.

It is too early to assess whether higher-level results are achieved. Availability of high-quality macadamia nuts has not yet increased since most farmers' trees have not matured yet.

First harvest and future impact of the project

From 2020 onwards the first macadamia trees were harvested by participating farmers. In 2021/2022, the total harvest from Mzimba and Thyolo was around 6,500 kg (Wet-in-Shell). Now volumes start to increase, the market relationship between Sable Farming Ltd. and project farmers becomes more important. Project farmers believe that the future is bright as they expect improved living standards when they start earning more income from macadamia nuts. This will be realised once the macadamia nuts start bearing more nuts which they harvest and sell.

It is too early to assess the impact of Macadamia VCE, but some important conditions for reaching impact-level results, as well as the current project situation on these conditions, can be determined (see Table 8). Project partners seem committed to resolve issues that may otherwise limit effective collaboration.

Table 8: Key conditions and current situation

Key conditions	Current situation
Trusted relationships	At the time of the evaluation, market relationships were still fragile, and Sable Farming Ltd. indicated that they intended to further strengthen the relationship with project farmers. • Terms and conditions for supply are not always well understood by project farmers – from the focus groups we can observe confusion among farmers about e.g., pricing, payment and transport. Also, some project farmers have expressed worries about their position versus the position of Sable Farming Ltd. Some farmers are uneasy about the prices they receive for produce they are to understand is sub-par – the quality of the first batches of produce was low, which according to project partners was mainly the result of premature harvesting. • Commitment to terms and conditions for supply, based on trust, might be even more important for project farmers in Mzimba district, who are situated a large distance away from Sable Farming Ltd. Farmers in Mzimba district are not only likely to be in less contact with Sable Farming, but also will need to incur higher transport costs, lowering the price they might receive for produce sold to Sable Farming Ltd., which might bring desire to sell to other parties that are more nearby. • Direct interaction in the field with Sable Farming Ltd. currently (in October 2022) seems to be limited as little to no extension services are offered directly by Sable Farming Ltd. (during the project, this role was taken upon by DAPP Malawi).

Product quality and productivity	Farmers are trained with an aim to be able to meet end-market requirements, yet in focus group discussions (October 2022) farmers reported to not have sufficient liquidity to obtain the inputs required to produce high-quality macadamia nuts.
	
	• Low quality of first batches of produce delivered to Sable Farming Ltd. is explained as the result of premature harvesting. Project partners indicate that now provided with trees and training, smallholder farmers will be able to produce macadamia nuts that have the same quality (or even of a higher quality) as those produced by commercial estates – without using the equipment and inputs that commercial estates use (e.g., drip irrigation, chemical fertiliser, crop spraying inputs). In part, this is because of the limited size of smallholder farmers' orchards (meaning farmers can devote relatively more time per tree). Also, farmers have been trained in applying low-cost alternatives.
	
	• Farmers in focus group discussions, however, highlight difficulties with irrigation, as they are situated long distances from water sources, and they indicate the dangers of insect attacks, pests and diseases, and reported that they lack the spraying equipment that would help them to mitigate these. The current arrangements between Sable Farming Ltd. and project farmers do not contain details on input provision or extension services.
	  ○ On the one hand, the above may indicate project farmers are not convinced (yet) that they will be able to grow high-quality macadamia nuts in this way, although it may also indicate farmers do not (yet) fully understand the reasoning behind this (organic) way of macadamia farming. Regardless of whether risks will actually materialise, farmers also need to believe that there is low risk and they will be able to reach high-quality commercial production that is sustainable.
	  ○ On the other hand, liquidity constraints of project farmers should not be overly deemphasised. Real-life examples (mentioned during Focus Group Discussions) include relevant concerns, e.g., about limited possibilities for irrigation.
	
	Although successful examples of smallholder farmer macadamia production exist, obstacles to value chain development in other countries (such as Kenya, a country in which the bulk of macadamia is produced by smallholder farmers) include those indicated above – i.e., concerns over potentially low productivity and sub-optimal nut quality (compared to large-scale commercial macadamia estates). The effects of climate change, the impact of pests and diseases and lack of access to inputs are factors affecting low productivity in Kenya. Immature harvesting is mentioned as a key driver of low-quality nuts.[113]

[113] CBI, Ministry of Foreign Affairs (2022). Value chain analysis for macadamia nuts from Kenya 2020. Retrieved from: https://www.cbi.eu/market-information/processed-fruit-vegetables-edible-nuts/vca-kenya-macadamia-nuts-2020

Contract arrangements

Even though the project had nearly ended by the time of the evaluation, it was not yet clear how a fair and equitable position of project farmers in the value chain would be guaranteed in the future. Some important decisions are likely to take shape beyond the horizon of donor involvement. This relates to, e.g., the distribution of risks between value-chain actors, and the level of entrepreneurial risk carried by the macadamia farmers.

- At the time of this evaluation, it is not yet clear how transparent communication with project farmers will be organised, such that project farmers can gain access to information, e.g., on market prices. Strategies for (participatory) price negotiations with project farmers are not yet developed.
- Based on a review of the current contract between Sable Farming Ltd. and farmer cooperatives, we indicate the following points for attention:
  - *Short-term vs. long-term contract*. As a luxury good[114], macadamia has a high price elasticity of demand. In Key Informant Interviews, it was stressed that although the current demand for macadamia nuts is far greater than current supply, the trend is uncertain given the significant investments in production that are taking place (worldwide). Current (initial) contracts are short-term and do not signal long-term commitment. It is important to consider the possibility (pros and cons) for more long-term contracts.
  - *Exchange rate risk*. It is important to consider a possible exchange rate risk and to determine which party is best positioned to carry this risk. Prices (in the cooperative contract reviewed in October 2022) are set in MKW[115] by Sable Farming Ltd., which may pose some form of risk considering the current volatility of the Malawi Kwacha (MKW)[116].
  - *Transport costs.* The cost of transporting produce from the project farmers to Sable Farming Ltd. are currently (in October 2022) for the project farmers' account. It is important to determine which party is best positioned to carry these costs, taking account of the fact that when transport costs need to be incurred by project farmers, this might bring desire to sell to other parties.
  - *Payment after receipt*. In the current cooperative contract, a payment period of 60 days after receipt of the produce at Sable Farming Ltd. is determined. It is important to consider the possibility for shortening this period, taking account of economic pressures under which project farmers operate and the effect of the payment period on the willingness of farmers to fulfil their contracts.

10.2. Output-level and supply-side outcome-level results achieved so far are convincing; it is too early to assess the impact of the project (Q3.1, Q3.2, Q3.5, Q4)

Specific changes can be observed related to outputs and outcomes on the two impact pathways of the (re)constructed Theory of Change of the project. On the supply side pathway, agricultural students have been recruited, farmer clubs and associations have been (re-)established, and materials and seedlings have been supplied. Organised structures have increased scale to some extent. Farmers have been trained, although farmers in focus group discussions reported that they cannot afford to implement all they have learned. Agricultural practices and use of inputs has improved. Initial production and crop yield has started to materialise somewhat, but farmers are uneasy about the prices they receive for produce (first batches) they are to understand is sub-par. Project partners do not foresee complications for participating farmers to meet end-market requirements; first batches of produce delivered to Sable Farming Ltd. were of low quality primarily due to premature harvesting and farmers are expected to be able reach high-quality production (grade 'A').

On the private sector development pathway, information channels have been established to some extent, an aspect Sable Farming Ltd. intends to improve in the near future. Expansion of the factories at Sable Farming Ltd. is still underway and main investments still need to take place. Nut processing capacity has not yet increased, although Sable Farming Ltd. indicates to be fully committed to increase their nut processing

[114] CBI, Ministry of Foreign Affairs (2022). The European market potential for macadamia nuts. Retrieved from: https://www.cbi.eu/market-information/processed-fruit-vegetables-edible-nuts/macadamia-nuts/market-potential
[115] An alternative would be to set contract prices in USD, paying smallholder farmers the MKW-equivalent.
[116] For example, Malawi's inflation rate between 2015 and 2020 has averaged 14.37% (maximum in 2015 with 21.87%, minimum in 2020 with 9.31%).

capacity. Market relationships at the time of evaluation (October 2022) are fragile, and Sable Farming Ltd. indicates that they intend to further strengthen the relationship with the farmers. The job creation thus far has been limited, and it seems that no additional jobs will be created through the expansion of the capacity of the factory of Sable Farming Ltd. The enabling environment has been improved somewhat, while availability of high-quality macadamia nuts has not yet increased. This is largely due to the fact that majority of the macadamia trees are still small. It is too early to assess if the market access for macadamia farmers has improved.

Below, we provide more details to these results per pathway at output and outcome level. Key determinants (both internal and external to the project) for inducing or hampering the intended and unintended effects are indicated by the following symbol: 

Supply side outputs

Agricultural students have been recruited. The project aimed to train a total of 60 students (10 students annually) on sustainable agriculture and macadamia nut production at the Mikolongwe Vocational School, and according to project documentation and M&E data, to date, 58 students have followed this agricultural training.

Farmer clubs and associations have been (re-)established. As intended, in 2016/2017, DAPP Malawi recruited 3,000 farmers in Mzimba and Thyolo. Although distribution by district indicates that there were relatively more females recruited in Thyolo compared to Mzimba, the overall division of men and women farmers was equal. The 3,000 farmers were enrolled into 90 farmer clubs of either 50 farmers (Thyolo) or 25 farmers (Mzimba).

Materials and seedlings have been supplied. Between 2016 and 2021, Sable Farming Ltd. distributed the intended 300,000 macadamia seedlings of 18 months old among smallholder farmers in Thyolo and Mzimba. Both districts each received approximately 150,000 seedlings. According to project documentation the seedlings distributed were generally in good condition, and those that were weak or less than 18 months old were partly sent back to Sable Farming Ltd. Nevertheless, some of the tree seedlings received by smallholder farmers did not survive, amongst others due to immaturity of seedlings, water stress, pests, diseases, and hailstorms.

From our Focus Group Discussions, we can observe that farmers have been reached through various channels, resulting in the participation of (women) farmers. They have been trained on agricultural practices relevant to macadamia farming, and they have received macadamia tree seedlings for free.

Key determinants at the supply side output-level. Results at the supply side output-level have been positively influenced by tracking attendance of farmers to training sessions and by monitoring farmer performance. Production planning sessions were held, and implementation plans broken-down into three periods according to the season. Knowledge is built up within the established farmer clubs. Within farmer clubs, farmers can observe which farmers do best, and imitate practices. 

Supply side outcomes

Farmers have been trained in a wide range of relevant topics. During the project, smallholder farmers have followed a training programme on sustainable agriculture and macadamia nut production, including tree management, macadamia harvesting and post-harvesting activities, and marketing macadamia nuts.

Organised structures have increased scale to some extent. From 2019 onwards, per year about 45 ‘club actions’ were conducted in all the 90 farmer clubs. Club actions have included a wide range of activities that were conducted in farmers’ macadamia orchards, homesteads, fields, and gardens.

Agricultural practices and use of inputs has improved. The current and stable tree survival rate of close to 90% points to a high level of commitment and adoption of good agricultural practices. M&E data indicates that approximately 87% of the trees survived (12% died, 1% is in a bad condition).

Project partners indicate that now provided with trees and training, project farmers will be able to produce macadamia nuts that have the same quality as those produced by commercial estates. Because of the limited size of smallholder farmer’ orchards (meaning farmers can devote relatively more time per tree), it is expected that smallholder farmers will be able to do so without using the equipment and inputs that commercial estates use (e.g., drip irrigation, crop spraying, chemical fertiliser). Also, farmers have been trained in applying low-cost alternatives.

Farmers in focus group discussions, however, at the moment of writing (October 2022) reported to lack resources required to produce high-quality macadamia nuts. These farmers indicate that, even though they feel sufficiently trained, they lack the resources to implement the methods for which they were trained. Subsequently, for these farmers, this appears to translate to challenges related to the actual management of the macadamia trees. For the early stages of the project, losing trees is reported in several of the focus groups in the Mzimba district. Farmers describe losing trees to heavy rains, bad soil, and erratic farming practices. Other farmers reported losing trees to termite attacks. Farmers also highlight difficulties with irrigation, as they are situated long distances from water sources, and they indicate the dangers of insect attacks, pests and diseases, and reported that they lack the spraying equipment that would help them to mitigate these. Despite significant training efforts in the field of integrated pest and disease management control, from M&E data insect damage and disease indeed are among the main causes of tree damage. Farmers also reported theft of trees and produce as a structural problem.

Initial production and crop yield has started to materialise somewhat, but farmers are uneasy about prices. In 2020/2021, the first 1,000 kg of macadamia nuts, Wet-in-Shell (WIS), was harvested in Thyolo. In 2021/2022, the total harvest from Mzimba and Thyolo was around 6,500 kg (WIS). Only some farmers were able to harvest from their trees. These farmers hoped to harvest an average of 100 kg per farmer. In 2021/2022, on average farmers harvested between 35- and 50-kg macadamia.

Some of the farmers spoken with have already been able to harvest first (relatively modest) batches of macadamia. Farmers reported to encounter several problems while storing and collecting harvested macadamia produce. These problems are described to revolve around a lack of storage facilities (which are currently, October 2022, under construction) and a lack of capital to construct warehouses. This is what leads farmers to using their dwellings as storage facilities or to store them out in the shade, both of which are reported to have impact on the quality of the nuts and make them vulnerable to theft.

Farmers in focus groups reported that they considered the amount of time and energy needed to manage the macadamia trees to be high, and the current prices received to be low. The quality of the first batches of produce was low, which was mainly the result of premature harvesting.

Farmers in focus groups also expressed concern about the level of care the macadamia trees require before they produce nuts. Despite the high level of labour input required, farmers in all Focus Group Discussions indicated that they remained motivated because of the expected gains in income when the trees reach sustainable high production levels of nuts.

Key determinants at the supply side outcome-level. Results at the supply side outcome-level are likely to have been positively influenced by the monitoring of farmer performance. Challenges identified are regularly discussed by project partners and solutions are formulated accordingly. The project also held farmer-to-farmer exposure visits, where farmers visited their fellow farmers from other clubs, with an aim of learning and sharing knowledge and skills about macadamia trees. Disease and insect damage have become an increasing issue for smallholder farmers in maintaining good macadamia tree conditions. Other key determinants influencing the level of success at the supply side outcome-level include for example drought, limited access to pesticides and possibility to spray crops, and premature harvesting. Commercial growers and smallholder farmers receive the same price for their produce based on the quality. Some project farmers reported to not have sufficient liquidity to obtain the inputs and resources required to produce high-quality macadamia nuts.

Private sector development outputs

Information channels have been established to some extent. The project intended to establish information channels on macadamia nut management and on the macadamia market (product information, prices, etc.). In some sense, information channels have been established by the linking of smallholder farmers in Thyolo and Mzimba to DAPP Malawi, Sable Farming Ltd. and (indirectly) Intersnack Procurement B.V. However, in practice, the farmers in the Mzimba district are geographically situated too far away from Sable Farming Ltd., limiting the extent to which they can obtain adequate and relevant market information. Also, farmers in the Thyolo district are in limited direct communication with Sable Farming Ltd. – an aspect Sable Farming Ltd. intends to improve in the near future by deploying an extension field officer.

Expansion of the factories at Sable Farming Ltd. is still underway. The project purchased two trucks (owned by Sable Farming Ltd.), and two motor vehicles and four motorbikes were procured (owned by DAPP Malawi). One truck is in Blantyre, the other truck has been transferred to a Sable Farming Ltd. estate on the other side of

Lake Malawi. The project established an out-grower nursery at Sable Farming Ltd., which was closed after the distribution of seedlings in both project locations was finished (as planned).

Main investments still need to take place. With the expected significant increase in supply expected from smallholder farmers involved in the project, the processing capacity of Sable Farming Ltd. is expected no longer to be sufficient. Therefore, Sable Farming Ltd. is expanding its processing facilities and procuring and installing additional processing machinery as part of the project. With these expansions, Sable Farming Ltd. will be able to take care both of their own and the involved smallholders' future growth. Due to COVID-19, the hardware realisation of the project has been delayed. The processing factory and storage and trading centres will be constructed in 2022/2023. Most of the hardware investments still have to take place at the time of writing.

Key determinants at the private sector development output-level. Due to COVID-19, the hardware realisation of the project has been delayed. The geographical location of the farmers in the Mzimba limits the extent to which these farmers can obtain adequate and relevant market information.

Private sector development outcomes

Nut processing capacity has not yet increased. As most of the hardware investments still have to take place, increasing the nut processing capacity is a work in progress. Sable Farming Ltd. expects a large increase in the volume of nuts they will have to process, as they expect that the 3,000 project farmers will supply them with increasingly more nuts as more trees mature and yields increase. For this reason, they reported to be fully committed to increase their nut processing capacity.

Market relationships at the moment of writing (October 2022) are fragile. Macadamia farmers spoken with in focus groups overwhelmingly reported that they consider Sable Farming Ltd. to be the most suitable buyer of their produce in the vicinity. Farmers have shared their experiences with selling their first batches of produce during focus groups. Farmers reported a number of concerns, some of which relate to terms and conditions which are not (yet) well understood. The biggest challenges they describe include miscommunication on what Sable Farming Ltd. actually buys from farmers, transparency on buying prices, unsatisfactory price levels, late and absent payments, and a monopolistic position of Sable Farming Ltd.

Sable Farming Ltd. determines its purchasing price based on the saleable kernel quality. From the outside of the nuts, when they are in still in their husk (NIH) or in their shell (NIS), it is not possible to determine the quality of the produce. Sable Farming Ltd. indicates that the current quality of macadamia delivered by the farmers is not good, consisting of immature produce and produce with insect damage. This is what results in prices that are lower than expected.

Sable Farming Ltd. believes that when the project formally ends, what remains is the relationship between the smallholder farmers and Sable Farming Ltd. They indicate that they intend to strengthen this relationship further. They also indicate that the Mzimba cooperatives are somewhat harder to assist, because of the distance from Limbe/Sable Farming Ltd.

The job creation thus far has been limited. Also, it was indicated that no additional jobs will be created through the expansion of the capacity of the Sable Farming Ltd. factory. This is because some new equipment increases the overall efficiency of the factory (reducing staff numbers), while other equipment will require additional labour force. At the start of the project, 48 new jobs were created in the tree nursery. After completing the distribution, most of the workers were transferred into Sable Farming Ltd.'s other activities and stayed employed. Project stakeholders expect that for every three farmers engaged in macadamia production, one additional job will be generated in the irrigation and watering of the macadamia trees. Thus far, this has not yet been observed.

The enabling environment has been improved somewhat. Farmers have been trained on growing and harvesting macadamias and understanding of macadamia farming has been formalised to some extent through the involvement of agronomic students. Processing capacity has yet to improve, as does the increase of supply in macadamia nuts, and communication and transport between processor and farmers. Many of these aspects hinge on whether challenges experienced by project farmers can be mitigated in the areas of produce quality, storage of harvest, and transport of produce – the latter being additionally challenging for macadamia farmers in the Mzimba district.

It is too early to assess whether higher-level results are achieved. Availability of high-quality macadamia nuts has not yet increased since most farmers' trees have not matured yet. As project farmers are not yet supplying to Sable Farming Ltd. with high-quality macadamia produce (or only very small amounts), Sable Farming Ltd. is not yet selling their macadamia nuts to Intersnack Procurement B.V. and their consumer markets.

Key determinants at the private sector development outcome-level. Sable Farming Ltd. will expand its factory and will thereby be able to take care both of its own and the involved smallholders' future growth. The biggest challenges reported by farmers include miscommunication on what Sable Farming actually buys from farmers, transparency on buying prices, unsatisfactory price levels, late and absent payments, and a monopolistic position of Sable Farming. It is expected that no additional jobs will be created through the expansion of the capacity of Sable Farming Ltd.'s factory, since some new equipment will increase the overall efficiency of the factory, while other equipment will require additional labour force.

Detailed analyses for this evaluation question are included in Annex B13.

10.3. The contribution of the public-private partnership to improved effectiveness and efficiency at output-level is clear, at outcome-level too early to assess (Q3.2, Q3.3)

The project attempted to tackle multiple issues in the macadamia value chain through an integrated PPP-approach. The partnership contributed to improved effectiveness and efficiency of output-level activities of the project. It is too early to assess the added value of the PPP for reaching higher-level results (outcome).

(Local) expertise and experience of project partners have contributed to project's effectiveness and efficiency for achieving output-level results. Our findings here are similar to those for Going Nuts presented in chapter 6.3. Again, the contribution of DAPP Malawi to the project's training efforts has been key. The involvement of Sable Farming Ltd. to realise processing expansion also contributes to the project effectiveness, and so does their experience and expertise in the field of macadamia cultivation, processing, and marketing. We can conclude the same for Intersnack Procurement B.V. Also in Macadamia VCE, the role of Sympany+ generally is appreciated by project partners. Cooperation between project partners has gone smooth. It can be stated that having the project performed by these partners significantly contributed to the efficiency of the intervention. The project brought together partners that did not work together before (although Sable Farming Ltd. and Intersnack Procurement B.V. have a long-standing relationship), which can be relevant for stimulating institutional change.

It is too early to assess the added value of the PPP for reaching higher-level results (outcome). As was the case in the Going Nuts project (see chapter 6.3), the business case and public objectives were well-defined in the project plan. Within the project, project partners seek to balance private sector development goals (e.g., efficiency in the value chain) and development goals (inclusiveness). The project has the ambition to engage smallholder farmers in the macadamia value chain, yet the extent to which individual project partners signal inclusiveness currently is somewhat limited (as also described in chapter 9.5). It is too early to assess the added value of the PPP for reaching higher-level results (outcome).

The project captures the right information to control project effectiveness, yet limited possibility for communication with end-beneficiaries may limit project effectiveness to some extent. Monitoring and evaluation processes were included in the project design and the project has captured relevant indicators for tracking the effectiveness of trainings. Information channels have been established by the linking of smallholder farmers in Thyolo and Mzimba districts to DAPP Malawi, Sable Farming Ltd. and (indirectly) Intersnack Procurement B.V., but in practice farmers in the Mzimba district are geographically situated too far away from Sable Farming Ltd. to allow for frequent communication (if dedicated technical assistance to this region is not provided) and farmers in the Thyolo district are also in limited direct communication with Sable Farming Ltd. As explained in chapter 10.1 this poses challenges possibly limiting the effectiveness of the project.

The evaluation question is answered based on the desk study and Focus Group Discussions presented in chapter 10.1. Additional (detailed) analyses are included in Annex B14.

11. Sustainability

Q5	**Did the project/ intervention lead to systemic change and/or was the intervention scalable? If yes, in what way?**
Q6	To what extent do the benefits of the project (outcome & impact level) continue after FDOV-funding ceased and how was this influenced by the business case and/or revenue model?
Q6.1	What specific elements of the business case and/or revenue model introduced by the project contribute to continuity and sustainability?
Q7	**What is the CSR performance of the selected FDOV projects?**
Q7.1	How relevant were the designed CSR plans?
Q7.2	What effects can be observed of CSR plans of private partners in consortia?
Q7.3	To what extent did the projects have a major positive or negative influence on their direct natural environment or contributed (combatting) global climate change?

In this chapter we describe the sustainability of the project. The project is yet to show that it will lead to systemic change or sustainable continuity. This is mainly because the project is still ongoing and many of the trees are yet to generate fruit. Basic short-term outcome benefits are likely to continue. In chapter 10, we indicate important conditions for reaching impact-level results. If these conditions are met, Macadamia VCE is likely to contribute to systemic change and results then are also likely to be sustainable (although this also depends on the availability of grafted macadamia seedlings and extension services).

In this chapter we also describe that the CSR performance of the project is limited. The designed CSR plans were relevant, but little effect can be observed from the CSR plans of Sable Farming Ltd. Project reporting is optimistic on the positive influence of the project on the natural environment, although this influence shouldn't be overestimated given the size and scope of the project.

11.1. Macadamia VCE is yet to show to lead to systemic change or sustainable continuity (Q5, Q6, Q6.1)

The project is yet to show that it will lead to systemic change, or that it will be scalable. This is mainly because the project is still ongoing and many of the trees are yet to generate fruit.

Basic short-term outcome benefits are likely to continue. The planted and cared-for macadamia trees typically survive and will produce macadamia nuts. Farmers have been trained and the knowledge they have obtained will stay with them, especially when they keep taking care of the trees. Also, the processing capacity of Sable Farming Ltd. is currently being increased, and Sable Farming Ltd. has articulated plans to conduct extension services to the macadamia farmers – currently (at the time of evaluation) Sable Farming Ltd. envisages to deploy one extension officer for 3,000 farmers.

It is too early to assess whether outcome- and impact levels results hold and lead to systemic change. In chapter 10, we indicate important conditions for reaching impact-level results. These include trusted relationships, product quality and productivity and contract arrangements. If these conditions are met, Macadamia VCE is likely to contribute to systemic change and results then are also likely to be sustainable. For example, if trust within the value chain breaks down, Sable Farming Ltd. risks losing project farmers as part of their supplier base. The expanded processing capacity of Sable Farming Ltd. may then serve limited purpose, as it was developed specifically with the expectation of obtaining significant increases in macadamia produce from project farmers.

Several elements of the business case may contribute to continuity and sustainability, whilst other elements present a risk:

- Potential future earnings – Our analysis in chapter 10 shows that what keeps farmers motivated to maintain their level of investment in time and energy is the prospect of future earnings that could significantly raise their standard of living. Similarly, Sable Farming Ltd. has articulated that they consider the project farmers to be a potentially important source of macadamia nuts that increase their sales and would justify their capacity increase. As described in chapter 10, an important condition for reaching such impact-level results is product quality and productivity of project farmers.

- Inclusion of Intersnack Procurement B.V. and Sable Farming Ltd. – The inclusion of a local processor and an international buyer adds a potentially strong line of access for smallholder farmers to international markets. It should be noted here that both Sable Farming Ltd. and Intersnack Procurement B.V. are free to procure as much or as little produce from the smallholder farmers as fits their purpose.

- Transportation by Sable Farming Ltd. – Transportation of the produce by Sable Farming Ltd. to their processing plant is an important element of the business case, as the farmer cooperatives (compared to Sable Farming Ltd.) are not well-positioned to organise (or pay for) transportation of large volumes of macadamia nuts. Whether Sable Farming Ltd. indeed will take on the transportation of macadamia produce for the long-term is not certain (or at least, farmers do not feel certain about this), adding to the unease among the smallholder farmers.

- Future high earnings also depend on prices on the world market – The project runs the risk of macadamia prices declining, affecting the earning potential of Sable Farming Ltd. and of the project farmers. Macadamia farming is expanding in several parts of the world, affecting prices smallholder farmers can obtain for their produce. Also, consumer demand in Europe may shift due to changes in consumer preferences and changes in consumer spending power, affecting the prices Intersnack Procurement B.V. can obtain for macadamia nuts, and by extension affecting earning potential for Sable Farming Ltd. and the project farmers.

- Village Savings and Loan Groups – The benefits of the VSLGs have not yet materialised but were intended to and might add to sustainability and continuity when they would.

Participating farmers will carry on growing macadamia nuts beyond the duration of the project, but their position in the value chain is to some extent uncertain. Since Sable Farming Ltd. is in Malawi for the long run, project documentation concludes that sustainability can be assured as technology and know-how will be trickling down to farmers for a longer period. In this assessment there is however no discussion about what might happen if the farmers and Sable Farming Ltd. fall out or if they cannot agree on a fair price. Project documentation does not report on the distribution of market power between Sable Farming Ltd. and macadamia producing smallholder farmers. See also chapter 9.5 and chapter 10, in which we address the post-harvest process and relevant aspects affecting the position of smallholder farmers in the value chain (e.g., the payment period of 60 days included in the current cooperative contracts).

The project has scaling potential, although this depends on smallholder farmers' access to grafted macadamia seedlings and availability of extension services. Since access to macadamia seedlings is limited, it is difficult for farmers to replace damaged trees, to expand macadamia orchards that are working well or show promise, or to bring new smallholder farmers into macadamia farming. As planned, Sable Farming Ltd. has decommissioned the nursery that was established to supply participating farmers (only continuing with a smaller nursery intended to cater its own farm annual plant requirements). From Key Informant Interviews, we observe that access to grafted plants (of the right variety) in general is difficult, limiting scaling potential. Availability of extension services is also important to achieve potential, as explained in chapter 8.1.

Detailed analyses for this evaluation question are included in Annex B15.

11.2. The CSR performance of Macadamia VCE is limited (Q7)

The designed CSR plans were relevant (Q7.1). The CSR plans of the project partners are not very extensive, yet they do take elements into account that are relevant to the Malawian context, such as child labour, worker protection et cetera. Intersnack Procurement B.V. has 'grow together' as a core company value, and this project is an opportunity to manifest this value. Also, smallholder farmers are a key target group of their CSR activities.

Little effect can be observed from the CSR plans of Sable Farming Ltd. (Q7.2). Project documentation reports that the two companies act in line with those policies. Reportedly, jobs created by the project have safeguards such as a working week of 48 hours maximum. The evaluation team has observed that Sable Farming Ltd. facilities feature extensive signage warning against child labour. A mechanism to ensure fair prices has not been established yet (as indicated in chapter 10, some important decisions are likely to take shape beyond the horizon of donor involvement).

Project reporting is optimistic on the positive influence of the project on the natural environment, although this influence shouldn't be overestimated given the size and scope of the project (Q7.3). Research conducted by Intersnack Procurement B.V. on the CO2 sequestration potential for macadamia trees claims that sequestration could be 10-15 kg CO2 per tree annually. This would mean 3,000-4,500 MT CO2 annually[117] for the 300,000 trees. While this may seem a large number, this influence shouldn't be overestimated – taking account of the fact that the project also aims at exporting increasing quantities of macadamia nuts (supply from smallholder farmers to Sable Farming Ltd. is expected to eventually reach 900,000 kg) from Malawi to the European continent.[118] The project also contributed to the construction of firewood-saving stoves, which, if used the right way, can help save up to 75-80% firewood compared to local traditional stoves. The project positively contributes to the direct natural environment, e.g., through soil stabilisation.

Detailed analyses for this evaluation question are included in Annex B16.

[117] Which is equivalent to, for example, offsetting 1,001 gasoline-powered passenger vehicles driven for one year or running 1.3 wind turbines for a year. Comparison retrieved from: https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator#results (United States Environmental Protection Agency, Greenhouse Gas Equivalencies Calculator).
[118] Next to within-country transport, e.g., from Mzimba to the Sable Farming factory located 600 km's southward.

III. Conclusions and recommendations

12. Conclusions

In this evaluation we have reviewed the relevance, additionality, effectiveness and impact, and sustainability of two development projects in the field of private sector development. These projects, 'Going Nuts' (FDOV12MW01) & 'PPP Macadamia Value Chain Enhancement' (FDOV14MW16) (in this report referred to as: 'Macadamia VCE'), were implemented in different regions in Malawi with support of the Dutch government through the Facility for Sustainable Entrepreneurship and Food Security (FDOV). Below, we provide a summary of our findings using selected evaluation criteria.

12.1. Relevance

Below, we describe that both projects are locally relevant. **Going Nuts** is relevant for its contributions to strengthening the groundnut value chain in Malawi and for its positive effects on income generation and food security, whereas **Macadamia VCE** is relevant mainly because of its support to the development of the macadamia value chain and the opportunities it brings through a higher and more stable income.

12.1.1. The design of Going Nuts is relevant for its contributions to strengthening the groundnut value chain in Malawi, and for its positive effects on income generation and food security

Relevant for end-beneficiaries – Our findings in chapter 4 indicate that Going Nuts is relevant for its contributions to strengthening the groundnut value chain in Malawi. Since groundnut production skills are lacking among smallholder farmers, which affects income generation, the project can be considered relevant with regards to improving the income position of end-beneficiaries. Although the project has a private sector development purpose, through its efforts to improve local food availability and safety, the project also explicitly addresses improving food security. The project specifically targeted groups which have no alternative means of income generation (subsistence farmers) and, ex-ante, is relevant for the enhancement of gender equality since the project would focus on female farmers to take active part in the implementation of this project. To a large degree, the project was designed according to the needs of end-beneficiaries, but it is uncertain whether smallholder farmers have been consulted and whether ownership and participations was encouraged in the implementation.

Relevant for local and governmental policies of host country – The project design is relevant for several local policies, although we also conclude that the policy environment does not support intended effects moving forward. We explain that the policy environment poses challenges to incentivising smallholder farmers to improve the quality of production (e.g., because of a large informal groundnut market).

12.1.2. Macadamia VCE in its design is relevant for its contributions to strengthening the macadamia value chain in Malawi, and for the opportunities it brings through a higher and more stable income for end-beneficiaries (Q1)

Relevant for end-beneficiaries – Taken together, the findings in chapter 8 support the idea that Macadamia VCE is a locally relevant project. We describe that Macadamia VCE supports the development and the participation of smallholder farmers in the macadamia value chain and that the project is relevant for realising crop diversification, which can contribute to generating a more stable income. The intervention can also be considered relevant for its contribution to realising export potential. Relevance of the project for increasing local or regional food availability (beyond the farmers themselves) is more limited and also is no project objective since the production by smallholder participating farmers is intended for export to European markets (the Dutch market). We indicate that the project has a focus on commercially viable farmers (in line with the FDOV focus) and has clear inclusion objectives. The project was designed to meet the needs of end-beneficiaries and the target group was consulted in the design. Smallholder activity in macadamia production in Malawi is still limited, whereas world demand for macadamia is high. Also, involvement of smallholder farmers in macadamia

production is supported by the industry. Together this implies that this project in its design is well-timed and relevant for end-beneficiaries. According to stakeholders and compared to challenges identified in secondary sources, the project by design is particularly relevant to addressing challenges faced by smallholder farmers in macadamia production.

Relevant for local and governmental policies of host country – Macadamia VCE is relevant for several local policies. Also, from project documentation, we can observe that the project has established relevant working relationships with (local) government representatives. Yet, the project design does not contain specific goals for improving policies. FDOV aimed to fund proposals that also incorporate activities striving to improve legislation relating to, for example, doing business.

12.2. Additionality

The case for public support to **Going Nuts** is clear and public funding for **Macadamia VCE** was also necessary. Yet, we also point out that some important decisions are likely to take shape beyond the horizon of donor involvement.

12.2.1. The case for public support to Going Nuts is clear

In chapter 5, we explain that the case for public support to Going Nuts is clear.

Input additionality was present – Although a full-scale additionality assessment was not carried out, the available (limited) documentation suggested that, without the support from the Dutch government, the PPP consortium would not have existed, and project partners would not have been able to self-finance the project. Alternative financing possibilities that private sector partners may have had, however, were not explicitly considered in the project appraisal, nor was the question of whether a subsidy was the most adequate financing mechanism. Finally, investments to further the groundnut value chain most likely would not have taken place without the project.

Development additionality of Going Nuts is clear – There were also good indications of development additionality. In particular, it seemed clear that the public contribution ensured a focus on public objectives in the project design, e.g., a focus on including (female) smallholder farmers in the groundnut value chain. For example, a convincing case was made that Afri-Oils Ltd. would not have attempted to include smallholder farmers in their business model at this scale without public support, because of the risks involved. Also, as a result of the public contribution, the project covered a large geographical area.

12.2.2. Public funding was necessary for the project, but some important decisions are likely to take shape beyond the horizon of donor involvement

We conclude that public funding was necessary for Macadamia VCE (chapter 9). Yet, we also point out that some important decisions are likely to take shape beyond the horizon of donor involvement.

Input additionality was high at the start of the project – Implementation of the project would most likely not have happened without a public contribution. Input additionality was high at the start of the project, given that involving smallholder farmers was seen as too risky by market participants. However, this additionality was expected to diminish if the project were to be successful in demonstrating that there is a business case for involving smallholder farmers. The total private sector contribution was 26%: 21% contribution by Sable Farming Ltd. (part of which is used to expand the private processing facilities of Sable Farming Ltd.) and 5% by Intersnack Procurement B.V. The role of Intersnack Procurement B.V. goes beyond that of financier and includes that of advisor and future buyer of smallholder produce processed by Sable Farming Ltd.

The development additionality of the project is clear – Prior to this project, there was no obvious business case for including (female) smallholder farmers in the macadamia value chain. However, the goal of the project was to show that, when some conditions are satisfied (e.g., farmers are provided with grafted plants, trained for multiple years, etc.) there will be a business case for including them. It seems clear that, given the high cost of fulfilling these conditions, and the uncertain outcomes, private partners would not have embarked upon such an investment without a public subsidy that reduced their risks. The effects of private ownership of certain assets (storage and trading centres and the equipment stored there) however are unclear at this moment. Also, we indicate that some important decisions (which may increase the level of entrepreneurial risk to which the macadamia farmers are exposed, thus possibly affecting the project's development additionality) are likely to take shape beyond the horizon of donor involvement.

12.3. Effectiveness and impact

In this subchapter, we present our overall conclusions on the effectiveness and impact of the two projects.

1) Despite its best intentions, Going Nuts was not effective in establishing a structural market connection between producers and the processor. In particular, the project was not successful in linking the trained project farmers to Afri-Oils Ltd. (neither individually nor in organised structures).

2) We conclude Macadamia VCE, which is still ongoing, has thus far been effective in achieving outputs and some short-term outcomes, but that the conditions for achieving a long-term sustainable impact are not yet met. Since Macadamia VCE is on-going and only small volumes of macadamia nuts have been harvested and sold so far, it is too early to assess the impact of the project. We indicate important conditions for reaching impact-level results, as well as the current project situation on these conditions.

12.3.1. Going Nuts was not effective in establishing a structural market connection between producers and the processor

For **Going Nuts**, our review of the effectiveness and impact of the project presented in chapter 6, along the (re-)established Theory-of-Change of the project, leads us to conclude that Going Nuts was not effective in establishing a structural market connection between producers and the processor:

- Farmers have been trained on agricultural practices relevant to groundnut farming, and they have been encouraged to make use of high-quality inputs such as improved seed varieties. From a beneficiary perspective, this part of the project seems to have gone reasonably well.

- In general, however, smallholder farmers still experience a lack of access to high-quality inputs, mainly due to financial constraints and limited availability. This limits the ability of smallholder farmers to implement the practices taught by the project.

- Despite its best intentions, Going Nuts was not effective in establishing a structural market connection between producers and the processor. In particular, the project was not successful in linking the trained project farmers to Afri-Oils Ltd. (neither individually nor in organised structures). Key determinants include competition of Afri-Oils Ltd. with vendors buying ungraded groundnuts (causing side-selling in large quantities and adding the risk of the quality of groundnuts being inferior), working capital restraints of project partner Afri-Oils Ltd. and the lack of a logistical plan to handle supply offered for trade by DAPP Malawi farmers in Chiradzulu. Although the productivity of project farmers increased, the quality of their harvested groundnuts appeared not to have changed structurally (although this was difficult to assess, given that farmers were not linked to Afri-Oils Ltd).

- While the project was somewhat effective on the supply side, it was not effective in terms of its private sector development objectives. On the one hand, project farmers did increase their productivity. On the other hand, the intended effects on the local processing capacity and processed nut exports did not materialise. Production by Afri-Oils Ltd. only increased up to 20% towards the target that was set, e.g. because project farmers continued to sell their groundnut produce via informal routes to markets. Although farmers still rely on selling ungraded groundnuts (potentially of inferior quality) to vendors, increased productivity potentially also raised their incomes – given that informal exporters reportedly offer good prices (even though there was little incentive to improve quality). At the same time, farmers spoken with in focus groups hardly reported any income improvements and reported, for example, to require higher prices for their groundnuts and with less price volatility.

Going Nuts Impact Pathway 1: Supply Side – Going Nuts aimed to increase the sustainable production of quality groundnuts by providing agricultural inputs and training to farmers. These farmers, who would deliver produce directly or indirectly Afri-Oils Ltd. (or to other processors), were expected to be reached through various channels with a focus on smallholder and female farmers. This was expected to lead to improved agricultural practices (for instance, soil management and post-harvest handling and storage), use of improved inputs (i.e., lime and improved seed varieties) by farmers, and as a result increased productivity and increased supply of high-quality groundnuts with lower aflatoxin levels. Increased productivity was also expected to be achieved through economies of scale originating from the (re-)established farmer clubs and associations. Altogether, this was expected to contribute to sustainable income growth, diversification of agricultural sales/exports, and improved food security – the latter relating both to availability and safety (reduced levels of aflatoxin).

Results at the output-level are clear, but limitations can be observed on the achievements in terms of outcomes and impact:

- On the supply side pathway, farmer clubs and associations have been (re-)established, use of improved seed varieties has been encouraged and farmers have been trained, although it is unclear which farmers have been trained when.
- Organised structures have increased scale to some extent.
- Farmers understand the groundnut management practices that have been taught by the project, but experience issues in applying these practices.
- Although the productivity of project farmers increased, the quality of their harvested groundnuts appeared not to have changed structurally (although this was difficult to assess, given that farmers were not linked to Afri-Oils Ltd).
- Although farmers still rely on selling ungraded groundnuts (potentially of inferior quality) to vendors, increased productivity potentially also raised their incomes – given that informal exporters reportedly offer good prices (even though there was little incentive to improve quality). At the same time, farmers spoken with in focus groups hardly reported any income improvements and reported, for example, to require higher prices for their groundnuts and with less price volatility.

Going Nuts Impact Pathway 2: Private Sector Development – Going Nuts aimed to create opportunities for private sector development, by setting up an infrastructure for diversified quality groundnut products. This was expected to include the establishment of a groundnut processing plant (processing building and machines) and a reliable market relationship between smallholder farmers and a local processor (Afri-Oils Ltd.). This would increase processing capacity and was expected to result in increased availability of high-quality and diverse groundnut products. The improved enabling environment (access to finance, greater ability to influence local policies and leverage better deals with lead buyers) that was expected from the (re-)established farmer clubs and associations, the establishment of a sustainable market infrastructure and increased availability of high-quality groundnut products would all contribute to improved market access and market development. This was expected to enable smallholder farmers to become linked to regional, domestic and international markets and in turn lead to increased sales of groundnut products. Thereby, private sector development (and more stable incomes) would be achieved.

Here also, results at the output-level are clear, while achievements in terms of outcomes and impact are limited:

- The project has successfully expanded and diversified Afri-Oils Ltd.' processing infrastructure.
- Afri-Oils Ltd. contributed to knowledge building; information channels however have not been established sustainably.
- A structural market connection to Afri-Oils Ltd. has not been established.
- Processing capacity of Afri-Oils Ltd. has increased, up to ~60% of the target that was set. Only around half of the realised capacity has been in use to date (at the time of evaluation).
- Production by Afri-Oils Ltd. only increased up to 20% to the target that was set.
- The enabling environment has been improved somewhat. Jobs have been created; stability of these jobs however seems to be rather poor. Job creation for women has been limited.
- The project contributed to improved (import) market access and development, and consequently to increased international sales. No demonstration effects can be observed.

12.3.2. Macadamia VCE, which is still ongoing, has thus far been effective in achieving outputs and some short-term outcomes, but the conditions for achieving a long-term sustainable impact are not yet met

For **Macadamia VCE**, we conclude that achievements so far are convincing and promising (chapter 10). Since Macadamia VCE is on-going and only small volumes of macadamia nuts have been harvested and sold so far, it is too early to assess the impact of the project. We do indicate some important conditions for reaching impact-level results, as well as the current project situation on these conditions.

Macadamia VCE Impact Pathway 1: Supply Side – Macadamia VCE aims to introduce and increase the production of macadamia nuts by smallholders (who are organised in farmer clubs and associations through the project) by providing agricultural inputs and training until the macadamia trees grow nuts after approximately five years. This includes training on intercropping, to bridge the years that macadamia trees do not yet produce nuts but do occupy part of the land that could otherwise be used for production. In addition, a module on macadamia agronomy and management is developed and included in a one-year agricultural course at the Mikolongwe Vocational Training College (institutionalised through accreditation/TEVET-system). The increased awareness of the business case for growing macadamia and the improved agricultural skills and knowledge as a result of the agricultural training and education would lead fe/male farmers to establish and manage macadamia orchards (using grafted plants provided by the project). As a result, the macadamia supply would increase – leading to an uptake of the sales of macadamia nuts. Altogether, this would contribute to sustainable income growth, improved year-round cash flow for farmers and diversification of agricultural sales/exports.

On this pathway, results at output-level are convincing, but it is too early to assess outcome- and impact level results:

- Farmers have been trained on agricultural practices relevant to macadamia farming, and they have received macadamia trees of 18 months old for free. Also, the farmers typically are aware of the business logic underpinning macadamia farming, and they have organised themselves in cooperatives. From a beneficiary perspective, this part of the project has gone well.

- The current and stable tree survival rate of close to 90% points to a high level of commitment and adoption of good agricultural practices. Adoption of (certain) good agricultural practices is also mentioned by project partners and reflected in the M&E data. We indicate that despite significant training efforts in the field of integrated pest and disease management control, insect damage and disease are among the main causes of tree damage. This has not resulted in trees dying or being in a bad condition at a large scale, yet may impact future quality of nut production if the issue is not addressed.

- An important condition for reaching higher-level results on this pathway is product quality and productivity. Low quality of first batches of produce delivered to Sable Farming Ltd. is explained as the result of premature harvesting. Project partners indicate that now provided with trees and training, smallholder farmers will be able to produce macadamia nuts that have the same quality (or even a higher quality) compared to those produced by commercial estates – without using the equipment and inputs that commercial estates use (e.g., drip irrigation, chemical fertiliser, crop spraying inputs). In part, this is because of the limited size of smallholder farmers' orchards (meaning farmers can devote relatively more time per tree). Also, farmers have been trained in applying low-cost alternatives. Yet in focus group discussions farmers reported (at the moment of writing; October 2022) to not have sufficient liquidity to obtain the inputs required to produce high-quality macadamia nuts.
    - On the one hand, the above may indicate project farmers are not convinced (yet) that they will be able to grow high-quality macadamia nuts in this way, although it may also indicate farmers do not (yet) fully understand the reasoning behind this (organic) way of macadamia farming. Regardless of whether risks will actually materialise, farmers also need to believe that there is low risk and they will be able to reach high-quality commercial production that is sustainable.
    - On the other hand, liquidity constraints of project farmers should not be overly deemphasised. Real-life examples (mentioned during Focus Group Discussions) include relevant concerns, e.g., about limited possibilities for irrigation.

Although successful examples of smallholder farmer macadamia production exist, obstacles to value chain development in other countries (such as Kenya, a country in which the bulk of macadamia is produced by smallholder farmers) include those indicated in this evaluation – i.e., concerns over potentially low productivity and sub-optimal nut quality (compared to that of large-scale commercial macadamia estates). The effects of climate change, the impact of pests and diseases and lack of access to inputs are factors affecting low productivity in Kenya. Immature harvesting is mentioned as a key driver of low-quality nuts.

Impact Pathway 2: Private Sector Development – The project aims to create opportunities for private sector development, by setting up an infrastructure for supply of high-quality macadamia nuts by smallholder farmers. To achieve this, macadamia storage and trading centres are established, processing facilities are expanded, and a reliable market relationship between smallholder farmer and processor is built up. This would increase the availability of high-quality macadamia nuts supplied by smallholder farmers. The improved enabling environment (for instance, accessibility and visibility for the macadamia markets) that is expected from the establishment of farmer clubs and associations, the established sustainable market infrastructure (farmer to processor) and the increased availability of high-quality macadamia nuts would all contribute to improved market access and market development. This would enable smallholder farmers to become linked to regional, domestic, and international markets and in turn lead to increased sales of macadamia nuts. Therefrom private sector development (and support to more stable incomes) would be achieved.

Also on this pathway, results at output-level are similarly convincing, and it is too early to assess outcome- and impact level results:

- Information channels have been established to some extent. In some sense, information channels have been established by the linking of smallholder farmers in Thyolo and Mzimba to DAPP Malawi, Sable Farming Ltd. and (indirectly) Intersnack Procurement B.V. However, in practice, the farmers in the Mzimba district are geographically situated too far away from Sable Farming Ltd., limiting the extent to which they can obtain adequate and relevant market information. Also, farmers in the Thyolo district are in limited direct communication with Sable Farming Ltd. – an aspect Sable Farming Ltd. intends to improve in the near future by deploying an extension field officer.

- Expansion of the factories at Sable Farming Ltd. is still underway, and main investments still need to take place. With the expected significant increase in supply expected from smallholder farmers involved in the project, the processing capacity of Sable Farming Ltd. is expected to no longer be sufficient. Therefore, Sable Farming Ltd. is expanding its processing facilities and procuring and installing additional processing machinery as part of the FDOV project.

- Nut processing capacity has not yet increased. As most of the hardware investments still have to take place, increasing the nut processing capacity is a work in progress. Sable Farming Ltd. expects a large increase in the volume of nuts they will have to process, as they expect that the 3,000 project farmers will supply them with increasingly more nuts as more trees mature and yields increase.

- Important conditions for reaching higher-level results on this pathway are trusted relationships and contract arrangements. At the time of the evaluation, market relationships were still fragile, and Sable Farming Ltd. indicated that they intended to further strengthen the relationship with project farmers. The terms and conditions for supply were not yet always well understood by project farmers –the focus groups indicated confusion among farmers about e.g., pricing, payment and transport. Finally, even though the project had nearly ended by the time of the evaluation, it was not yet clear how a fair and equitable position of project farmers in the value chain would be guaranteed in the future. Some important decisions are likely to take shape beyond the horizon of donor involvement.

12.4. Sustainability

We conclude that it is unlikely that Going Nuts would soon lead to systemic change. Macadamia VCE is yet to show to lead to systemic change or sustainable continuity, and several elements of the business case, mentioned in chapter 11, may contribute to continuity and sustainability.

12.4.1. It is unlikely that Going Nuts would soon lead to systemic change

In chapter 7 we indicate that it is unlikely that Going Nuts would soon lead to systemic change. The (part of the) groundnut value chain that this project aimed to enhance, suffers from problems described in the chapters

above. Some benefits of the intervention are likely to last, in particular at the output- and short-term outcome level of the Theory of Change (ToC) of the project. The value-chain enhancement as envisioned by the project has not been generated. The groundnut farmers are currently yielding higher quantities of groundnuts thanks to the project, yet still not of structurally better quality, and it is our impression they still sell them to whomever offers to buy them first for the reasons as explained (i.e., because it's convenient, quick, simple and makes little demands from them, compared to selling via formal routes to markets). Afri-Oils Ltd. has increased processing and testing capacity, yet currently buys groundnuts from only one trusted party. No ongoing relation has been established between Afri-Oils Ltd. and the end-beneficiaries.

Little to no contribution of the business case and/or revenue model to continuity and sustainability – Following the above, we conclude that business case does not contribute much to continuity and sustainability of project results.

Relevant design of CSR plans – The designed CSR plans were relevant. Both project documentation and project stakeholders reflect this notion. The CSR aspects considered were relevant to the context of Malawi and the groundnut sector.

Effects of CSR plans of private partners in consortia – Little effect can be observed from the CSR plans of Afri-Oils Ltd. Project documentation indicates that Afri-Oils Ltd. has few systems in place, although they intend to improve that. Still, noise reduction within the factory has been attended to, and wages are above minimum wage.

No major positive or negative influence on project's direct natural environment – The project has no major positive or negative influence on its direct natural environment, nor has it contributed to combatting global climate change. Looking at the project, this may make sense.

12.4.2. Macadamia VCE is yet to show to lead to systemic change or sustainable continuity

The project is yet to show that it will lead to systemic change systemic change or sustainable continuity. This is mainly because the project is still ongoing and many of the trees are yet to generate fruit. Basic short-term outcome benefits are likely to continue. In chapter 10, we indicate important conditions for reaching impact-level results. If these conditions are met, Macadamia VCE is likely to contribute to systemic change and results then are also likely to be sustainable (although this also depends on the availability of grafted macadamia seedlings and extension services).

Conclusion on contribution of the business case and/or revenue model to continuity and sustainability is pending – Several elements of the business case may contribute to continuity and sustainability, whilst other elements present a risk (chapter 11). Project reporting suggests that the project is now in the hands of the farmers themselves who will carry on growing macadamia nuts beyond the duration of the project, but their position in the value chain is somewhat uncertain. The project has scaling potential, although this depends on smallholder farmers' access to grafted macadamia seedlings and availability of extension services.

Relevant design of CSR plans – The CSR plans of the project partners are not very extensive, yet they do take elements into account that are relevant to the Malawian context.

Some effects of CSR plans of private partners in consortia – Project documentation reports that the two companies act in line with those policies (e.g., concerning maximum working hours and child labour). The expansion of processing capacity at Sable Farming Ltd. is not expected to provide additional jobs. A mechanism to ensure fair prices has not been established yet (as indicated in chapter 10, some important decisions are likely to take shape beyond the horizon of donor involvement).

No major positive or negative influence on project's direct natural environment – Project reporting is optimistic on the positive influence of the project on the natural environment, although this influence shouldn't be overestimated given the size and scope of the project.

13. Recommendations

We present our recommendations, based on the findings of this evaluation, below. For each recommendation, we denote in brackets which of the relevant actors in the ecosystem should take on this recommendation.

13.1. Additionality

Following our findings in chapter 5.4 and 9.4, we see a number of opportunities for RVO.nl and project partners to make more convincing claims for the additionality of PPP-projects:

1. Explicitly address input- and development additionality in project appraisals (RVO.nl & NL-MFA). Current criteria are not explicitly linked to the DCED standards for additionality and do not (explicitly) distinct between input and development additionality. Clear guidelines for how additionality should be assessed in project appraisals are lacking. The current ex-ante additionality assessment as performed by RVO.nl can be improved to make a more convincing case for the additionality of the commitment of public resources.

2. Include an assessment of other funding possibilities in project appraisals (RVO.nl). We note that alternative financing possibilities are hardly addressed in the project appraisal, for example, the question whether a subsidy is the most adequate financing mechanism (or other funding instruments, such as a so-called soft loan) is not addressed.

3. Assess the complementarity of the project to other (donor) initiatives (RVO.nl & NL-MFA). One important aspect that is missing in the current additionality-approach is a description and analysis of the donor ecosystem in the host country. Currently no analysis of potential overlap or synergies with other donor activities, projects or programmes is made by RVO.nl, while this is relevant for assessing additionality. Evidently, interventions should not overlap and ideally complement each other.

4. RVO.nl might want to involve more subject-matter experts in the project appraisal procedure (RVO.nl). Currently several RVO.nl advisors are involved in the project appraisal procedure (including financial experts). RVO.nl might want to involve more subject-matter experts (e.g., on a particular value chain). By consulting subject-matter experts, the additionality of the intervention to on-going developments can be better determined.

5. Communicate guidelines for assessing additionality externally (RVO.nl). RVO.nl guidelines for assessing additionality currently are not communicated externally, as such it is unclear what the scope and depth of the additionality assessment by RVO.nl is.

13.2. Effectiveness and Impact

For future PPP-projects, we have identified the following lessons learnt regarding project design and implementation:

6. Ensure that projects that focus on a value chain are comprehensive in their approach (RVO.nl & NL-MFA). To make a value chain operate more efficiently, it is important that the approach is well thought-out and includes all relevant value-chain actors that are necessary to increase the efficiency of a (particular aspect of) the value chain. Such an approach requires an extensive analysis of the value chain (from input requirements and agricultural practices to product processing, transport, and marketing), likely also asking for a wide range of expertise and experience to design an effective intervention approach. The Mid-Term Review of FDOV also emphasised the importance of focusing on integrated value chain development (i.e., a focus on value chain linkages rather than on individual companies)[119].

[119]Royal Tropical Institute (KIT). Final Report Mid-Term Review of the Facility for Sustainable Entrepreneurship and Food Security (FDOV). Retrieved from: https://english.rvo.nl/sites/default/files/2022/09/FDOV-Mid-Term-Review.pdf

7. Make sure that project targets are realistic; limit the scope of projects that tend to be too ambitious (RVO.nl & NL-MFA). Ambitions now sometimes comprise implementing complex interventions in challenging contexts. More attention should be paid to setting realistic ambitions for PPP-projects.

    - Depending on the size and composition of the PPP, consider limiting the scope of the intervention, for example by focusing only on upgrading the skills and techniques of producers such that they can meet market requirements (assuming an available market).

    - To make a strong case for public support, project partners might tend to increase or inflate the number of end-beneficiaries that the project intends to reach. Instead, project partners and RVO.nl should focus on making sure that project targets are realistic in relation to the project budget. For example, training almost 50,000 farmers while also wishing to trace the effectiveness of these trainings (as was the case in the Going Nuts project, see chapter 4), may turn out to be unrealistic. If project goals are formulated too ambitiously, project partners and RVO.nl might soon after inception of the project will need to conclude that reaching certain project goals is no longer feasible – while such disappointments can be prevented. If a value chain approach is chosen (see our previous recommendation), formulating realistic project goals becomes even more important.

8. Assumptions in a Theory-of-Change (ToC) should be substantiated (project implementers & RVO.nl). By requiring a Theory of Change (ToC) in the project application phase, underlying the cooperation within a PPP, it is possible to assess the impact of the project and (try) to compare this to what have would happened anyway. Assumptions underlying a ToC should be substantiated by project partners and ensure that they are critically reflected on by RVO.nl. Macadamia VCE implicitly assumes that smallholder farmers can reach the same quality of production as commercial estates, but the conditions under which this may be assumed are unclear (and it is too early to assess whether this assumption holds true). Payment conditions are also important in this regard; such as the extent to which the project is able to offer attractive prices to its participants, considering the price dynamics on the local market (versus the world market) and the project requirements in terms of crop quality, administration, time spend on meetings, et cetera.

9. Working capital requirements should be considered in the project design (project implementers & RVO.nl). In the Going Nuts project, the local private partner experienced working-capital restrictions. Although operational expenditure should not be covered by the donor, working-capital restrictions can have a significant impact on participating end-beneficiaries – whose economic conditions often cannot suffer late buying and/or payment. In the Going Nuts project, this has been one of the reasons for smallholder farmers to (side-)sell to other buyers. Hence, the perspective of end-beneficiaries and their economic reality is crucial to consider in the project design.

10. Having a strong coordinating project partner on-board is important for successful PPP-collaboration (project implementers & RVO.nl). A dedicated project partner focusing on project implementation, can contribute to project effectiveness. A similar recommendation was made in the Mid-Term Review of FDOV, in which professional project management through a specialised partner (acting as a project secretariat) was recommended[120]. In the case of Macadamia VCE and Going Nuts, Dutch NGO Sympany+ has played a crucial role in the coordination of the projects and in facilitating cooperation between project partners. Continue having a dedicated coordinating project partner as part of PPP-consortia.

11. Sufficient attention should be devoted to cost and risk sharing in PPPs (project implementers & RVO.nl). It is important that the ambitions of the donor (and of project partners) in terms of cost and risk sharing are reflected in project implementation, for example in contract agreements that are settled between project partners and end-beneficiaries. Such agreements should reflect the goals that were agreed to by the PPP and the donor (e.g., pro-poor market development), for example, by incentivising quality of production or by signalling long-term commitment. It makes sense that certain

[120] Tasks of a project secretariat, referred to in the Mid-Term Review of FDOV, may include:
"(1) Proposal design and definition of partner roles within partnerships
(2) Handling of administrative and monitoring and evaluation requirements
(3) Managing the partnership in terms of communication and transparency
(4) Managing the stakeholder environment, including local government". Source: Royal Tropical Institute (KIT). (2016). Final Report Mid-Term Review of the Facility for Sustainable Entrepreneurship and Food Security (FDOV). Retrieved from: https://english.rvo.nl/sites/default/files/2022/09/FDOV-Mid-Term-Review.pdf

costs are covered by the donor (for example, training of smallholder farmers), but such support should translate in a fair position for end-beneficiaries in the business case. This also relates to the ownership of certain assets (as explained in chapter 5.5) which can lie with individual end-beneficiaries, the community (supporting collective ownership) or with commercial partners. The above resembles a recommendation from the Mid-Term Review of FDOV, in which it is mentioned that Private Sector Development in itself is not sufficient, unless it is inclusive, creating equal opportunities and benefits for all, and is sustainable.[121]

12. Clear communication and price transparency is key (project implementers). To build sustainable farmer-processor linkages, it is important that local processors/buyers ensure clear communication and transparency about the terms and conditions for supply. In the evaluation of Macadamia VCE (chapter 10) we reported about confusion (e.g., about pricing and transport) among farmers selling their first batches of produce.

13.3. Sustainability

The following recommendations may serve to further enhance the sustainability of PPP projects:

13. Business cases and revenue models should be clearly beneficial to all value-chain actors (project implementers & RVO.nl). After the end of the project, when donors no longer finance the activities within that make up the project, business cases and revenue models should generate the financial means needed to sustain project benefits. To enjoy continued support from all value-chain actors, such business cases should benefit all value-chain actors. When they do not, the value-chain actors that are underserved may discontinue their participation in value-adding activities that underpin the business case. Consequently, financial continuity of the project benefits will be at risk, and positive project results may be lost. Therefore, close attention needs to be paid to not only the direct costs and earnings for each value-chain actor that contributes to the business case, yet also to the risks, opportunity costs, and trade-offs that each value-chain actor faces.

13.4. Other recommendations

Other recommendations that may enhance the role of RVO.nl as an implementing organisation of PPP-projects include:

14. Ensure active involvement of Dutch embassies or other diplomatic missions (such as consulates) active in the host country (RVO.nl). The policy dialogue on, for example food security and private sector development, is also conducted by the Embassies. The teams at RVO.nl should build on that expertise to make choices upfront about the shape and direction of development projects. Also, it is important to compare proposed interventions to previous, similar initiatives, and assess whether lessons learned from past experiences have been taken into account. The role of the Embassies is therein to focus on their most valuable contributions:

    - Understanding, unlocking, and accessing their networks of local organisations
    - Furthermore, providing insights
        a. in the food-security needs of groups and communities of food producers in their country or region
        b. in the investment-readiness and strategic fit of local public-sector and private-sector organisations in their country or region
        c. in the (high-level) policy orientation of the government in their country or region

    We recommend RVO.nl to require a formal response of the involved embassy or (honorary) consulate before proceeding with the decision on a grant application. For example, in the case of Macadamia VCE, no official response on the project proposal was submitted. Although this might not be representative for the involvement of embassies and consulates in the wider FDOV-portfolio, it should

[121] Ibid.

be noted that without a proper consultation, RVO.nl might forego on the added value an embassy or (honorary) consulate may have to the assessment procedure and project implementation.

15. Intensify project monitoring activities (RVO.nl). Monitoring information from the Going Nuts project did not allow for the analysis of produce quantity (total production) or quality (e.g., developments in the prevalence of aflatoxin). For Macadamia VCE, monitoring data does allow for the analysis of adoption of good agricultural practices, tree growth, macadamia production, and more. Project monitoring can allow project implementors and RVO.nl to make choices over the course of the project that may enhance project outcomes (as evidenced by Macadamia VCE), but it is important to also (directly) consult end-beneficiaries in project monitoring activities. Although annual field visits were performed and surveys were conducted, as explained in chapter 10, farmers in focus groups for Macadamia VCE expressed several concerns that have not become visible in project reporting or in the results of field/monitoring visits by RVO.nl.

16. Consider using a field/monitoring visit report template (RVO.nl). We recommend RVO.nl to require structured field visit report templates from project advisors conducting field/monitoring visits, including a description of the purpose of the visit, key findings explicitly related output-, outcome- or impact level results and recommendations or 'next steps'. RVO.nl project advisors frequently conduct field/monitoring visits, yet no standardised formats are being used to record the findings from these visits. By not using standardised templates, structure and quality of information may be affected – which limits the contribution of these visits to credible internal and external monitoring and evaluation.

Annex A – Interview partners

Find below an overview of the interviews that have been conducted, either virtual or in person. Some interviews have been combined, meaning that both projects (Going Nuts and Macadamia VCE) were discussed during the interview.

Going Nuts			
Organisation	**Virtual**	**In person**	**Total**
Project partners			
Sympany+	1	1	2
Afri-Oils Ltd.	1	1	2
DAPP Malawi	1	1	2
Dutch government			
RVO.nl: Current and previous project advisor	2	0	2
NL Ministry of Foreign Affairs (BZ): Policy officer Public-Private Partnerships	1	0	1
Consulate (Honorary) of the Kingdom of the Netherlands in Lilongwe (Malawi)	1	1	2
Local government and other actors			
National Smallholder Farmers Association of Malawi (NASFAM)	2	0	2
Agricultural Commodity Exchange (ACE)	1	0	1
Malawian Ministry of Agriculture, Irrigation and Water Development	0	1	1
AgDevCo – *Social impact investor and project developer working in the African agriculture sector, shareholder of Afri-Oils Ltd.*	2	0	2
International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)	0	1	1
Total			**17 interviews**

Macadamia VCE			
Organisation	**Virtual**	**In person**	**Total**
Project partners			
Sympany+	1	1	2
Sable Farming Ltd.	1	1	2
DAPP Malawi	1	2	3
Intersnack Procurement B.V.	2	0	2
Dutch government			
RVO.nl: Current and previous project advisor	2	0	2
NL Ministry of Foreign Affairs (BZ): Policy officer Public-Private Partnerships	1	0	1

Consulate (Honorary) of the Kingdom of the Netherlands in Lilongwe (Malawi)	1	1	2
Local government and other actors			
Malawian Ministry of Agriculture, Irrigation and Water Development	0	1	1
Highland Macadamia Co-operative Union Limited (HIMACUL)	1	0	1
Subject-matter expert 1 (macadamia production in Malawi)	1	1	2
Subject-matter expert 2 (macadamia production in Malawi)	2	0	2
Total			**20 interviews**

Table 9: Overview of interview partners

Annex B – Detailed analyses

B1. Going Nuts – Detailed analyses Q1.1

Desk study

The end-beneficiaries targeted by the project are 48,400 smallholder farmers. These smallholder farmers can be distilled into three groups: 40,000 NASFAM and Exagris Africa Ltd. farmers who were already delivering their crops to Afri-Oils Ltd., 6,000 farmers DAPP Malawi farmers in Dowa and 2,400 female DAPP Malawi farmers in Chiradzulu. Farmers in Dowa and Chiradzulu would be (re-)organised by the project in structures, through the (re-)establishment of farmer clubs[122]. According to the project plan, the project aimed to address the following relevant challenges faced by smallholder farmers in groundnut production[123]:

- Malawian smallholder farmers lack organisation, which is a prerequisite to develop capacity and to be able to produce sufficient volume, quality, and secure a regular supply.
- Malawian smallholder farmers lack knowledge and assistance, which is a prerequisite to develop self-reliance.
- High levels of aflatoxin contamination eradicated the export market; hence the reduction of aflatoxin contamination is a key challenge.

The project plan notes that the project has been designed to bring all necessary components of the value chain together and close to smallholder farmers so that they could effectively participate and become a 'co-owner of the value chain'[124]. As far as we can identify from project documents, smallholder farmers have not been consulted on the project design (via Focus Group Discussions or otherwise). While the project plan mentions that participation and ownership are pre-requisites for the sustainability of learned skills and networks[125], the project plan does not explain how participation and ownership would be stimulated.

Key Informant Interviews

Several stakeholders have mentioned that the project, by design, could increase the production of high-quality groundnuts. The efforts of the project to demonstrate to the region that Malawi can produce groundnuts low in aflatoxin that are 100%-supplied by smallholder farmers in general is appreciated. The project tries to provide a solution at the farmer level (increasing agricultural productivity) and has broader (value chain) objectives that are considered relevant.

Locations where the project would take place were determined before the inception of the project. Both a project partner and stakeholders have suggested that Chiradzulu, one of the chosen project locations, however, (in hindsight) is not a very suitable area for growing groundnuts. This is because Chiradzulu has to deal with winter rain affecting the quality of production. The distance from Chiradzulu to the Afri-Oils Ltd. factory is also considered very large, which would result in high transport costs. Since Chiradzulu is not a traditional groundnut growing area, it has been suggested that this project location was chosen because of other reasons than the suitability of this area for growing groundnuts (e.g., previous experience in this area with other farmer club projects).

Several stakeholders have mentioned that the number of farmers targeted by the project is high and potentially very significant. An important effect would be that these farmers can pass on knowledge to fellow farmers, a so-called network effect. The Ministry of Agriculture sees organising smallholder farmers in structures, such as farmer clubs, associations and cooperatives, as the right way forward. Reportedly, if farmers do not organise themselves, their voices are heard less.

Based on a description of the project, some probable weaknesses in the project design were mentioned by a respondent. These included issues regarding access to quality inputs, a lack of certified aggregation points and issues due to side-selling practices by farmers: "The benefits of being part of this partnership should make

[122] Farmer clubs in Dowa already existed and would be re-established.
[123] Sympany+ (2012). Project Plan. FDOV12MW01: Going Nuts
[124] Sympany+ (2012). Project Plan. FDOV12MW01: Going Nuts
[125] Ibid.

farmers thrilled about supplying their produce to the project partner (Afri-Oils Ltd.). And still, farmers sell to other parties (…) [respondent] expects. The main reason for side-selling is 'cash is king'; farmers need immediate cash, some of the involved farmers might have not had an income for 6-7 months".

With regards to the infrastructure investments in Afri-Oils Ltd., a respondent stressed that installing a centralised oil-press might not be beneficial to smallholder farmers. According to this respondent, value addition at the local level could be more beneficial to smallholder farmers.

B2. Going Nuts – Detailed analyses Q1.2

Desk study

In the project plan the relevance of the project for various local policies has been outlined, including the Malawi Growth and Development Strategy (MGDS, 2011-2016), Agriculture Sector Wide Approach (ASWAp, 2011–2015) and the National Medium-Term Priority Framework (NMTPF, 2010-2015). The project would contribute to these policies through its focus on food security and nutrition, commercial agriculture, and market development. In addition, it supported the Malawi United Nations Development Assistance Framework (UNDAG, 2012–2016), which objective was to support the country in moving from poverty to prosperity and achieving development goals, mainly through its focus on poverty reduction, gender disparities (gender equality and empowerment through inclusion objectives) and sustainability. Relevance for the National Export Strategy (NES) would follow from the project's focus on groundnuts since this strategy has identified groundnuts as a key crop for export for development.

It is mentioned in the project plan that project partner DAPP Malawi is experienced in cooperating with local and national governments in the implementation of projects. We can observe from project documentation that the Malawian government was involved to some extent in the project. For example, representatives of the Ministry of Agriculture, Ministry of Trade and Industry, and other government departments attended the launch of the project in November 2015. It is reported that project partners have consolidated close relations with the extension department of the Ministry of Agriculture, and reportedly, trainings and monitoring visits were conducted jointly with government agricultural extension staff. Reportedly, this has also enabled government workers to continue working with farmers after the project funding.

Key Informant Interviews

Aflatoxin contamination is a major concern for the Malawian government. The government is educating citizens about the health risks associated with aflatoxin exposure. It has been mentioned by a Key Informant that the Ministry of Agriculture tries to reduce aflatoxin contamination in groundnut production through, amongst others, training. It has also been raised, however, that the Ministry has too few resources to effectively train smallholder cooperatives across the country.

Groundnuts are part of the National Export Strategy (NES) and thus promoted for export. The rules for importing groundnuts into the European Union are strict, nevertheless, the National Export Strategy (NES) has ambitious objectives. The crop is considered relevant for economic development. It has been indicated by a representative of the Ministry of Agriculture that there has been a shift in the Malawian groundnut market: less exports to high enforcement destinations (Europe, South-Africa) take place than before, the main export markets for Malawi now are regional markets.

In several conversations, the groundnut market has been characterised as a volatile market. The informal groundnut market in Malawi, not subject to the same controls and restrictions as the formal sector, is considerable of size. Hence, quality standards are not always enforced. A respondent has pointed out that policy implementation however is key. It is reported that failures in regulatory oversight exist, mainly in terms of policy implementation and enforcement of standards. These issues have been linked to the liberalisation of the groundnut market[126], during which the state-owned Agricultural Development and Marketing Corporation (ADMARC) collapsed, and the private sector started to participate in the groundnut trade market.

It has been stated that, as a formal company in a structured market, project partner Afri-Oils Ltd. finds itself in a position where it must compete with informal traders. Several stakeholders have mentioned that groundnuts produced in Malawi, on a large scale, are shipped to non-quality sensitive countries in the region by informal traders against similar or even higher prices than offered in the domestic formal market. It has been reported

[126] After reform programs for the agricultural sector, monopoly was abolished.

that shipping documents are not used by some informal traders, meaning product risks cannot be identified. Furthermore, it is reported that some informal traders from other countries 'bring in' currency that is exchanged on informal markets at a parallel market exchange rate significantly higher than official bank rates[127]. The above would place formal exporters, such as Afri-Oils Ltd., at a disadvantaged position. This situation would pose significant barriers to (international) competitiveness. For Afri-Oils Ltd., this would have led to major constraints on its ability to be profitable.

B3. Going Nuts – Detailed analyses Q2.2

Desk study

In the project assessment of RVO.nl additionality is addressed in relation to the financial viability of the project. On this point, RVO.nl argues that if the project is not commercially viable, then no private party would invest, and that therefore public funding was indeed necessary.

The cash flow analysis carried out ex-ante for the project confirms that public funding was necessary. A financial analysis from 2012 shows that, at the time, neither of the project partners had sufficient funds to self-finance the project. Sympany+ had limited own resources to invest due to lower-than-expected income streams and Afri-Oils Ltd.' business performance was generally poor. Afri-Oils Ltd. had a negative cash flow in 2012,[128] and needed a third-party guarantor (Exagris Africa Ltd.) for its own 25% contribution to the project.

Project documentation also indicates that project partners could not access other sources of funding to finance the implementation of the project. An overall cash flow analysis for the project showed that the project was not commercially viable because of a negative cumulative cash flow of close to EUR 4m.[129] An important factor in this was the high costs for the construction of a new factory.[130]

We note that, during this stage, no analysis has been made on whether other parties than the PPP-members would have been well-positioned to implement the project without public support. Likewise, RVO.nl was aware of the poor financial performance of the project parties, but no comparison was made with other potential project partners.

Key Informant Interviews

It has been indicated by several project partners and stakeholders that public funding was essential for the project. The biggest challenge for the groundnut sector is the fact that hundreds of thousands of farmers work with limited resources, says a project partner.

Several respondents have posed that Afri-Oils Ltd. would not have invested in smallholder farmers (at this scale) without the support of the Dutch government. A project stakeholder argues that without the subsidy, Afri-Oils Ltd. would not have been able to provide trainings to smallholder farmers and the chances that new machines would have been purchased is small.

In the context of the topic of additionality, it has been mentioned that the project has led AgDevCo, a British agribusiness impact investor and project developer, to invest in Afri-Oils Ltd. with the same goal as project partner Sympany+: to put Malawi back on the map as producer of high-quality groundnuts. A respondent stated: "The risk perception changed due to the funding of the Dutch Government. AgDevCo on itself (…) [was not able] to fund that level of commitment, thus this project gave a good opportunity. Without the funding, there would be no Afri-Oils today. (…)"

B4. Going Nuts – Detailed analyses Q3.1, Q3.2, Q3.5, Q4

Desk study

The reporting period covered in this description concerns the (reporting) years 2014-2021. For each level of the results chain, where applicable, the degree to which the project has been successful in producing the expected result(s) is described based on project documentation.

[127] Reportedly, in 2022, the difference was up to 40%.
[128] Netherlands Enterprise Agency | RVO.nl (n.d.) Assessment form complete qualification proposal FDOV (stage 2). FDOV12MW01: Going Nuts.
[129] Ibid.
[130] Ibid.

Supply side outputs

(Output) Farmer clubs and associations (re-)established

The project intended to target a total of 48,400 smallholder farmers involved in groundnut farming. The *first group* of smallholder farmers would consist of 40,000 farmers delivering to Afri-Oils Ltd., directly or indirectly, via existing organisational structures set-up by NASFAM, Exagris Africa Ltd., the Clinton Foundation, Afri-Oils Ltd. buying agents and others. The *second group* would consist of 8,400 farmers, (previously) organised by the project via DAPP Malawi in farmer clubs in Chiradzulu (2,400 farmers) and Dowa (6,000 farmers). The project intended to encourage involved DAPP Malawi farmers (8,400 farmers) to establish cooperatives of five clubs (250 members) and to become a paying member of the 'Legumes Development and Trade association'.

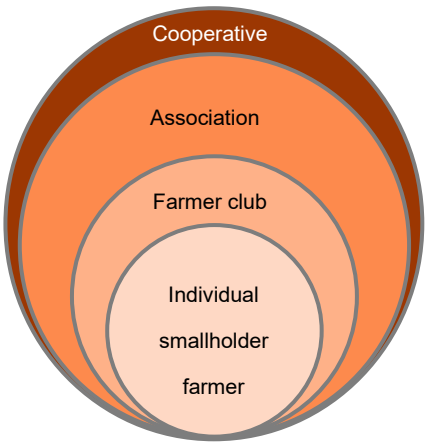

Figure 9: Farmer club model

Project documentation indicates the project established a total of 48 farmer clubs[131] involving approximately 2,400 female smallholder farmers. In Chiradzulu, two cooperatives[132] have been established. Initially the project intended to involve 1,200 female farmers of an existing DAPP Malawi project in Chiradzulu, later it was decided to establish an additional 24 farmer clubs.

The project re-established DAPP Malawi farmer clubs in Dowa, involving approximately 6,000 (male and female) farmers. These 6,000 farmers were organised in twelve farmer clubs, consisting of 500 farmers per farmer club and ten farmer instructors in total. In Dowa, four cooperatives[133] already existed prior to the project.

(Output) Materials/seedlings supplied

The project aimed to encourage farmers to make use of improved seed varieties instead of so-called farm-saved seed[134]. In the absence of target values, from desk study, it is not possible to draw conclusions about the extent to which the project has been successful in supplying agricultural inputs (i.e., seeds) to its end-beneficiaries. Furthermore, M&E reports are not specific, nor consistent, about how many smallholder farmers received agricultural inputs[135] through the project. M&E data does not allow to complement the lack of information in progress reports.

Project documentation indicates that, indeed, the use of good and certified seeds was promoted in the project, as part of the overall training strategy. Training topics included, amongst others, 'spotting' what a potentially good seed[136] looks like and proper storage of seed (in-shell to ensure good germination). From project documentation it becomes clear that despite these efforts, end-beneficiaries experienced poor germination rates[137] (20 to 30%) at several moments in time.

[131] DAPP Malawi farmer clubs in the project consisted of 50 members.
[132] 'Thundu cooperative' and 'Mwavi cooperative'. Project documentation does not contain information on why it was decided to establish two cooperatives, rather than to form cooperatives of five farmer clubs per cooperative as envisioned in the project plan.
[133] 'Dzoole cooperative', 'Katingwe cooperative', 'Mpale cooperative' and 'Tsogolo cooperative' (~4,000 members in total). These cooperatives were established through a DAPP Malawi project funded by the United States Department of Agriculture (USDA).
[134] Farm-saved feed is a portion of the harvest saved by the farmer to plant next crops. The importance of not using farm-saved feed is underlined in project documentation, as farm-saved feed loses vigor over time and would result in lower yields.
[135] Project documentation indicates that in 2015, inadequate seed was distributed to the beneficiaries due to a delay in fund disbursement/budget approval. Seeds, hoes, lime and gypsum could not be procured because of the aforementioned reason. The 2016 progress report indicates the project distributed 4.5 MT of groundnut seeds to 120 DAPP Malawi farmer clubs in Dowa (~6,000 farmers). The 2017 and 2018 progress reports do not contain quantitative information about the distribution of agricultural inputs. In 2018, it is reported that DAPP Malawi, Exagris Africa Ltd. and NASFAM had established seed banks and that farmers were provided with 'foundation seed'. The 2019 progress report indicates a total of 440 farmers received around 13 MT of CG7 groundnut seed on loan. Furthermore, in 2019, 150 farmers from Ntchisi, Kasungu, Mchinji and Lilongwe that were part of 'groundnut trials' performed by Afri-Oils Ltd. together with ICRISAT, received a total of 4.5 MT of CG7-seed. In 2020, a total of 15 MT of groundnut seeds (in-shell CG7 and CG11) was disbursed by Afri-Oils Ltd. to a selected number of cooperatives. The rationale behind providing foundation seed mentioned is sustainability, as 'foundation seed' could be used by smallholder farmers for three seasons, and during these seasons smallholders are expected to generate income to buy another set of foundation seed (again, lasting for three seasons).
[136] "90% pure, large and plum, not damaged". Sympany+ (2018). Annual Progress Report 2017 Going Nuts. FDOV12MW01: Going Nuts
[137] An indicator for seed viability (speed of germination).

Although seeds banks[138] are considered an improvement by the project, the 2018 progress report indicates that access to good quality seed remained a challenge, both in terms of available seed varieties and accessing certified seed due to involved costs for smallholder farmers. This situation did not change towards the end of the project, in 2019 and 2020.

Project documentation states that smallholder farmers involved in the project perceived "a lack of farm inputs and poor germination of seed" as a major challenge in 2020. On the other hand, availability of certain other inputs (inoculant and fertiliser) was seen as positive. In 2020, it is reported that farmers would prefer seed in shell. The Malawian seed sector however would not be 'geared up' for certification of seed in shell. Reportedly, in 2020, Afri-Oils Ltd. therefore attempted to provide seed in shell where possible. It would have also pushed to make seed in shell accepted and available in the groundnut industry, although it is not indicated in project documentation how it did so.

Supply side outcomes

(Short-term outcome) Farmers trained in nut management and marketing

The project intended to train project farmers through two training tracks. The first (extensive) training track would target approximately 40,000 farmers delivering to Afri-Oils Ltd., directly or indirectly, via existing organisational structures. This group of farmers would receive training in groundnut management and marketing from 2013 – 2020 (seven years). These trainings would be provided by NASFAM and Exagris Africa Ltd. The second (intensive) training track would target DAPP Malawi farmers in Dowa and Chiradzulu. Smallholder farmers in Chiradzulu would receive intensive training in groundnut management and marketing from 2014 – 2017 (three years), whilst the group of smallholder farmers in Dowa would receive intensive training for only one year (2016-2017). These trainings would be provided by DAPP Malawi. In sum, the project envisioned to train a total of 48,400 smallholder farmers in different districts; 20,000 farmers would be trained by Exagris Africa Ltd. Africa, 20,000 farmers by NASFAM and a total of 8,400 by DAPP Malawi.

An indication of the number of farmers trained by the involved organisations in the project is provided in Table 10. M&E data does not provide much certainty about the number of farmers trained. The project has indirectly reached the reported numbers of farmers, as a 'Training of Trainers' (ToT) model was employed by the project. Only in the 2018 progress report, some more level of detail was provided on the number of trainings conducted by the project.

Training topics included: training in site selection and (timely) preparation of land; training in the use of improved seed varieties instead of so-called farm-saved seed; training in proper management of soil, to control the acidity (pH levels) of the soil, e.g., through the use of the appropriate amount of fertiliser; training in yield enhancing techniques (i.e., *double row planting*); training in aflatoxin control- and management, including training on the use of Aflasafe and how to apply Aflasafe to groundnut crops (with the support from the International Institute of Tropical Agriculture (IITA)); training in pest- and disease management; training in harvesting techniques; training in post-harvest handling and storage capacity (e.g., on dry storage practices of groundnuts such as the *Mandela Cork*). Field days were conducted to spread groundnut technologies to farmers not part of the project.

Besides trainings on good agricultural practices, some farmers received training on, for example, crop marketing (e.g., training on the importance of (timely) aggregation of groundnuts), gross margin analysis and record keeping (recording activities taking place at farm-level: field size, fertiliser application, yields, sales records, etc.).

Implementing organisation	Number of farmers trained
DAPP Malawi – Chiradzulu (2014-2017)	Between 1,200[139] and 2,400 female farmers through 240 lead farmers.
DAPP Malawi – Dowa (2016-2017)	In 2016 and 2017, 6,000 farmers through 600 step-up farmers. Male/female ratio is unclear from documentation.

[138] A seed bank functions as followed: farmers are loaned with seed, which they pay back as seed after harvesting. For example, a farmer can be loaned with 50 kg of seed and after harvesting the farmer pays back 100 kg of seed to the seed bank. The next season, the farmer again could be loaned 50 kg of seed by the seed bank.
[139] Project documentation reports that program activities for the two times 1200 female smallholder farmers in Chiradzulu were running parallel, activities and results of these groups would be identical.

NASFAM (2015-2021)	Between 2015 and 2021, between 3,000 and 11,250 farmers, through an unknown number of lead farmers (or a variant). Male/female ratio is unclear from documentation.
Exagris Africa Ltd. / Afri-Oils (2015-2021)	Between 2015 and 2021, between 3,750 and 7,100 farmers, through an unknown number of lead farmers (or a variant). Male/female ratio is unclear from documentation.
Total	Between 2015 and 2020, the reported number of farmers trained ranged between 19,500 and 25,650 farmers.[140] Male/female ratio is unclear from documentation.

Table 10: Indication of number of farmers trained by the project.

M&E reports indicate the first ToT-trainings were conducted in 2015. Field instructors were also trained in using a digital monitoring tool employed by the project. Field visits to project areas were conducted to identify potential challenges for smallholder farmers involved in groundnut production. Meetings with Agriculture Extension Development Coordinators (AEDC) and Agriculture Extension Development Officers (AEDOs) took place, as well as regular monitoring visits by field instructors. Reportedly, in 2015, a total of 19,556 farmers had indirectly been trained by the project.

Project documentation indicates that the project established demonstration plots serving as 'learning fields' for smallholder farmers involved in the project, but also for other interested farmers. Good Agricultural Practices (GAP) were practiced at the established demonstration plots. Demonstration plots are considered an effective extension tool, even though demonstrations require considerable time and effort, since the adoption rate of GAP would increase once farmers perceive the practices demonstrated to be appropriate for local conditions.

Project documentation from 2019 suggests that the 'Going Nuts Training and Communications group'[141] had little control over the implementation of trainings and reporting by field staff involved in the project. It is mentioned that the coordinator had to rely on the goodwill of field staff to cooperate. Some of the (training) activities were influenced by financial constraints faced by partner organisations[142].

According to project documentation, the project trained a total of 73,625 farmers between 2016 and 2020. The evaluation team did not find convincing supporting evidence for this number. In project documentation, it is acknowledged that it was a challenge for the project to determine the number of unique farmers trained, for example because some of the involved organisations did not register farmer attendance.

(Short-term outcome) Increased scale through organised structures

Through the organisation of farmers in structures[143] the project intended to reduce transaction costs (e.g., through collective purchases of inputs and consolidated marketing of produce to attract larger buyers) and to provide farmers with access to credit (e.g., through setting up so-called Village Saving and Loans associations).

Project documentation suggests the project has not been successful in realising consolidated marketing of produce. In 2016, the project encouraged DAPP Malawi farmers in Chiradzulu to form cooperatives. Two cooperatives were established, promoting buying and selling in bulk to achieve economies of scale. In Dowa, four cooperatives were already existing. Project documentation indicates that in 2016, the project failed in buying directly from project farmers. Between 2017 and 2019 consolidated marketing of produce hardly took place. In 2017, it is reported that better organisation of farmers and aggregation of groundnuts (minimum quantities of ten to fifteen MT) would be required to allow for purchase of produce through Afri-Oils Ltd.' buying teams. In 2018, farmers therefore preferred selling their produce individually, rather than selling aggregated volumes as a farmer club or cooperative. In 2019 and 2020, this situation did not change. In 2020, farmers still sold their produce to local traders, reportedly receiving low prices.

Although cooperatives were established, the involved organisations do not have been able to sell aggregated volumes or to effectively follow (track) their members' production processes to ensure quality production of

[140] 2015: 19,556, 2016: 23,500, 2017: 21,112, 2018: 25,632, 2019: 13,273, 2020: 8,893.
[141] Consisting of one training and communication officer employed by the project at Afri-Oils Ltd., part-time supported by groundnut experts who were already employed at Afri-Oils Ltd.
[142] As a result, for example, logistical requirements for field instructors to reach smallholder farmers could not always be met.
[143] I.e., clubs, cooperatives and associations.

groundnuts. Lack of trust within the involved farmer organisations and subsequent unwillingness to aggregate produce is mentioned as a bottleneck.

Project documentation indicates that in 2017 the project had established 47 Village Savings and Loan associations (VSLs). In 2019, there were 31 active VSL groups (ten to fifteen members per VSL) involved in the borrowing and saving of money. Furthermore, in 2018, the project established contact with the Malawian 'New Finance Bank' to enable six DAPP Malawi farmer clubs in Dowa to obtain loans for investments to further their production.

The project encouraged farmers to become a member of the 'Legumes Development and Trade Association'. Project documentation however does not contain information on the number of project farmers that became a member of the 'Legumes Development and Trade Association'. In 2018, DAPP Malawi facilitated some form of collaboration with the Legumes Development and Trade Association.

(Intermediate outcome) Improved agricultural practices, use of inputs by farmers, reduced Aflatoxin levels

The project aimed to improve the agricultural practices of project farmers mainly through trainings on groundnut management. This would enable them to increase yields and the quality of groundnut production. New pre- and post-harvest techniques (i.e., use of *Mandela Corks* for drying[144] and refraining from shelling the groundnuts), introduced by the project, would also contribute to quality improvements. Project documentation however contains little convincing evidence about the use of improved agricultural practices by farmers. Reportedly, supervision of practices applied by project farmers is not possible without one-on-one traceability. According to project documentation, the lack of a traceability system within the project therefore has made it impossible to follow the quality of production by project farmers and to properly manage the (Afri-Oils Ltd.) supplier base consisting of project farmers.

Project documentation suggests that towards the ending of the last training activities, in the beginning of 2019, the project had not yet brought forth the desired quality improvements in groundnut production. It then is reported that although farmers have been trained, at that time, this has not necessarily led to improved agricultural practices. Reportedly, the use of improved inputs would have hardly improved over the project span. Also, the adoption rate of best practices had turned out low. Examples mentioned in project documentation include 'extremely low' usage of the *Mandela Cork*[145] and limited practice of double-row planting.

The primary focus of the project (on the supply side) was on reducing aflatoxin levels. Project documentation suggests that because 'badly managed nuts' are mixed with 'well managed ones', aflatoxin tests are less meaningful. Indeed, very little project documentation or M&E data on aflatoxin measurements exists. Hence, from desk study, it is uncertain how effective the project has been in this regard. Provided that, according to project documentation, in 2019 the project did not see a significant change in quality by training farmers, it seems unlikely that significant changes in aflatoxin contamination of groundnuts produced by project farmers were realised at that time. Project documentation from 2019 indicates there is still too little evidence that the best practices promoted are achieving the quality of groundnuts that Afri-Oils Ltd. is aiming at (i.e., low enough in aflatoxin to export to high-value markets like South Africa and Europe).

M&E data submitted by the project to RVO.nl includes the average score of farmers on a so-called 'aflatoxin management knowledge quiz'. Reportedly, the average score on this quiz increased from 38% in 2016 to 90% in 2019. However, the sample size (88 farmers) and composition (only farmers who received trainings that were not financed through the project) poses challenges to the interpretation of this data with regards to the contribution of the project to the observed changes.

From M&E data, a limited number of relevant indicators on training effectiveness can be identified. These indicators are only available for project location Chiradzulu. Hence, the information presented below is not representative for the wider project. Selected indicators provide information on (1) the use of farm-saved seed,

[144] In project documentation, it is stated that the Mandela Cork in fact might not be the most promising way of drying given smallholder circumstances. It is reported that alternative drying methods (e.g., windrows, A-frames, drying racks) might have to be investigated and trialed with smallholder farmers. Reportedly, to this end a close collaboration with locally based research institutions as well with Partnership for Aflatoxin Control in Africa (PACA) is needed. It is uncertain whether the project has indeed investigated and trialed alternative drying methods.

[145] A possible explanation provided in project documentation is the fear of theft (heaping up groundnuts might be perceived risky). Furthermore, in project documentation, doubts on the effectiveness of this drying approach for smallholder circumstances are expressed.

(2) the use of fertiliser and (3) the practice of crop rotation. Interpretation of these results is difficult however and should be treated with caution.

An increase in the average amount of farm-saved seed can be observed between 2015 and 2018. Relative to the average size of production, the increase is rather minor (Figure 10). Farmers have been trained in practicing *crop rotation* (groundnuts with cereal crops like maize, sorghum, and millet). Available M&E data from project location Chiradzulu suggests that farmers in this area have understood the importance of not planting groundnuts in the same location of the plot each year (Figure 11).

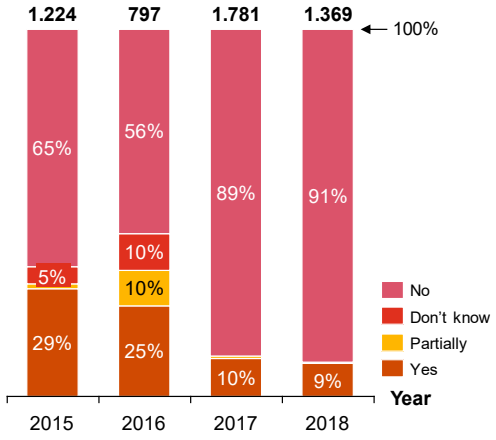

Figure 11: Planting of groundnuts in the same location on the land as last year (Chiradzulu)

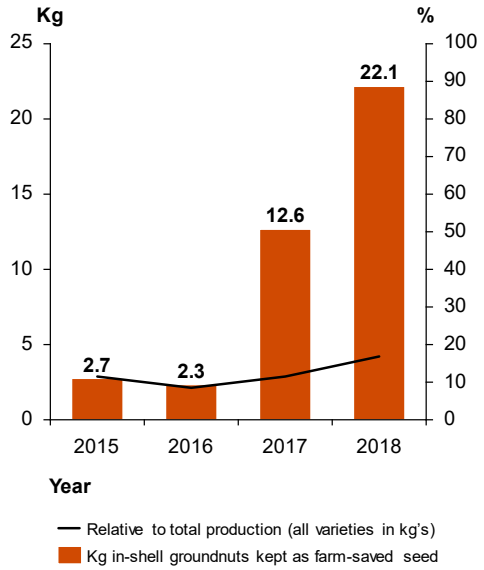

Figure 10: Kg in-shell groundnuts kept in store as seeds for next season (average values, Chiradzulu)

No appreciable changes between 2015 and 2018 can be observed in the use of chemical fertiliser (between 83% and 100% of those surveyed indicated not to be using chemical fertiliser), nor in the use of organic fertiliser (between 92% and 97% of those surveyed indicated not to be using manure/organic fertiliser).

(Intermediate outcome) Increased production & productivity

The project aimed to realise a 20% increase in the agricultural productivity of project farmers. M&E reports indicate groundnut productivity of project farmers has been very volatile, fluctuating from season to season, with rainfall having the biggest impact on the project since irrigation was not available to any of the project farmers. Consistent reporting about the agricultural productivity of project farmers is not available, hence, from desk study, it is not possible to further substantiate this.

From M&E data, a limited number of relevant indicators on production and productivity can be identified. These indicators are only available for project location Chiradzulu. Hence, the information presented below is not representative for the wider project. The selected indicators provide information on the yield in kg of in-shell groundnuts. Interpretation of these results is difficult however and should be treated with caution.

M&E data indicates that in Chiradzulu a significant increase in production has been realised between 2015 and 2018 (Figure 12). Furthermore, from this figure, it can be observed that an increasing share of the yield came from CG7 in-shell groundnuts. According to project documentation, yields for groundnuts should be somewhere between 1,000 and 2,000 kg per hectare. Considering the average plot size of project farmers in Chiradzulu (Figure 12, Figure 13), the average yields realised in 2017 and 2018 still were substandard. At least in 2017 and 2018, the reported plot size dedicated to groundnut variety CG7 was similar to the reported average plot sizes (according to M&E data, see Figure 13).

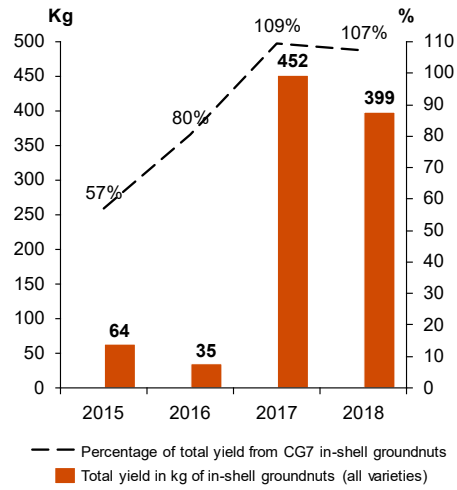

Figure 12: Yield from in-shell (CG7 and total yield from all varieties) groundnuts (Chiradzulu)

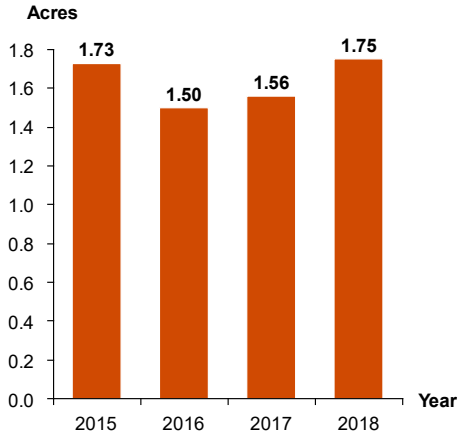

Figure 13: Size of plot (average values) in acres (Chiradzulu). One acre = 0,40 ha.

(Intermediate outcome) Increased supply

The project aimed to link smallholder farmers to Afri-Oils Ltd. A total of 48,400 smallholder farmers would become (or remain) a supplier of Afri-Oils Ltd. The project expected that within six years after the inception of the project, 70% of DAPP Malawi farmers would sell high-quality groundnuts (visually looking well, confirmed by random aflatoxin tests) to Afri-Oils Ltd. with a 50% reduction of down-grades. No specific targets were set for the other involved organisations, NASFAM, and Exagris Africa Ltd., in terms of their farmers' supply to Afri-Oils Ltd.

M&E data is not specific nor consistent about the supply of project farmers to Afri-Oils Ltd. Table 3 indicates the supply of groundnuts from project farmers to Afri-Oils Ltd. between 2015 and 2020 based on the available data. The project had little insight in total production of groundnuts by the various project farmers (DAPP Malawi, Exagris Africa Ltd., and NASFAM). As such, it is unclear to what extent farmers sold their produce to Afri-Oils Ltd. or to other buyers.

Year	DAPP Malawi – Chiradzulu	DAPP Malawi – Dowa	NASFAM	Exagris Africa Ltd.
2015	Unk.	Unk.	Unk.	Unk.
2016	0 MT[146]	Unk.	Unk.	Unk.
2017	0 MT[147]	193 MT[148]	151 MT[149]	640 MT[150]
2018[151]	0 MT[152]	238 MT	Unk.	Unk.

[146] Produce (10 MT NIS) was sold to other buyers than Afri-Oils Ltd.
[147] Produce (36 MT NIS) was sold to other buyers than Afri-Oils Ltd.
[148] 189 MT NIS, four MT shelled. The project intended to buy a total of 1,000 MT from DAPP Malawi farmers in Dowa. However, Afri-Oils Ltd. management decided that due to changed market circumstances this amount needed to be significantly lower. Reportedly, the project contributed to identifying other buyers and farmers could sell all produce to these alternative markets.
[149] 133 MT NIS, 19 MT shelled (total production: 1,000 MT).
[150] 632 MT NIS, 8 MT shelled (total production: 587 MT).
[151] In 2018, a total of 917 MT NIS was purchased by Afri-Oils Ltd. from Project farmers. Furthermore, it is reported that this number includes the purchase of NIS from non-project farmers. Since reporting is not specific, it is not possible to differentiate between NASFAM, Exagris Africa Ltd. and non-project farmers.
[152] Produce (12.5 MT NIS, 5 MT shelled groundnuts) was sold to other buyers than Afri-Oils Ltd.

2019	0 MT[153]	0 MT[154]	Unk.	Unk.
2020	Unk.	Unk.	Unk.	Unk.

Table 11: Supply from project farmers to project partner Afri-Oils Ltd.

From Table 11 it can be observed that out of the 2,400 smallholder farmers from Chiradzulu who were selected and trained, none have been able to supply produce to Afri-Oils Ltd. between 2015 and 2020, whereas the project partner upfront did express its interest in buying groundnuts from these farmers. Project farmers from Dowa have only sold their produce directly to Afri-Oils Ltd. in 2017 and 2018, according to M&E data. In 2019, none of the DAPP Malawi project farmers (tracked in M&E data) sold produce to Afri-Oils Ltd.[155]

Private sector development outputs

(Output) Facilities established or expanded, Processing machinery and instruments procured/installed

The project aimed to increase and diversify the groundnut processing capacity of project partner Afri-Oils Ltd. through infrastructure investments. Table 12 lists the main investments indicated in the project plan.

Infrastructure investment	Purpose	Overall target
1. Establishing a purpose-built factory, office, and warehouse space	Enhancing factory operations; eliminating the risk of rental agreement termination	Increase of diversified groundnut processing to over 20,000 MT per year within ten years (in 2024)
2. Installing a groundnut shelling machine and a colour/laser sorter	Increasing processing capacity; increasing efficiency of manual quality-control (hand-picking conveyors)	
3. Installing a pressing plant to produce groundnut oil and cake for animal feed	Establishing a commercial possibility to cope with so-called 'grade-outs'	
4. Installing a roaster (blanching machine) and a paste grinder	Diversifying production possibilities	

Table 12: Infrastructure investments Going Nuts (project plan)

Afri-Oils Ltd. staff would be trained in operating and maintaining the processing equipment procured through the project. In addition to the investments listed in Table 12, the project intended to procure aflatoxin lab instruments. The overall investment in Afri-Oils Ltd.'s infrastructure was estimated at close to €1.8m (61% of the project budget). The project plan indicates that, in terms of processing equipment, the procurement of an oil pressing machine would require the largest investment (estimated at €380,000).

Overall, from project documentation, it is our impression that the project has successfully expanded and diversified Afri-Oils Ltd.' processing infrastructure, allowing the company to process larger volumes of groundnuts, to meet processing standards required by markets, and to realise product diversification and handling of grade-outs. Below, we provide a description of the hardware investments that have been realised and how these have contributed to improvements in the hardware infrastructure of project partner Afri-Oils Ltd.

In 2015, the project finished the design and engineering plan for a new, purpose-built factory. A tender with four, reportedly reputable, local construction companies was carried out by the project. The project entered a contract for the construction of the new factory building with an estimated construction period of nineteen weeks and an initial contract value of ~€650,000. Furthermore, project documentation indicates the following machines were procured, installed, and made operational in 2015.

[153] According to project documentation, Afri-Oils Ltd. did not buy any produce directly from project farmers (DAPP Malawi, Chiradzulu) in 2019. Only traders supplied to Afri-Oils Ltd.
[154] According to project documentation, Afri-Oils Ltd. did not buy any produce directly from project farmers (DAPP Malawi, Dowa) in 2019. Only traders supplied to Afri-Oils Ltd.
[155] Possibly, these farmers did sell to Afri-Oils Ltd. through a vendor.

Year	Hardware specifications	Size of investment	Owned by
2015	Reinartz Screw Press; Oil Cooling and Filtration System; Seed Feeding; Cleaning and Cake Bagging System; Oil Storage Tanks; Various Accessories	~€350,000	Afri-Oils Ltd.
2015	Sortex Model A2 Multivision Colour Sorting Machine	~€165,000	Afri-Oils Ltd.

Table 13: Infrastructure investments Going Nuts (2015)

Project documentation states that in 2016, the electronic colour sorting machine (listed in Table 12) already had significantly improved the operational efficiency. In 2016, the project started the construction of a new factory building. Delays in construction are reported, because of rain, supply chain disruptions and other reasons. Additional investments in hardware and machinery took place (Table 14).

Year	Hardware specifications	Size of investment	Owned by
2016	Air Dryer for Sortex; Uninterrupted Power Supply (UPS) for Sortex; Frame and inlet hopper for Sortex; Swivel elevator to feed Sortex including holding/feeding hopper; Necessary accessories for blanching machine; Vibrating screen conveyor machine	~€170,000	Afri-Oils Ltd.

Table 14: Infrastructure investments Going Nuts (2016)

In March 2017 the official opening of the new factory took place. All existing equipment and machinery from the previous factory location was moved to the new factory and was fully functional in the new premises by that date. Project documentation indicates the new factory building offers more space, makes the factory operations more comfortable for employees and more efficient for the company in general. The new factory has been partitioned into a 'dirty' area, where ungraded raw materials is kept and into a 'clean' area where processing takes place and finished products are stored awaiting shipment.

In 2017, additional hardware investments took place (Table 15). According to project documentation, existing sizing equipment of Afri-Oils Ltd. could not meet the European and South African sizing standards.[156] Therefore a new sizing machine was required, that would make sizing more precise and acceptable to buyers in South Africa and elsewhere. Furthermore, the project purchased, amongst others, a de-stoner[157], a pre-cleaning system[158] and a bagging-off system[159]. In addition to these investments, the project acquired a weighbridge (to obtain gross and tare weight at the factory, thereby increasing product control efficiency) and a fifteen-MT truck to transport groundnuts from project farmers in various outlying areas to the Afri-Oils Ltd. factory. It is reported that, to ensure reliable supply of groundnuts to the Afri-Oils Ltd. factory and to save transport cost, the company should no longer depend on hired transport and therefore required to procure a truck.

Year	Hardware specifications	Size of investment	Owned by
2017	Cleaning and shelling equipment (sizing equipment, de-stoner, pre-cleaning system, bagging-off system, shelling equipment, diesel generator)	~€100,000	Afri-Oils Ltd.
2017	15-MT truck (TATA)	~€50,000	Afri-Oils Ltd.
2017	Weighbridge	~€40,000	Afri-Oils Ltd.

Table 15: Infrastructure investments Going Nuts (2017)

[156] The existing equipment allowed for the production of the following sizes (kernels per ounce): 30/40, 40/50, 50/60 and crushing (broken and very small nuts). It is reported in documentation that 'the mix of 50/60 sizes together with smaller nuts' is not accepted in the South African and European market.
[157] A de-stoner can prevent stones from remaining in the product. Reportedly, an export shipment to an Afri-Oils Ltd. client in South Africa was partly rejected because stones and other foreign materials were found in the groundnuts.
[158] In addition to the de-stoner, this additional equipment can further improve the pre-cleaning of farmer stock in order to remove as much foreign material (sticks, shells, stones, maize and soya kernels etc.) as possible.
[159] The bagging-off system would replace a bucket elevator at the end of manual grading tables, causing more splits.

Project documentation indicates that these investments have, indeed, allowed Afri-Oils Ltd. to produce properly cleaned, sized, and graded groundnut products as required by customers in the region. Reportedly, an Afri-Oils Ltd. client in Zimbabwe managed to increase yields (peanut butter per ton of raw nuts) by 18% through purchasing cleaned, sized, and graded groundnuts from Afri-Oils Ltd. According to the 2017/2018 progress report, the weighbridge has increased the logistical efficiency and stock control significantly and the fifteen-MT truck would have given the company 'excellent service and flexibility' for transport of groundnuts from outlying areas.

In 2018, the project obtained new groundnut roasting equipment. Reportedly, the existing roaster was inadequate for producing high-quality blanched or roasted nuts for either pasting or sale for confectionary purposes (salted or coated nuts). Furthermore, a shelling shed was built to protect equipment and stock from the rain. Through the project, a company canteen was opened in May 2018. Reportedly, this contributed to a controlled and hygienic way of working.

Year	Hardware specifications	Size of investment	Owned by
2018	Roastech Roaster	~€75,000	Afri-Oils Ltd.

Table 16: Infrastructure investments Going Nuts (2018)

According to project documentation, in 2019, the project further improved the operational efficiency of the Afri-Oils Ltd. factory. Standard Operating Procedures (SOPs) were documented in a manual and employees familiarised themselves with new processes and data collection requirements. Data collection templates were designed and implemented, allowing Afri-Oils Ltd.' management to track important operational KPIs. Furthermore, project documentation indicates that process monitoring procedures (raw-material inspections, aflatoxin testing procedures, amongst others) were put in place and system monitoring procedures (internal audit, document control, etc.) were updated accordingly. Reportedly, grade-out rates could be kept low in 2019 in part due to improvements on the processing side.

In 2019, Afri-Oils Ltd. procured additional aflatoxin testing equipment. Reportedly, Afri-Oils Ltd. intensified its aflatoxin testing by increasing the number of tests from one test per every 4 MT groundnuts in 2018 to one test per every 1 MT groundnut in 2019.

Year	Hardware specifications	Size of investment	Owned by
2019	Aflatoxin testing equipment	Minor	Afri-Oils Ltd.

Table 17: Infrastructure investments Going Nuts (2019)

Project documentation indicates the project continued the process optimisation at the Afri-Oils Ltd. factory in 2020. Reportedly, the company further improved process efficiency by streamlining product flow and optimising storage and handling of groundnuts. Afri-Oils Ltd. continued aflatoxin testing in 2020, although at a lower intensity compared to 2019 (one test per two MT of groundnuts). Reportedly, Afri-Oils Ltd. performed over 1700 aflatoxin tests in 2020. In 2020, the quality of stock was lower with only 30% of the aflatoxin test results falling within specification[160].

In 2020, the project's last hardware investments took place. Afri-Oils Ltd. procured two forklifts (reducing physically demanding labour) and digital platform scales (increasing transparency of stock and stock movement).

Year	Hardware specifications	Size of investment	Owned by
2020	Two forklifts	~€30,000	Afri-Oils Ltd.
2020	Digital platform scales	~€9,000	Afri-Oils Ltd.

Table 18: Infrastructure investments Going Nuts (2020)

[160] Possible explanations provided in project documentation include: the higher volumes purchased 2019, less good rainfall in March 2019 and the shift in the balance of purchases towards Chalimbana-variety groundnuts that year.

Afri-Oils Ltd. furthermore procured Aflasafe in 2020. Aflasafe is a bio-control product which, reportedly, drastically reduces aflatoxin in crops. Aflasafe was included in trials at certain farmers' field.

(Output) Information channels established

The project envisioned to establish permanent availability of dissemination channels for information through its farmer-to-farmer training approach. According to the project plan, Afri-Oils Ltd. would have a permanent interest to feed into the projects' information channels to ensure quality and quantity of supply. From project documentation it is our impression that through-out the project, Afri-Oils Ltd. indeed has been involved in knowledge building, mainly through its contribution to the trainings conducted by the project. Functioning of the information channels furthermore is limited however, as further described below.

Several initiatives, in cooperation with organisations such as The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), The Partnership for Aflatoxin Control in Africa (PACA), the International Institute of Tropical Agriculture (IITA), and the Feed the Future Innovation Lab for Peanut research have been launched to increase the knowledge of producers in the fields of groundnut management and aflatoxin mitigation.

Private sector development outcomes

(Short-term outcome) Reliable market relationship (farmer-processor linkage) is built up

The project aimed to build up a regular and reliable market relationship, by facilitating cooperation between Afri-Oils Ltd. and project farmers. This would enable targeted smallholder farmers to become linked to (high value) markets. By engaging smallholder farmers as suppliers of Afri-Oils Ltd. (inclusive business), the project sought to generate positive social impact through improved income and livelihood opportunities.

Overall, the project has not been successful in realising a sustainable farmer-processor linkage between project farmers and project partner Afri-Oils Ltd. In 2016, it is reported that there was no logistical plan in place to handle supply offered for trade by DAPP Malawi farmers in Chiradzulu. The project therefore planned to work on a structural solution for this issue. However, no economically feasible solution could be found. Project documentation suggests that, towards the end of the project (beginning of 2019), a farmer-processor linkage between other project farmers and Afri-Oils Ltd. was neither built up.

This may be explained by several reasons, mentioned in project documentation: (1) high costs because of persisting inefficiencies (limited or no aggregation of supply because of limited trust both within farmer groups and between farmer groups and Afri-Oils Ltd.) (2) safety concerns (Afri-Oils Ltd. buying teams, therefore, having to travel with large amounts of cash money), (3) concerns over the possibility to enforce contracts (rule of law is perceived as weak) with project farmers. Project documentation furthermore suggests that, at least up to 2019, Afri-Oils Ltd.' its demand for quality groundnuts could not be satisfied by project farmers. In 2019, it is reported that considerable quality improvements in production by project farmers are required. Reportedly, without these improvements, it would be "difficult to argue for the more complicated and more expensive model of buying from smallholder [farmers] directly". Besides, competition of Afri-Oils Ltd. with vendors buying ungraded groundnuts (potentially of inferior quality) at similar prices has caused side-selling in large quantities, creating unfavourable market circumstances for building up a reliable relationship between Afri-Oils Ltd. and project farmers. Competition with informal exports from East Africa is considered a worrisome problem.

Beginning of 2019, Afri-Oils Ltd. considered broadening its supplier base towards including more commercial farmers to meet the quality criteria of the company[161]. A three-tiered supplier base (depicted in Figure 14) with ranging qualities for different markets then is envisioned by the project partner. It does not become clear from project documentation if this model has been implemented, nor what this would mean for project smallholder farmers (as far as they were involved as a supplier to Afri-Oils Ltd.).

Reportedly, in 2020, interviewed farmers felt that Afri-Oils Ltd.' contracts were issued late in the season (only just before the buying season or during the buying season), that markets were provided later than other buyers did, and that Afri-Oils Ltd. was offering comparatively low prices – resulting in an environment incentivising side-selling prior to aggregation. The competition with local traders and informal exporters from East-Africa,

[161] It is mentioned that if Afri-Oils Ltd. were to work more with commercial farmers, it would be easier to supervise groundnut management practices applied and to make use of the potential of commercial farmers for drying and irrigation.

offering similar or higher prices, again is explicitly mentioned as a bottleneck in building ties with farmer groups and established cooperatives.

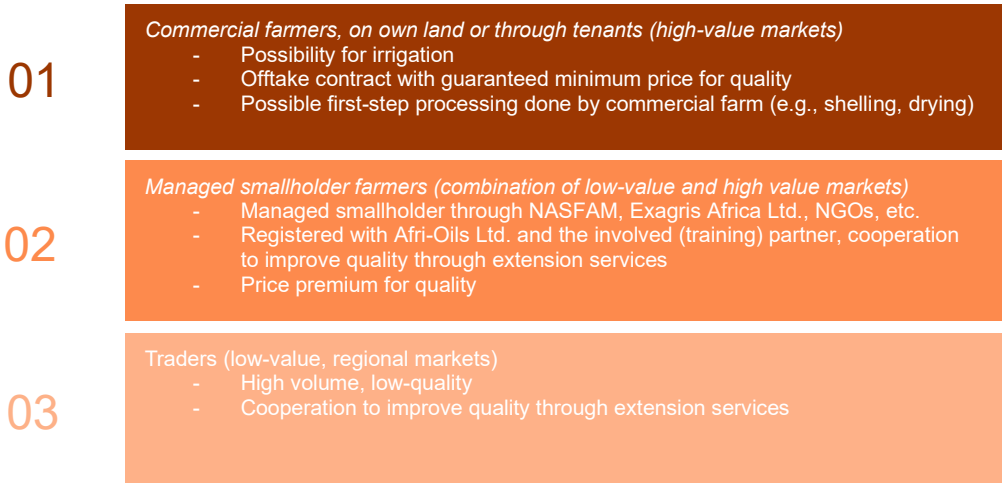

Figure 14: Envisioned three-tiered supplier base model (Afri-Oils Ltd., 2019)

(Intermediate/long-term outcome) Improved (import) market access and development

The project intended to increase the production of groundnuts with aflatoxin levels up to ten ppb, for export primarily to the South-African market, and with aflatoxin levels below twenty ppb for domestic sales to increase access to safe groundnuts and peanuts. The project aimed to realise sales reaching 20,000 MT in year ten. The expected split, domestic/export, was expected at 50/50, thereby contributing to increasing the foreign exchange reserves of Malawi. Afri-Oils Ltd. would have a share of 10% of national production (of est. 200,000 MT) in 2024. Product diversification would be realised through the production of groundnut cake (6,000 MT) and groundnut oil (4,000 MT).

Groundnut processing by Afri-Oils Ltd. increased significantly between 2015 and 2018. In this period, processing increased from less than 300 MT in 2015 to around 1,500 MT of groundnuts in 2018. From Figure 15, a production decline can be observed in 2018 and 2019. Company records from 2020 (July 2020 to February 2021) suggest production returned to higher levels in 2020. Figure 16 indicates Afri-Oils Ltd. was not able or willing to process the larger volumes procured in 2017 and 2018, leaving the company with a significant stock of unprocessed groundnuts. In the project plan (2012), a production prognosis from 2,000 MT per year to 20,000 MT was envisioned. This suggests that production only returned to levels comparable to 2012. Reaching the target set in any case seems out of reach, given the factory's current processing capacity of 7,000 MT per year[162]. The project has been somewhat effective in realising product diversification at Afri-Oils Ltd., according to project documentation. In 2017, Afri-Oils Ltd. managed to produce limited amounts of groundnut oil and groundnut cake.[163]

Company records suggest Afri-Oils Ltd. indeed gained access to export markets. At the start of the project, in 2015, Afri-Oils Ltd. only sold groundnut products to domestic clients. Figure 17 indicates exports by Afri-Oils Ltd. increased over the project period, from 56 MT in 2016 to 1,670 MT in 2020[164]. According to project documentation, the project has been successful in diversifying the company's customer base and in accessing new regional markets (as can be observed from Figure 17). These mainly concern low-enforcement countries, with less strict regulations on aflatoxin levels. For example, in 2020, 35% of the volume sold was on the South African market (high enforcement), compared to 65% on the domestic and Zimbabwean market (low enforcement). Still, it has been reported that Afri-Oils Ltd. is one of the few businesses formally exporting groundnuts from Malawi to high-value markets. Further context to Figure 15, Figure 16 and Figure 17 is provided in the following chapters.

[162] The reported capacity of the Afri-Oils Ltd. factory in 2019 was at around 7,000 tonnes per year. Since most infrastructure investments have taken place prior to 2019, we assume that the current capacity is similar to the capacity reported in 2019.
[163] In April 2022, approximately 20% of the processed groundnuts was used for groundnut oil and groundnut cake production.
[164] Total export sales between July 2020 and February 2020.

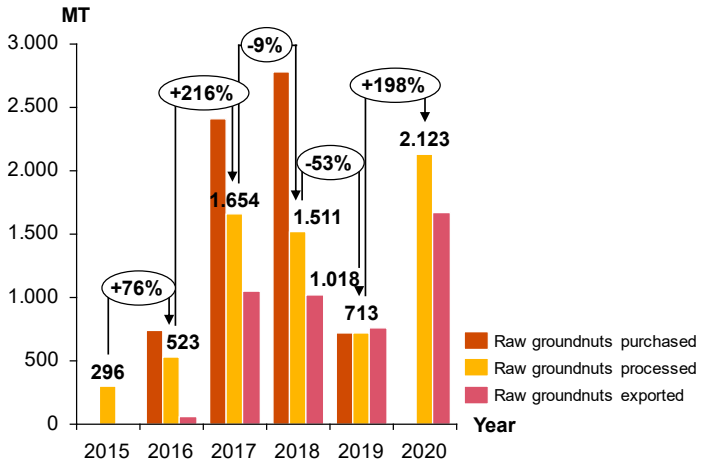

Figure 15: Afri-Oils Ltd. purchasing, processing and export figures (2015-2020)

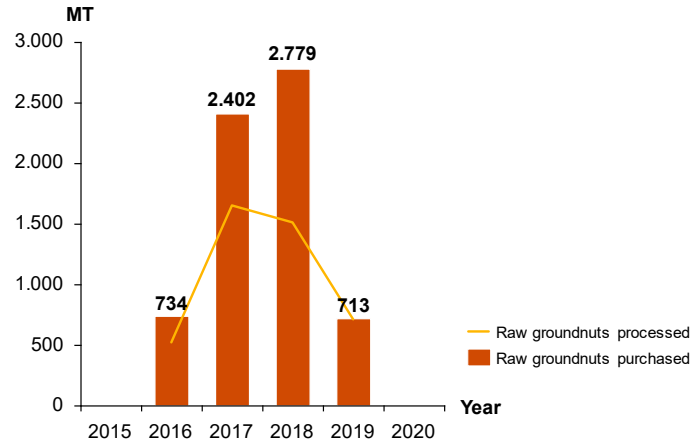

Figure 16: Afri-Oils Ltd. purchasing and processing figures (2015-2019)

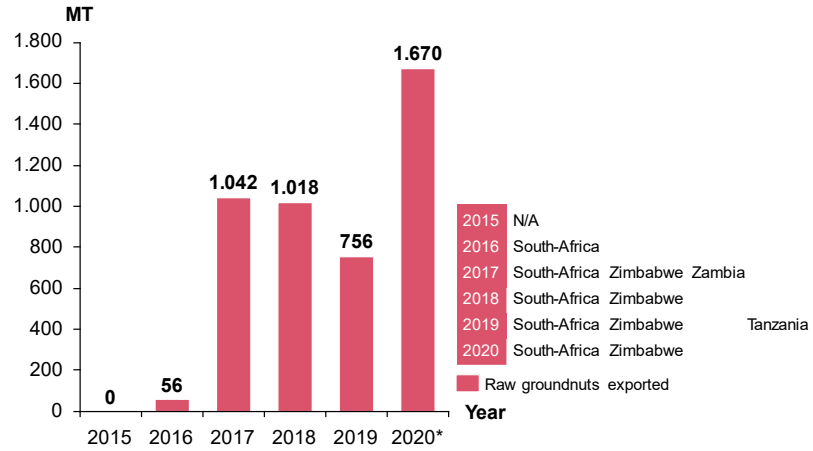

*Figure 17: Afri-Oils Ltd. export figures (2015-2020) *Total export sales between July 2020 and February 2020*

In 2015, Afri-Oils Ltd. processed approximately 300 MT of raw groundnuts. Working capital restraints restricted the company from purchasing larger volumes of groundnuts. Twelve MT of groundnuts were blanched and roasted for further processing into paste by one of the company's buyers producing Ready-to-Use Therapeutic Food (RUTF)[165]. All processed groundnuts were sold on the Malawian market. In 2015, no groundnut oil or groundnut cake were produced.

In 2016, AgDevCo, a UK-based social impact investor, joined Afri-Oils Ltd. as a shareholder taking up 20% of equity. AgDevCo committed to providing a loan for working capital. This allowed Afri-Oils Ltd. to purchase over 700 MT of groundnuts in 2016. 523 MT groundnuts were processed, 56 MT of which were blanched and roasted and sold for manufacturing of RUTF. Afri-Oils Ltd. sold approximately 200 MT on the domestic market and 56 MT on the South-African market, leaving the company with approximately 80% of the processed nuts as stock on hand (57% of the groundnuts purchased). In 2016, no groundnut oil or groundnut cake were produced.

During 2017, Afri-Oils Ltd. purchased a total of 2,402 MT of groundnuts. 1,654 MT was processed. Afri-Oils Ltd. successfully gained access to new regional markets in 2017, according to project documentation. Approximately 63% of the total production (1,042 MT) was exported, of which 86% went to Zimbabwe, 8% to South Africa and 6% to Zambia. Exports to South Africa turned out lower than expected[166]. As in previous years, Afri-Oils Ltd. sold blanched and roasted nuts to a local company manufacturing RUTF (sixteen MT). 260 MT of raw groundnuts were sold on the domestic market. The project intended to produce 6,000 MT of cake and 4,000 MT of groundnut oil, requiring the purchase of at least 10,000 MT of raw groundnuts. Reportedly, in 2017, groundnut oil prices (internationally and locally) could not absorb these costs. Consequently, Afri-Oils Ltd. only produced small amounts of groundnut oil (100 MT) and groundnut cake (230 MT).

In 2018, Afri-Oils Ltd. purchased almost 2,800 MT of groundnuts. Approximately 1,500 MT of raw groundnuts were processed, leaving the company with significant amounts of unprocessed groundnuts in stock. 1,018 MT of raw groundnuts were exported, like the previous year mainly to Zimbabwe (97%) and to South Africa (3%). 100 MT were sold domestically, 30 MT of which were used for manufacturing RUTF. Project documentation indicates that, in 2018, exports to Zimbabwe slowed down due to shortages of foreign exchange currency caused by political and economic turmoil. The company experienced strong competition with informal traders in selling to countries north of Malawi in which aflatoxin limits do not exist or are not adequately enforced. In 2018, no groundnut oil or groundnut cake were produced. Project documentation indicates that, in 2019, Afri-Oils Ltd. diversified its customer base (from one major customer in 2018 to seven customers in 2019) and gained access to a new regional market (Tanzania). The company purchased significantly less groundnuts (around 700 MT) compared to previous years and compared to its target for that year (3,500 MT), mainly due to working capital restrictions[167]. A total of 756 MT was exported, including some stock. In 2019, no groundnut oil or groundnut cake were produced.

In 2020, Afri-Oils Ltd. exported a total of 1,670 MT to Zimbabwe and South Africa. Approximately 450 MT of raw groundnuts were sold locally. In 2019 and 2020 Afri-Oils Ltd. did not sell blanched or roasted nuts, as its (seemingly) only customer for this product had (temporarily) closed its doors. In 2020, no groundnut oil or groundnut cake were produced.

(Intermediate outcome) Jobs created

The project intended to create 30 jobs under good labour conditions at Afri-Oils Ltd. In the project plan, no specific targets for how to achieve employment creation were determined.

Progress reports provide an indication of the staff numbers by Afri-Oils Ltd.[168]. However, from project documentation, the gender split for staff working at Afri-Oils Ltd. does not become clear for all years. The same is true for the distribution of staff numbers over permanent and temporary contracts (casual work). Available data does not allow to make a (reliable) comparison of average income by sex. It does not become apparent from project documentation if jobs created by Afri-Oils Ltd. were taken by people previously employed elsewhere (job substitution).

[165] An international non-government organisation regularly bought RUTF from this buyer for treatment of severely malnourished children.
[166] Possible explanations are provided in project documentation: a higher-than-expected local harvest in South Africa, large stocks of groundnuts in the market from the previous season offered at very low prices and a slow-down in South African exports due to high comparative prices levels of South African groundnuts.
[167] Working capital restrictions caused a delay in the timing of buying by Afri-Oils Ltd. As a result, reportedly, smallholder farmers had already sold their groundnuts to local vendors when Afri-Oils Ltd. started buying.
[168] It was not possible to verify the employment data that was (self-)reported by the project. Employment data from 2020 was not available.

The project has served as a driver for job creation through firm expansion (see Figure 18). However, it can also be observed that (large) lay-offs took place. Hence, job stability seems to be rather poor (a high number of employees with a lay-off risk). Overall, it is our impression that management and qualified jobs remained with male employees, whereas lower-paid and temporary work has been carried out mainly by female employees.[169] We have not come across documentation pointing towards higher-than-average working hours, safety and health concerns, discrimination, or unacceptable forms of work.

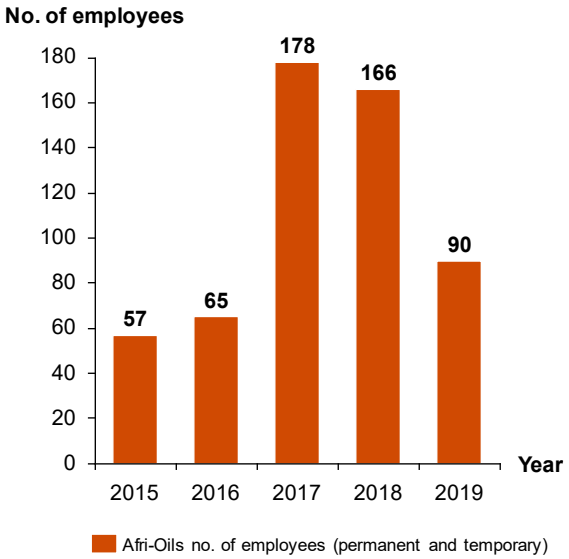

Figure 18: Afri-Oils Ltd. employment (2015-2019)

Project documentation does not provide convincing evidence about the impact of the project on beneficiaries, nor does M&E data.

From M&E data, a limited number of relevant indicators at the impact-level can be identified. These indicators are only available for project location Chiradzulu. Hence, the information presented below is not representative for the wider project. Selected indicators provide information on (1) annual income in Malawian Kwacha (MKW), (2) the percentage of respondents with an iron roof sheet, (3) the average number of meals consumed per day and (4) the average number of months in which the respondent had access three meals or more per day. Interpretation of these results is difficult however and should be treated with caution.

M&E data suggests household welfare of project farmers in Chiradzulu, as indicated by the annual income, house roof material, number of meals per day consumed, number of months with access to three meals or more per day, has increased between 2015 and 2018. It is not possible to attribute the observed changes to the project, since these changes are open to multiple, complex influences and not self-contained. From project reporting, the contribution of the project to the observed improvements is uncertain.

Key Informant Interviews

From conversations with project partners and stakeholders, it follows that the project has been effective in several areas in reaching outcome and impact objectives. Although it has turned out to be impossible to track 50,000 participating farmers, improvements at farmer level (through involving smallholder farmers in the project) and at the level of the groundnut sector (as a result of local infrastructure investments) have been reported.

[169] For example, in 2015, 2016 and 2017, Afri-Oils Ltd. its management and other qualified positions were occupied by respectively five, four and eight male employees compared to two, two and one female employee(s). In 2017, Afri-Oils Ltd. employed permanent and temporary factory workers of which, respectively, 39 male and 30 female and eleven male and 35 female employees. Cleaning work was only performed by female employees.

Training and adoption of Good Agricultural Practices

Overall, it is difficult to draw conclusions about the effectiveness of the training efforts of the project from the Key Informant Interviews. During the project, training sessions targeted at smallholder farmers were organised. Sessions were aimed at a broad range of topics. The practices taught by the project have been confirmed as relevant ('best practices') by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT). These include practices for dealing with drought or moisture stress, drying techniques, sorting, grading, harvest practices and post-harvest storing solutions. According to a RVO.nl project advisor, these trainings have led to a significant increase in the production and yield of groundnuts produced by smallholder farmers, mainly through the introduction of the agricultural technique *double row planting*.

In addition to imparting knowledge about groundnuts, several respondents have indicated that the trainings provided by the project also have caused a network effect. The effectiveness of knowledge transfer and information from farmer to farmer in the Malawian context has been confirmed in a conversation with the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT). However, quality of the information spread through social networks may reduce over multiple instances, as may the access to suitable equipment and the right variety of seeds. In addition, the membership of associations usually is fluid.

A project partner furthermore explained that the project has narrowed the knowledge gap. It was reported that farmers are still using and practicing the skills they have learned in the training courses within the project. Now that the project has ended, farmers are 'on their own', but reportedly they 'know what to do and what is best for them'. Awareness about the risks associated with aflatoxin exposure however remains a concern. It has been mentioned that project farmers were asked control questions via an SMS-tool to determine whether their knowledge of aflatoxin had increased, and this indeed turned out to be the case, says a stakeholder of the project. At the same time, it has been hypothesised that since aflatoxin contamination cannot be observed from the outside of a groundnut, some farmers perceive the severity of exposure to aflatoxin as weak.

Collecting data from participating farmers

In the project, data from individual farmers was collected using an SMS-tool. Field staff, employed by DAPP Malawi, were responsible for collecting the data. Field officers entered the data on a device made available to them through the project. At an aggregated level, the data was checked by DAPP Malawi headquarters' staff. However, data was mainly collected in Chiradzulu district and to a lesser extent in Dowa. In addition, almost no data was collected from NASFAM and Exagris Africa Ltd. farmers since field workers from these organisations were not trained to use the data collection tool. As a result, M&E data has practically only been available from project farmers in Chiradzulu.

Quality of production

The project has taken a critical step towards managing the quality of groundnuts, says a partner of the project. The project conveyed key messages that started to make an impact over time, such as selling unshelled instead of shelled groundnuts[170], Afri-Oils Ltd. confirms. Yet another stakeholder of the project indicates that the quality still is variable. A field visit by RVO.nl revealed that progress in some project areas was lagging behind the desired situation. In the northern project locations, fields were in a better condition than in the south.

Stakeholders mentioned that aflatoxin levels have probably decreased. At the same time, it has been explained that during the project it was found that farmers or traders add water to the (shelled) groundnuts to increase the weight of the product. By doing so, farmers or traders try to increase the market value. However, this practice was said to lead to an increase in the aflatoxin levels.

Aggregation of produce and selling to Afri-Oils Ltd.

During the project, aggregation of produce has turned out as a challenge. According to a project partner, the project did not provide sufficient opportunities for community-level aggregation. Existing aggregation centres did not meet the requirement to properly store groundnuts. This has led farmers to other warehouses or to

[170] At first, project farmers did not believe that they would get the same value from unshelled groundnuts as from shelled ones. Farmers allow their way of thinking to be influenced by the economy, but the groundnut market has changed; more shelled nuts are traded instead of previously unpeeled nuts. Reportedly, when it comes to aflatoxin contamination, the percentage of groundnuts that are within specification are around 40% for unshelled groundnuts, 85% for shelled groundnuts.

travel long distances to reach an intermediary. The lack of aggregation centres in the project is considered a major loss.

From interviews it is our impression that there has not been a direct link between farmers that have been trained and the farmers that project partner Afri-Oils Ltd. has bought from. Project partner Afri-Oils Ltd. explained that the project did not keep track of (individual) farmer performance and that, from the side of Afri-Oils Ltd., there has not been "capacity, desire or ability to track that kind of information". Afri-Oils Ltd. did target areas where trainings had been implemented. It has been explained that Afri-Oils Ltd. currently however is working with one aggregator[171], buying from individual farmers. These are not necessarily project farmers, and in general individual farmers and not cooperatives. Still, project partners estimate that at least 10% of Afri-Oils' purchases were made through the cooperatives involved in the project.

It was envisioned that farmers would benefit from the investments in Afri-Oils Ltd. Generally, however, project farmers sell to readily available markets and not to project partner Afri-Oils Ltd. as intended. Project partners have stressed this was not for the "want of trying", indicating that many smallholder farmers choose to use the informal route to market, because it is convenient, quick, simple and makes little demands on them. Via these routes, smallholder farmers reportedly are not questioned on poor agricultural practices (such as wetting nuts before shelling) and are actually often encouraged to do so as a means to present nuts in a better way (at least initially). Project partners have also stressed that smallholders are drawn by high prices offered on the informal market[172]. It has also been mentioned that due to the low purchase volume, transport could not be organised cost efficiently (particularly true for project location Chiradzulu). This is referred to as a disappointing result. Also, in some years, project partner Afri-Oils Ltd. experienced difficulties due to limited access to working capital. This has resulted in fewer, or no nuts being bought from smallholder farmers for one or more years. However, it was estimated by a project partner that this did not affect project farmers, since farmers still had the option to sell to other buyers. The other way around (as also mentioned earlier), it has turned out that it is difficult to ensure that smallholder farmers involved by the project eventually also sell their produce to Afri-Oils Ltd.

It has been mentioned by a respondent that groundnut buyers increasingly are approaching smallholder farmers before the harvest season. Reportedly, these buyers are only interested in volumes and not quality (as also mentioned by project partners). It was mentioned that, since farmers often prefer 'quick money', any period between harvest and purchase will be used by farmers to sell to parties outside of the project. Aggregators then get 'onto the ground' very quickly, as was explained by another respondent. This largely is an institutional problem. As a project partner explained: "Farmers involved in the project are still growing and selling groundnuts. However, in general, [project] farmers are selling to immediately available markets. There are some big buyers (aggregators and 'middlemen') active in the market, who do not care about quality of supply, nor about appropriate processing. These buyers package the nuts and then export to regional markets, without performing quality tests. The outlet goes to markets such as Zimbabwe, Zambia, Burundi, and Kenya. [Respondent] stresses this is a disappointing result to him, as in this way there is hardly a benefit from the training efforts of DAPP Malawi in relation to the project farmers."

It has also been mentioned that the price offered by Afri-Oils Ltd. to farmers was on the low side, even when the quality of production had improved. This also has led to parallel sales and had consequences for the membership of established associations. It has been stressed by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) that incentives are needed to make farmers resist aggregators (middlemen in particular, not all aggregators per se). These could be price incentives; reportedly, the groundnut is not a low-cost crop per se.

Private sector development

Positive effects in terms of factory expansion and job creation have been mentioned by several respondents. It has been explained that, because of the infrastructure investments that have been realised through the project, more value can now be extracted from the primary product. Also, groundnuts that do not meet quality standards now can be used to process groundnut oil or groundnut cake. Oil (free of aflatoxin) is sold for consumption and groundnut cake is sold to livestock farmers to feed cattle. On paper, the concept of primary processing is an enabler for economic development. In practice however, groundnuts produced and processed in Malawi remain

[171] In previous years, with around eight aggregators.
[172] Reportedly, as a result of informal traders purchasing MKW (using USD) at an exchange rate which is significantly higher than the official rate at the bank

difficult to export and often end up on local or regional markets. Provided that the local market still has a lot of influence on the value chain, groundnut prices have remained volatile.

It has been mentioned that, although there is no easy route to export markets, the project would have been successful in bringing in the realisation that Malawi can produce groundnuts low in aflatoxin levels that can be traded on the world market. It can be a good alternative to tobacco. “Thus, the impact story is wider than Afri-Oils Ltd. or this project in itself. Malawi is back on the map, and other players are there now to participate”, says a respondent involved in the project.

Focus Group Discussions

The FGD results allows us to make community-level observations relevant to the supply side pathway of the project Theory of Change (ToC).

In this chapter, we follow beneficiary-level project activities based on the Focus Group Discussions in two project locations: Chiradzulu and Dowa.

We can observe that farmers have been reached through various channels, resulting in the participation of (women) smallholder farmers. They have been trained on agricultural practices and on the importance of aflatoxin prevention and mitigation, and they have received high-quality seed varieties.

Groundnut farmers overwhelmingly reported that the most reliable way to market groundnuts is to sell to local vendors. Also, while farmers are trained on improved agricultural practices, farmers spoken with indicate to find great difficulty in putting all of what they have learned into practice:

- High-quality variety seeds rapidly run out as farmers prioritise household consumption and selling of produce over seed retention. They fail to replace these seeds through their seed suppliers;
- Fertiliser and pesticides that would help to improve yield quantity and quality turn out to be hard to access, as they are expensive on the local market;
- The *Mandela Cork* method of drying groundnuts, which should mitigate the risk of aflatoxin, leaves the produce vulnerable to theft. Consequently, some farmers choose to forego this method.

As a result, both the quality of the produce and the quantity of the groundnuts may not have improved as much as hoped. Subsequently, project farmers hardly reported any income improvements. A good share of the project farmers reported to consume 25-50% of their yields themselves, while others harvest so few groundnuts that they consume it all within their households, leaving nothing to sell. Worse still, the groundnuts they eat are at risk of being of suppressed quality (due to seed recycling and lack of helpful inputs) and may carry an aflatoxin risk that is still present.

Local project inception

Project activities at the beneficiary level are reported to have started between 2014 and 2016. NGO extension workers connected to village elders to get in touch with smallholder farmers interested in participating in the project. In Dowa, this resulted in bi-weekly meetings between extension workers where the project was discussed and where first trainings were set up.

From the Focus Group Discussions with farmers, we can observe that the project indeed reached the desired end-beneficiaries. A large share of the farmers involved in the discussions were women farmers. With what appeared to be a large age variety, youth farmers were underrepresented, presumably as they do not (yet) own land that they cultivate.

The farmers spoken with in the Chiradzulu district already were involved in groundnut production years before the project started. They were already *intercropping* groundnuts with crops that include maize, pigeon peas, pumpkin, millet, and cassava. They dedicate approximately 25% of their land to groundnut production, mostly *intercropping* groundnuts with maize. One group specifically explained that maize comes first, and groundnuts only second. The majority of farmers spoken with in this district cultivate one acre, and none more than two. Some rent land from others to cultivate, spending up to MKW 6,000 per year for access to one quarter of an acre in addition to the land they own.

In the Dowa district, farmers in the focus groups typically held three acres of land, with five ha at a maximum. They too were already involved with groundnut production, along with growing maize, pigeon peas and cassava. However, they did not grow groundnuts with the intent to sell them commercially until the Going Nuts project reached out to them.

Training on agricultural practices

Project farmers were trained on agricultural practices. From the Focus Group Discussions, we can observe this has gone quite well. Farmers were trained on how to make ridges to make full use of their land through double-row planting and crop spacing, which should lead to an increase in yield, and which should allow for effective *intercropping*. Farmers were trained in seasonal *crop rotation*, input management, and on how this relates to specific crop varieties. These trainings were delivered by NGO representatives to groups of farmers using demonstration plots.

Farmers reported these trainings to have been very beneficial, and they now consider themselves to be knowledgeable on modern and cost-effective ways of farming. Some of the farmers in Chiradzulu remembered the trainings only passively, after they were mentioned to them.

Aflatoxin awareness

Part of the efforts also focused on educating farmers on the risks of aflatoxin, and on training them on practices that help reduce aflatoxin levels in groundnuts. This also has gone quite well. Farmers reported they were trained on how to store and dry their harvested groundnuts using the *Mandela Cork* method. By heaping the uprooted groundnuts while exposing them to a well-ventilated space where they can dry out, aflatoxin should be combatted.

Farmers also demonstrated their knowledge on what causes aflatoxin levels to increase (e.g., types of seed variety and poor drying and storing methods), and how it can be prevented (e.g., by using the CG7 groundnut variety). Farmers mentioned that aflatoxin has significant health risks and can cause cancer. They reported to pass on this information to other farmers outside of the project during regular conversations.

Both in Chiradzulu and Dowa, some farmers spoken with may appear hazy on the subject of aflatoxin. In one group, the aflatoxin trainings were only mentioned by farmers after an NGO representative appeared to coax them to. In another, the importance of seed varieties was not mentioned as a factor that could help reduce aflatoxin levels. In that same group, health risks associated with aflatoxin were described to include a low sex drive among men.

High-quality seed varieties

The right seed variety can be an important input to improve quality and quantity of groundnut production, and to reduce aflatoxin levels in groundnuts. In the project, farmers reportedly received one or two kg of seeds of the CG7-variety – free of charge. Several challenges were reported concerning this part of the project.

One of the groups in Chiradzulu explained during the Focus Group Discussion that two kg of seed was not enough for the area of land they wanted to sow. They supplemented their stock of seed with locally purchased seeds, and with recycled seeds. They now think this might be a reasons why specific crop diseases keep returning. Another group in the same district used up all CG7-seeds in the first season, selling or consuming all produce. Unable to afford new seeds of any variety, 50% of these farmers recycled the CG7-seeds despite having been instructed not to.

In Dowa, FGD participants pointed out that the CG7-seeds did not always germinate due to erratic agricultural practices. Reportedly, a large share of farmers involved returned the CG7-seeds, deeming them a waste of time.

Challenges and concerns

The farmers in the focus groups mentioned specific concerns related to groundnut production, and specific challenges they face. Main concerns and challenges that were mentioned in focus groups are: heavy and erratic rains damaging crops, diseases and pests damaging crops and reducing their quality, lack of access to and availability of seeds, groundnuts just withering for unknown causes, no proper market to sell groundnuts

on, local vendors offering very low prices, aflatoxin, especially due to heavy rains, Afri-Oils Ltd. defaulting after entering contractual agreements, Afri-Oils Ltd. buying only high-quality groundnuts.

In several Focus Group Discussions, aflatoxin was not mentioned by farmers as in their top-five concerns. One group turned silent when directly asked about aflatoxin as an area of concern, and then proceeded to explain they may have forgotten some of their training.

Harvesting practices

Focus Group Discussions with farmers indicate that, during harvesting, farmers employ the practices they have been trained on. They do so because they appreciate the benefits these practices bring in terms of higher yields and reduced risks to product quality.

Not all the practices are still in use. Some of the focus groups reported that they have stopped employing the *Mandela Cork* method of drying harvested groundnuts, as this method leaves the produce vulnerable to theft. Abandoning this practice affects the extent to which aflatoxin can be mitigated.

Farmers in focus groups reported that they discern between a) groundnuts that they harvest with the intention to consume or sell and b) groundnuts that they discard. Some groups indicated that they discard groundnuts that they consider rotten, while others reported that they discard groundnuts with high aflatoxin levels – although it is unclear how they would identify high aflatoxin levels in freshly harvested groundnuts.

The groups of farmers spoken with in Chiradzulu reported they do not discard of any nuts they harvest. For reasons of poverty bordering destitution, they would rather add poor-quality groundnuts to relish rather than discarding them, grinding these bad nuts into flour.

Groundnut yields

During the Focus Group Discussions in Dowa, farmers reported a current average yield per hectare of 400 to 800 kg of shelled nuts. They also reported that 50% of their harvest is sold, and the other 50% is consumed by their households.

Focus Group Discussions in Chiradzulu paint a different picture. In one group, only one participant has a yield that allowed her to sell produce. Consuming 10% of her harvest, she sold 90% of it at MKW 500 per kilogram of shelled groundnuts, allowing her to buy several goats and pay school fees. All other participants in the Focus Group Discussions harvested only a handful that their household consumed in full, up to twelve and a half kg. Others harvested no groundnuts at all.

Selling groundnuts

Groundnut farmers overwhelmingly reported that the most reliable way to market groundnuts is to sell to local vendors, which practically all do. Local vendors offer prices that are lower than those that could be offered by Afri-Oils Ltd. Farmers reported that they lack a formal market in their community, that they lack access to any formal markets in general, and that they lack information on good markets. As a result, they see themselves as stuck with selling to vendors.

One of the groups of farmers spoken with in Chiradzulu described that Afri-Oils Ltd., although offering better prices than local vendors, came to their aggregation points only once, and that time only bought a little, as their funds had run out from earlier purchases on that trip. This group also described that the timing of their selling of groundnuts and the portion of harvest to be sold can outweigh the price-per-kilogram. When bills must be settled urgently, sometimes farmers need to offload all their produce as soon as they can to convert groundnuts to cash.

Farmers in another group in the same district described how they transported their harvest to a DAPP Malawi location by draft-powered carts, awaiting trucks from Afri-Oils Ltd. that never came. After several weeks, the farmers disappointedly carted back to the DAPP Malawi location to retrieve their bags of groundnuts. They ended up selling the groundnuts to local vendors for low prices on the informal market.

In Dowa, farmers in the focus groups described that Afri-Oils Ltd. brought trucks one time to procure about 6,000 kg of groundnuts. Also, Afri-Oils Ltd. accepted returned CG7-seeds from disillusioned farmers that considered it a waste of time to produce high-quality groundnuts for a market that Afri-Oils Ltd. was yet to find.

Afri-Oils Ltd. paid in cash on the spot. The farmers reported, however, that when Afri-Oils Ltd.'s trucks drove off, they never returned.

Farmer club coherence

The economies of scale that should originate from (re-)established farmer clubs and associations have not emerged. Focus Group Discussions with farmers indicate that organised structures have not been sustainably established.

Farmers spoken with in focus groups in Chiradzulu indicated that they currently do not have a farmer club, and that they do all things individually. They do not have someone that organises them. Other farmers in the same district mentioned that they were part of a club that was formed, and that meeting frequency has declined. During the project, members of this club conducted record keeping. That practice is now abandoned, and the archives are not taken care of.

In Dowa, farmers spoken with indicated that training and advice on groundnut production provided by NGOs indeed was organised in groups. Also, they reported that working in these groups helped them remind one another of what they learned from extension workers.

Impact on lives

Project farmers hardly reported any income improvements, or any positive impact on their lives or their community. When asked directly, all Focus Group Discussions indicate the same: Farmers' incomes overall have not increased, and the project did not or not really positively impact the lives of the farmers or their communities.

Project farmers do have suggestions on how positive impact might be generated. For groundnut farming activities to benefit them and the people around them, they reported to require higher prices for their groundnuts and with less price volatility; well-structured markets and access to these markets; access to improved seeds which they currently cannot find or afford; access to pesticides; and additional extension and advisory services on groundnut production.

As local experts warned for the risk of household-level conflict when income levels rise suddenly, farmers in Focus Group Discussions were asked who in the household has control over the proceeds. In all Focus Groups the same message was conveyed. Both spouses have control over the proceeds of the groundnuts sales at the household level. This message was consistent across women-only, men-only, and mixed groups. One group of farmers consisting of women farmers and a few men representing their absent wives explained that no conflicts arise, as they are not making enough from groundnuts to quarrel over.

B5. Going Nuts – Detailed analyses Q3.2, Q3.3

Key Informant Interviews

The Netherlands Ministry of Foreign Affairs considers cooperation between governments, the business community, civil society, and knowledge institutions as highly relevant to achieve sustainable development. By bundling knowledge and experience from public and private parties, it is believed that win-win situations can be created.

Before the start of the project, a project design was made in which a public-private partnership approach was chosen with activities aimed at reducing barriers for growth. The project would provide farmers with the opportunity to sell more groundnuts or to have more groundnuts available to consume themselves. It has been stressed that smallholder farmers still could still benefit from capacity building efforts of the project, even if activities beyond trainings would fail. In one of the conversations, Going Nuts was classified as a typical 'farming donor project', involving smallholder farmers and a processor. This respondent explained that the groundnut is one of the more suitable value chains to (commercially) involve smallholder farmers in production, since the costs of production are relatively low. Several project stakeholders indicated that the project is worthwhile if farmers can offer their products to a market.

In the project, three training organisations, DAPP Malawi, NASFAM, and Exagris Africa Ltd., were made responsible for training farmers. In addition to scale, complementarity of skills and expertise was an important reason for including three training organisations in the design of the project. Common training manuals on groundnut management and aflatoxin control were prepared. Through the involvement of local NGO DAPP

Malawi, a clear planning structure for the training courses of the project was realised. In the farmer club model, field instructors are tasked with visiting farmer clubs regularly to assess performance and provide feedback. DAPP Malawi is referred to by respondents as an organisation with an established name and way of working.

Implementation of large-scale training efforts through multiple organisations seems to be challenging. Since there is no relationship between DAPP Malawi and NASFAM (a shareholder of Afri-Oils Ltd.), it was hypothesised that it could be more difficult for DAPP Malawi farmers to reach Afri-Oils Ltd. It has been reported by a stakeholder that DAPP Malawi has received a larger amount of funding for its training activities than NASFAM in relation to the number of participating farmers. It was stated that NASFAM had to finance the training activities largely from its own resources. A stakeholder has mentioned that although NASFAM (the largest smallholder-owned membership organisation in Malawi) employed good, highly educated trainers, the turnover of these trainers was high. Training courses were also less intensive than in DAPP Malawi's farmer club model. This is regarded an important difference, although the effects of these differences remain unclear. A project partner indicated that NASFAM has its own production and packaging facilities, and it was hypothesised that, as such, there would be little to no incentive to supply products to Afri-Oils Ltd.

DAPP Malawi involved the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in the project through a partner meeting. The core activity of ICRISAT is the development of different varieties of groundnuts. This organisation has made suggestions for the introduction of groundnut varieties in the project that are more resistant to specific diseases. Also, a technology has been proposed to further manage aflatoxin in the groundnut value chain (Aflasafe).

Also, during the project there have been changes in the management of Afri-Oils Ltd. Under the guidance of a former member of management, Afri-Oils Ltd. visited smallholder farmers, discussed quality concerns, agreed on methods of aggregation, and purchased groundnuts. It was reported that changes in Afri-Oils Ltd. management have had an impact on the level of commitment to involving project farmers.

B6. Going Nuts – Detailed analyses Q5

Desk study

Annual progress reports point to both systemic change and the project being scalable. Reportedly, Afri-Oils Ltd. is one of the few businesses exporting groundnuts formally from Malawi to high-value markets like South Africa. Also reportedly, by putting Malawi on the map as a supplier of high-quality groundnuts instead of only low-quality farmer stock, Afri-Oils Ltd. supports the whole groundnut industry in creating a reputation of a quality-nut supply source. This would point to a systemic change at the level of the groundnut market in Malawi and could pave the way for further exports, thereby also making the project scalable. In documentation it has also been stated that when aflatoxin levels continue to fall, even the EU-market could be back in scope.

Key Informant Interviews

Stakeholders are positive about the effect of the project on Afri-Oils Ltd. The project has made it possible for Afri-Oils Ltd. to purchase processing equipment. This has changed and improved the existing process of processing. According to stakeholders, the project could lead to systematic change in Malawi's groundnut value chain. A respondent indicated that the project has put Malawi back on the map in this sector and other players are now there to join in.

As also mentioned in chapter 6, project partners and other respondents have stressed that the influence of the informal groundnut market is large. Resulting competition with vendors buying ungraded groundnuts, causing side-selling in large quantities and adding the risk of the quality of groundnuts being inferior, limits opportunities for formal processing companies aiming at export of high-quality groundnut products to regional markets. Choosing the informal route to market currently is most attractive for smallholder farmers and there are little incentives to improve quality of production, as also explained in chapter 6. Stakeholders point out that it is difficult to bind farmers to Afri-Oils Ltd., yet this is the only way for farmers to enter the regional and global market.

Project stakeholders also note that, in this project, project needs around aggregation, procurement and transportation of groundnuts between project farmers and Afri-Oils Ltd. have remained unresolved, negatively impacting the achievement of the project goals for both smallholder farmers and Afri-Oils Ltd.

Prices for groundnut oil have risen rapidly in the past two years because groundnut oil is seen as a replacement for soybean oil. It is said that this offers opportunities for increasing production in the future.

B7. Going Nuts – Detailed analyses Q6, 6.1

Desk study

According to project documentation, measures have been taken to ensure that the benefits of the intervention would continue even after FDOV funding has ceased. However, it is not clear from the documentation if all of it was an upfront plan at the start of the project or if some decisions were made along the way.

DAPP Malawi, Exagris Africa Ltd., and NASFAM have helped set up farmers in groups and to establish seed banks. At the start of the project the farmers were provided with basic (foundation) seeds which could be used for seed multiplication for three seasons. The idea was that during these three seasons the farmers would generate income to buy another set of basic seeds. This would create a continued revolving scheme whereby farmers would generate income to buy new seeds every three years to ensure that there is viable seed at each planting season. It is unclear from project documentation whether these seeds banks are working still.

In the last annual report DAPP Malawi's participation as training partner in the project had come to an end, and Afri-Oils Ltd. continued to work with the farmer groups and cooperatives. Project reporting states that the Afri-Oils Ltd.' extension group continued to keep close ties with most of the cooperatives to purchase groundnuts from these farmers.

Project documentation lists several activities that were intended to ensure that the project would live on beyond the FDOV funding period. Again, cooperatives are an important component and the 2,400 farmers in Chiradzulu district have established two cooperatives (Thundu and Mwavi) which promote buying and selling in bulk. In 2017, 600 farmers were members of these cooperatives from 48 farmer clubs. Throughout the project, partners have sought to consolidate the close relations with the Malawian government. This could then enable government workers to easily continue working with farmers even after FDOV funding has ended. Yet, from project documentation it is unclear whether in practice this indeed happened.

Project documentation furthermore states that it is also part of Afri-Oils Ltd.' role to help farmers to be economically empowered to improve their livelihood. In 2019 Afri-Oils Ltd. linked some of the farmers to Community Finance, a microfinance institution. Through this institution, farmers could get a loan in-kind of groundnuts and soya bean seed which they would pay back after they harvest in the same farming season. However, project documentation does not address what would happen if for any reason Afri-Oils Ltd. would no longer be able to take on this role. Project documentation also indicates that the financial position of the company is not very strong.

Key Informant Interviews

It has been mentioned in a Key Informant Interview that since groundnuts must be replanted every year, this makes the project potentially more volatile (farmers might switch crops, for different reasons). Moreover, groundnut production is not 'new', and it has been mentioned that it is therefore generally a more difficult value chain to achieve sustainable impact.

Stakeholders recognise that for Afri-Oils Ltd., the project has made it possible to purchase processing equipment. This has changed their existing process of processing, and these investments are expected to last. AgDevCo went from 20% involvement (as shareholder of Afri-Oils Ltd.) to the point where they now control 80% of Afri-Oils Ltd. Reportedly, this has contributed to business continuity, as the company required additional investments that were made possible by AgDevCo.

Some respondents have indicated that they think the business case of the project has not been well thought out. It has been mentioned that the project would be rejected if presented in the way it now turns out to work. Instead, these stakeholders think that private sector organisations should only accept donor funding if it meets their commercial aspirations. In this project, according to a Key Informant, donor funding has created pressure for Afri-Oils Ltd. to meet project objectives that may not naturally fit the business, as it would be far too costly for the company to train and track farmers, and to monitor and test produce quality and to feed back this information to smallholder farmers.

B8. Going Nuts – Detailed analyses Q7

Desk study

The CSR aspects that were considered at the planning stage were anti-corruption, freedom of association, labour conditions, forced labour, child labour, discriminations and gender equality, health and safety at work, CSR standards in the supply chain, as well as climate and energy, biodiversity, deforestation, and water use

and water supply. All of those are relevant to the local Malawian context and the standards set appear to be adhered to.

Humana (Sympany+) has an accredited CSR policy.[173] Afri-Nut's initial business plan included development indicators and a promise to develop a full-scale CSR policy in line with OECD guidelines. In 2014 Afri-Nut had adopted such a policy. It is not clear what happened to this policy after the company restructured and became Afri-Oils Ltd. – the policy can currently not be found on the company website. Afri-Oils Ltd., nonetheless, has several separate policies related to CSR, such as Emergency Preparedness, Health and Safety and general working conditions.

Project documentation is less clear on the results achieved through the CSR plans. Project documentation from 2016 reports that Afri-Oils Ltd. had few systems in place at that moment, but that they aimed to introduce formal systems for CSR when moving to the new factory. Policies mentioned are hazard analysis and critical control points, Health and Safety, amongst others. Judging from the documents available from 2017, those policies were indeed put in place, and it is likely that the project's focus on CSR helped or speeded up this process.

Focus on CSR also seems to have helped an issue with noise levels at the old factory, where workers wore no protection. After RVO.nl pointed out to Afri-Oils Ltd. that noise levels needed to be measured and in line with international standards, in the new factory a noisy compressor was placed outside of the working area in a building of its own.

Also described in the documentation is that Afri-Oils Ltd. is paying their lowest paid workers more than the minimum wage. Treating their workers fairly, therefore seems part of the company ethos, whether due to the CSR policies or not.

Project reporting says little on the influence of the project on the natural environment. Project reporting states that DAPP Malawi has carried training activities in the field of sustainable conservation agriculture. However, no mention is made of whether the practices are applied by farmers. As such no conclusions can be drawn about the potential (positive) impact of the project on the direct natural environment. This also applies to any potential (positive) impacts to reduce greenhouse gas emissions.

Key Informant Interviews

Project stakeholders consider the relevance of the project in terms of CSR plans to be high. This is mainly due to the involvement and training of smallholder farmers to grow and sell groundnuts. The project intended positive changes for smallholder farmers, processors, and the groundnut trading market.

Stakeholders indicate that various CSR aspects have been achieved with the project. They point to the fact that Malawi has lost its market position due to high levels of aflatoxin contamination. Reduction of aflatoxin levels is seen as an important project goal that falls in the domain of CSR. Besides relevant trainings to improve quality of production, the project involved ICRISAT to work on quality improvements. Also, a technology (Aflasafe) contributing to controlling aflatoxin levels was introduced in the project (as a trial). It was reported that both this project and AgDevCo have invested in Afri-Oils Ltd. with the aim of putting Malawi back on the map as a reliable groundnut producer. By involving Afri-Oils Ltd. in the project, access to new markets would be established and the stability of groundnut sales could be increased.

Nothing was said about the project's impact on the immediate natural environment or on combatting climate change.

B9. Macadamia VCE – Detailed analyses Q1.1

Desk study

The main beneficiaries targeted by the project are 3,000 smallholder farmers from Thyolo district and Mzimba district. The project initially targeted smallholder farmers holding 5 acres or more.

This project aimed to introduce macadamia as a new cash crop to smallholder farmers. According to project documentation, the introduction of macadamia to smallholder farmers would lead to increased macadamia nut production and processing capacity, improved annual income of smallholder farmers, jobs in macadamia nut

[173] SGS (2012) Certificaat Stichting Humana People to People, MVO Prestatieladder, Certificatienorm voor Maatschappelijk Verantwoord Ondernemen. Algemeen haalbaar Niveau 3.

production and processing and supply of good quality macadamia nuts that meet the national, regional and EU Food Laws.[174] The project has clear inclusion objectives, as it aims at least half of the project participants to be female.

According to the project plan, farmers have been involved in the project design, at least to some extent, through a focus group meeting in which 70 farmers participated. Two different views emerged from this meeting. On the one hand, farmers felt it was a good idea to invest in macadamia – to improve their means and as a measure for mitigating climate change. Those with negative views felt "it was not possible to indulge in macadamia production due to small land holding size, produce theft and management requirements of the crop (…)". Besides, some farmers were sceptical because of a negative experience in the past in which farmers were made to produce sunflower, with eventually no markets to sell the commodity.[175] During a field visit of RVO.nl conducted prior approval of the project plan, it was noted by RVO.nl that "The concern about the sunflower failure was taken away as the main reason for that failure was a lack of market access. This will not be the case in the macadamia project as Sable Farming Ltd. (…) [has a] reliable access to the market.".[176] RVO.nl staff visited some existing DAPP Malawi farmer clubs prior to the project inception and reported that this system generally generates good results. It is also reported that farmers in the area where new farmer clubs were to be formed, were also willing to start such a farmer club. It is also reported that "good and reasonable questions (…) came out of the group" and "women were well involved".

Key Informant Interviews

Project partners explained that the design phase of the project started with the question which initiatives to introduce macadamia farming to smallholder farmers had been carried out in the past, with the aim to improve the design on those aspects where past projects had failed. Integrating a processor and end-user in the project therefore became an important anchor for the project. Generally, respondents spoken with indicate that the project could provide smallholder farmers with a good opportunity to become involved in macadamia cultivation and to join a value chain dominated by commercial estates. As such, the project is considered relevant for improving food security. The project would also enhance a future-oriented mindset of farmers.

Since most of the macadamia produced in Malawi is exported, it is mainly considered a cash crop. The timing of the project is considered right since there is a drive for diversification. The targeted crop is considered relevant, since Malawi has a good reputation for exporting macadamia. Although the macadamia value chain in Malawi is 'fairly new' and larger investments in the production of macadamia are only taking place since the last few years, reportedly, quality of production and processing is relatively good.

From discussions with both project partners and stakeholders, it follows that both tea and tobacco plantations in Malawi increasingly are being replaced by macadamia plantations. This is a rapid development and an increasing number of investments in the macadamia value chain is observed by respondents spoken with. Macadamia plantations are considered valuable, also for local farmers who already grow macadamia. This project is said to enable the inclusion of smallholder farmers in the value chain and would further spark the interest in the macadamia sector. It was reported that the relevance for end-beneficiaries is enhanced by the project's decision to supply approximately 100 trees per farmer. With a low number of trees, it is believed that macadamia would only be cultivated for household consumption, limiting the potential of the crop.

Generally, it is believed that smallholder farmers by themselves cannot realise the potential the macadamia sector may offer to them. Macadamia was reported to be a challenging crop to grow. It requires considerable technical skills to ensure productivity and quality of production. The involvement of individual smallholder farmers in the value chain indeed is challenging, mainly due to the "difficulty of aggregating small quantities and maintaining a good quality." The 'farmer club approach' chosen therefore is appreciated by stakeholders. The model is considered a well-tested formula. A club structure mostly forms around a village and often goes beyond being functional for the value chain. For example, it can support local activities, can enhance aggregation of other crops, and improve bargaining power. Farmers could sell their crops through cooperatives. The project would strengthen cooperatives by allowing farmers to make use of necessary facilities. The project also included an intensive training programme for smallholder farmers on the cultivation of macadamia, including guidance on proper cultivation techniques. The involvement of a commercial estate is considered

[174] Sympany+ (2014). Project Plan. FDOV14MW16: PPP Macadamia Value Chain Enhancement
[175] Ibid.
[176] Netherlands Enterprise Agency | RVO.nl (n.d.) Assessment FDOV-proposal. FDOV14MW16: PPP Macadamia Value Chain Enhancement

relevant for end-beneficiaries' needs since this would enable valuable knowledge transfer between farmers and commercial growers. Intercropping would allow project farmers to utilise land selected for macadamia farming in the growing years of the tree.

Relevance of the project design for end-beneficiaries largely depends on the eventual performance of individual smallholder farmers. Quality of production mainly is influenced by skills and capacity of smallholder farmers, e.g., to control pests, manage irrigation and ensure proper soil nutrition. Protection of produce from theft is also considered a challenge.

Project areas have been chosen based on land suitability for the cultivation of macadamia and based on earlier experience with growing macadamia trees – since 1970, macadamia is cultivated in the Southern Highlands of Malawi. Furthermore, the effects of climate change were considered in choosing project areas. Subject-matter experts have indicated the project areas chosen largely are suitable for growing macadamia nuts, and ample of experience is present within these areas with growing macadamia trees on estates. It has been stressed that proximity of smallholder farmers to involved estates is important to ensure that smallholders adopt the right practices. Mzimba was identified as macadamia growing area since there were no large plants in this region, however, it has been stressed by several respondents that this location may pose a significant challenge for end-beneficiaries due to the large distance to Sable Farming Ltd.

From conversations with project partners, it follows that farmers (in project areas) were also selected to participate in the project based on their landholding. The required land size was 5 acres, necessary to meet critical volumes. Stakeholders of the project have stated that it depends on the geographical location whether a farmer would be able to meet the minimum surface area. In less urbanised areas, such as in northern Malawi, a minimum of 5 acres of land seems feasible, but on average farmers do not own that much land. Both project partners and other stakeholders have indicated that in practice owning 5 acres of land generally is not a feasible requirement for smallholder farmers to meet. The industry (as voiced by the Malawi Macadamia Association) seems to be in support of the involvement of smallholder farmers in the macadamia value chain.

Relevance of the project for end-beneficiaries also depends on the district, as challenges may differ per district, and how challenges are dealt with in these districts. Thyolo district is considered more drought-prone, and a Key Informant therefore expected performance to be lower in this area. It has been stated that in many cases farmers will need help building a basic irrigation system to provide macadamia trees with water, which is particularly important in the first five years of growing the macadamia tree. The importance of irrigation and moisture conservation in drought-prone areas such as Thyolo has been stressed. It is indicated that medium-sized and commercial farmers have little or no such need for support.

The project, by design, provides a market for smallholder farmers to sell their products to. If commercial companies can buy good quality macadamia nuts from smallholder farmers, it is believed this approach will result in harmonised cooperation and an interesting business model. It has been mentioned that macadamia nuts mainly are exported in raw form. In-country value addition still is limited.

As part of the project, 60 students are trained specifically in macadamia production. It is believed this can increase the chances of employment for these students and further the involvement of Malawians in macadamia production.

B10. Macadamia VCE – Detailed analyses Q1.2

Desk study

According to the project plan, the project would be in line with various local policies, including the Malawi Growth and Development Strategy (MGDS, 2011-2016) and the Agriculture Sector Wide Approach (ASWAp, 2011–2015) through its focus on poverty alleviation through sustainable economic growth and infrastructure development. The National Export Strategy (NES) identified macadamia as an export crop for development. The project would directly contribute to the Malawian Macadamia Strategic Plan, a document developed on behalf of Malawian Macadamia Industry with support from Irish Aid and the Business Innovation Facility, by providing an enabling environment for smallholder farmers to become an integral part of the industry. According to this plan, because macadamia is a high value and relatively low volume exportable commodity, it is ideally suited to landlocked Malawi with poor port access and high transportation costs. This document also outlines

clear reasons for why increased production of Macadamia by smallholder farmers would be beneficial to the country and its local communities, including, amongst others: health benefits (macadamia being referred to as a highly nutritious commodity), income diversification and compatibility with other crops, soil stabilisation, potential pro-poor economic activity and opportunity for inclusive business models if the existing industry would expand through smallholder farmers (transferring capacity, providing processing facilities, enabling access to markets)[177].

The project signed a Memorandum of Understanding with the Ministry of Agriculture. Also, briefings with government official about the macadamia project and its objectives were held (through so-called 'District Executive Meetings'). In a progress report, good collaboration between DAPP Malawi, Sable Farming Ltd., and other stakeholders (including the Ministry of Agriculture) in the implementation of this project at district- and grassroots levels is mentioned. It is reported that during some of the training activities some frontline extension officers, the Agricultural Extension Development Officers (AEDOs), attended.

The project plan states that the project intends to provide farmers with reliable access to fair market conform prices. This would be achieved through linking the farmers to Sable Farming Ltd. as a stable off-taker.

Key Informant Interviews

According to several respondents, macadamia has been a neglected crop until relatively recently. The crop is 'on the radar' now, although at the same time it has been stressed that the Government of Malawi provides little to no support to the macadamia sector. According to a stakeholder, currently no impactful policy exists to support the sector. It was reported that very limited government extension services are available to the sector.

With regards to the project design, the Malawi Ministry of Agriculture has stated that it considers the organisation of smallholder farmers in structures as relevant. It has also been noted by the Ministry of Agriculture that considerable investments are being made by the private sector into the macadamia sector, amongst others because some estates are replacing tea for macadamia production. According to the Ministry of Agriculture, the government tries to promote investments in the sector, e.g., by not levying a duty on certain transactions (such as for irrigation equipment). Also, the Ministry has 'matching grants' in place to support farmers' investments (30% of investment of the farmers is complemented by a 70% contribution of the Ministry). These grants are only being made available to organised groups of farmers, such as cooperatives.

The industry seems to be in favour of including 'growers of all sizes' in macadamia production. This ranges from smallholder farmers to commercial estates. In documentation referred to in our conversation with the Malawi Macadamia Association, which aims to "enhance capacity to engage and support members to innovate, enhance quality, productivity, and overall competitiveness of the Malawian macadamia industry"[178], it is noted that although smallholder farmers currently represent only a small part of the commercial activity in the macadamia sector its quality of production is sufficient to justify commercial processing. It was reported that the sector currently consists of approximately 5,000 smallholder farmers with a total of 600,000 trees.[179]

[177] N. Moody (2017). Malawian Macadamias 2012–2020: Strategic Plan for the Malawian Macadamia Industry. Retrieved from: https://docplayer.net/48791244-Malawian-macadamias-strategic-plan-for-the-malawian-macadamia-industry.html
[178] Malawi Macadamia Association (2021). Malawi Macadamia Industry Roadmap. Retrieved from: https://hubble-live-assets.s3.amazonaws.com/mma/file_asset/file/91/Macadamia_Industry_Roadmap_RELEASE_FINAL.pdf
[179] Ibid.

B11. Macadamia VCE – Detailed analyses Q2.2

Desk study

In RVO.nl's project assessment additionality is addressed mainly in relation to the financial viability of the project. On this point, RVO.nl argues that if the project is not commercially viable, then no private party would invest, and that therefore public funding was indeed necessary.

Project documentation also indicates that project funding was necessary. The project plan states that without the FDOV subsidy, "farmers and processors cannot invest as they do with this project due to the difficult financial circumstances in Malawi (no chance for commercial financing)".[180] The main reason for this is the long gestation period of the macadamia trees. Low-income levels furthermore meant that farmers would not have been able to afford macadamia seedlings without the project. The project provided these for free. Likewise, it would not have been viable for Sable Farming Ltd. to invest on its own in training, marketing, and processing infrastructure to facilitate the link with smallholder farmers. Again, the long gestation period of the macadamia trees would mean that the project would only generate a positive cash flow from operations after seven years. Project documentation therefore suggests that Sable Farming Ltd. would not have implemented the proposed business model without FDOV support.

At the same time, however, the project activities lie at the heart of Sable Farming Ltd.'s core business and a significant part of the project budget was dedicated to hardware (expansion and upgrading of the macadamia nut processing facility) that is owned and operated by Sable Farming Ltd. (approximately EUR 835,000). A question which was not explored in project documentation was whether the project contribution to the hardware component was necessary, i.e., the question as to if the project had financed seedling production and training of smallholder farmers, would Sable Farming Ltd. still have been able and willing to finance the hardware investments on their own.

Likewise, according to RVO.nl, at the time of application, Sable Farming Ltd. did not have sufficient funds to self-finance seedling production and investments in hardware. Sable Farming Ltd. had a negative cash-flow at the time. Sable Farming Ltd.'s mother company, Global Tea and Commodities Ltd., submitted a third-party guarantee equalling the own contribution of Sable Farming Ltd. to the project budget. It therefore may have been the case that Global Tea and Commodities would have had sufficient funds to self-finance the investments in buildings and equipment.[181]

Furthermore, in the project plan, Sable Farming Ltd. was introduced as the direct supplier of macadamia out-of-shell for Intersnack Procurement B.V. Sable Farming Ltd. and Intersnack had been working together since 2009. For Intersnack Procurement B.V., there is a clear commercial interest to participate in the project: according to the project plan, macadamia nuts are core in their snack nut assortment[182] and there is increasing global demand.

In RVO.nl documentation, it has been mentioned that Sable Farming Ltd. "cannot expand their own estates that much and therefore will remain depending on the supply of the small farmers".[183]

Key Informant Interviews

The involvement of smallholder farmers in a sector dominated by commercial estates is considered an additional result of the project that would not have been achieved without public funding. Respondents generally believe that smallholder farmers would not have been involved at the same scale without the implementation of the FDOV project.

It has been explained that commercial estates producing macadamia are facing expansion restrictions due to land scarcity, implying that expansion of production through involving smallholder farmers may be considered a strategy that also makes sense from a commercial perspective. Generally, however, respondents believe that it is unlikely that Sable Farming Ltd. would have involved smallholder farmers in their operations without a public contribution. It was explained by Sable Farming Ltd. that factory expansion is a prerequisite for the company to deal with the expected increased intake of supply from project smallholder farmers.

[180] Sympany+ (2014). Project Plan. FDOV14MW16: PPP Macadamia Value Chain Enhancement
[181] The company had a strong equity position and a positive annual cash flow.
[182] This was nuanced by Intersnack Procurement B.V., as macadamia forms a small part of the Intersnack-portfolio.
[183] Netherlands Enterprise Agency | RVO.nl (n.d.) Assessment FDOV-proposal. FDOV14MW16: PPP Macadamia Value Chain Enhancement

Growing macadamia successfully requires organisation and significant investments. According to a project partner, commercial parties find the necessary organisation and coordination around the distribution of grafted plants and training of smallholder farmers too risky. This makes growing macadamia by smallholder farmers for commercial processing a difficult business case to set up. Smallholder farmers themselves do not have sufficient financial capacity to buy macadamia seedlings. This has been made possible by the project. The project also provided farmers with necessary trainings that would have not been provided otherwise. Transport facilities (trucks) were purchased in an early stage of the project, which will be used in the future to transport produce of established farmer cooperatives to Sable Farming Ltd. (Future) access to storage and trading centres, processing facilities and marketing channels for project smallholder farmers are a result of the FDOV project.

During our field visit, it was explained that most macadamia commercial estates are in southern Malawi (including Sable Farming Ltd.), although some estates are also found in the northern Malawi (e.g., Tropha Estates).

B12. Macadamia VCE – Detailed analyses Q2.4

Desk study

According to project documentation, the project addresses two failures in the market for macadamia nuts: barriers to entry for smallholder farmers: 1) lack of capital, training, market information, and 2) high transaction costs. By providing capital, training, and market information to smallholder farmers and by sharing the risks through the PPP set-up, the project attempts to contribute to the important public goal of lowering barriers to entry for smallholder farmers on the macadamia market. Project reporting also describes positive impact on the wider business environment. It also focuses on female farmers, as well as education/upskilling – all important public goals.

Ownership of assets (e.g., trucks used for transport of produced nuts from the buying/trading points to Sable Farming Ltd., the storage and trading centres and equipment stored there, processing facilities to ensure market access) lies with Sable Farming Ltd, according to project documentation.

During our visit to one of the project's production locations, the evaluation team was handed a contract of sale. The contract duration was set to one year (for 2020/2021). On the contract, it was indicated that the cost of transporting NIS from the seller's farm to Sable Farming Ltd. is wholly for the seller's account, although in specific cases the buyer may carry the seller's NIS on the formers transport at a cost mutually agreed. Other clauses included in contract are the right for the Sable Farming Ltd. to reject any delivery of NIS with moisture content and peroxide value exceeding certain boundary values. Collection costs for rejected NIS are also for the seller's account. Payment is made based on the quality of the NIS delivered and is in MKW. Payment can be made by Sable Farming Ltd. within 60 days of receipt of the NIS at the factory. Either party is given the right to terminate the agreement giving one week's notice in writing to the other party. The seller is required to only use approved chemicals for pests and disease control, as determined by Sable Farming Ltd.

Key Informant Interviews

Significant investments were made to commercially involve smallholder farmers in the macadamia value chain in Malawi. The gender component of the project has been stressed throughout interviews. The partnership approach chosen (involving a local processor and a European snack-importer) is considered key to the achievement of project goals.

B13. Macadamia VCE – Detailed analyses Q3.1, Q3.2, Q3.5, Q4

Desk study

The reporting period covered in this description concerns the (reporting) years 2015-2022. For each level of the results chain, where applicable, the degree to which the project has been successful in producing the expected result(s) is described based on project documentation.

Supply side outputs

(Output) Agricultural students recruited

The projected aimed to train a total of 60 students (ten students annually) on sustainable agriculture and macadamia nut production at the Mikolongwe Vocational School. According to project documentation and M&E data, to date, 58 students have followed this agricultural training. During the reporting period, the project facilitated payment of school fees, a passport (as required for taking a national exam) and examination fees. To enhance students' learning development, DAPP Malawi also organised a learning visit to the farmer clubs for involved students. Furthermore, students went to Sable Farming Ltd. for 'exposure visits', where students learnt practical issues on nursery management, harvesting and field management. Between 2017 and 2021, 48 students finalised their training course, while the last cohort of ten students will do so in November 2022. Graduated students are recruited in various estate and private industries in macadamia and coffee production, while others have returned to their home area to support macadamia farmers or for macadamia farming on their own farm.

(Output) Farmer clubs and associations (re-)established

Project documentation indicates that, as intended, in 2016/2017, DAPP Malawi recruited 3,000 farmers in Mzimba and Thyolo. Although distribution by district indicates that there were relatively more females recruited in Thyolo compared to Mzimba, the overall division of female and male farmers was equal. The 3,000 farmers were enrolled into 90 farmer clubs of either 50 farmers (Thyolo) or 25 farmers (Mzimba). In each of these clubs, five farmers were appointed as committee members (so-called step-up farmers or lead farmers[184]). These activities were in line with the project plan.

Progress reports indicate that in 2018/2019, sensitisation meetings with the farmers resulted into the formation of four cooperative groups (two in each district), formed after farmers understood the importance and idea of being in cooperatives. While the project targeted to have at least 50% of the 3,000 farmers as member of a cooperative, more than 2700 farmers were registered as cooperative member. M&E data suggests that in 2022, almost all farmers were registered in a cooperative (Figure 19, Figure 20). To discuss on issues of the cooperatives, the project facilitated monthly cooperative meetings with the cooperative leaders and quarterly meetings with farmer representatives.

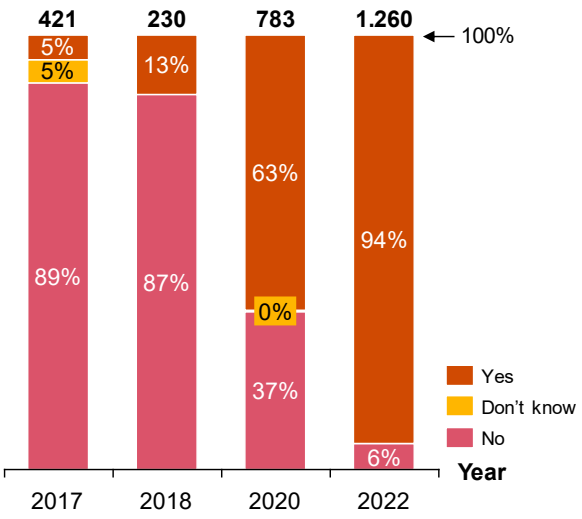

Figure 19: Cooperative membership (Mzimba)

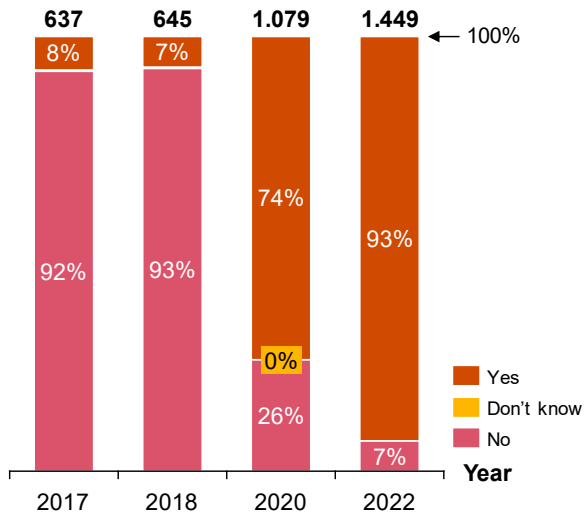

Figure 20: Cooperative membership (Thyolo)

M&E data from 2022 indicates that in 2022 there were more paying members in the cooperatives in Thyolo, compared to Mzimba (Figure 21, Figure 22). Project documentation indicates that paying the membership fee is required to be recognised the cooperative as a member.

[184] A lead-farmer serves as a source of advice for its fellow farmers. The lead farmer's coverage depends on the size of the farming club.

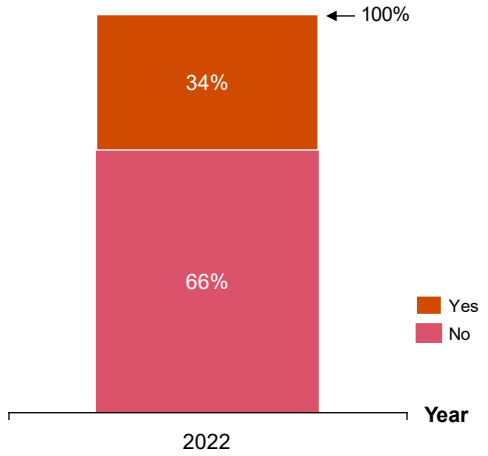

Figure 21: Paying members in cooperative (Mzimba)

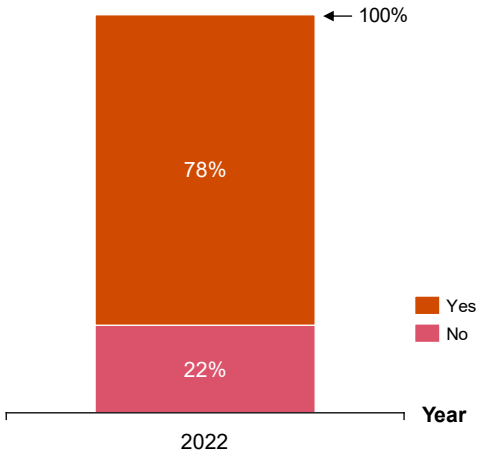

Figure 22: Paying members in cooperative (Thyolo)

(Output) Materials/seedlings supplied

Between 2016 and 2021, Sable Farming Ltd. distributed the intended 300,000 macadamia seedlings of 18 months old among smallholder farmers in Thyolo and Mzimba. Both districts each received approximately 150,000 seedlings. To distribute seedlings among the project farmers, two ten-MT trucks were procured. The selection of farmers was completed in 2017. M&E data reveals that the landholding size of targeted farmers in Mzimba (3 ha) is larger than in Thyolo (2 ha). From M&E data, it follows that in both regions typically two and three family members work in the macadamia orchard (Figure 23, Figure 24). Some farmers dropped out due to different expectations and delayed receipt of macadamia seedlings. The project largely replaced these farmers with new participating farmers.

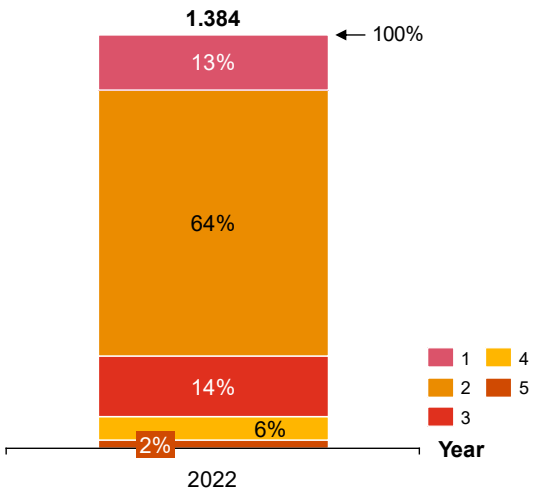

Figure 23: Number of farmers working in the macadamia farm (Mzimba)

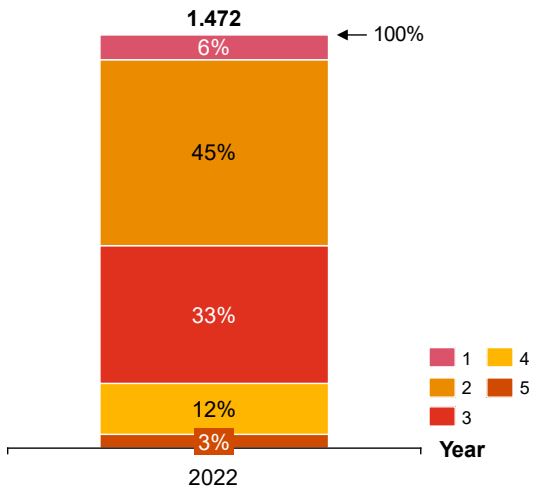

Figure 24: Number of family members working in the macadamia farm (Thyolo)

According to project documentation, in general, the seedlings distributed were in good condition, and those that were weak or less than 18 months old were partly sent back to Sable Farming Ltd. It is not clear from project documentation whether weak seedlings have been replaced by the project.

Some of the tree seedlings received by smallholder farmers did not survive, amongst others due to immaturity of seedlings, water stress, pests, diseases, and hailstorms. M&E data (Figure 25) indicates that most seedlings have been distributed between 2016 and 2018.

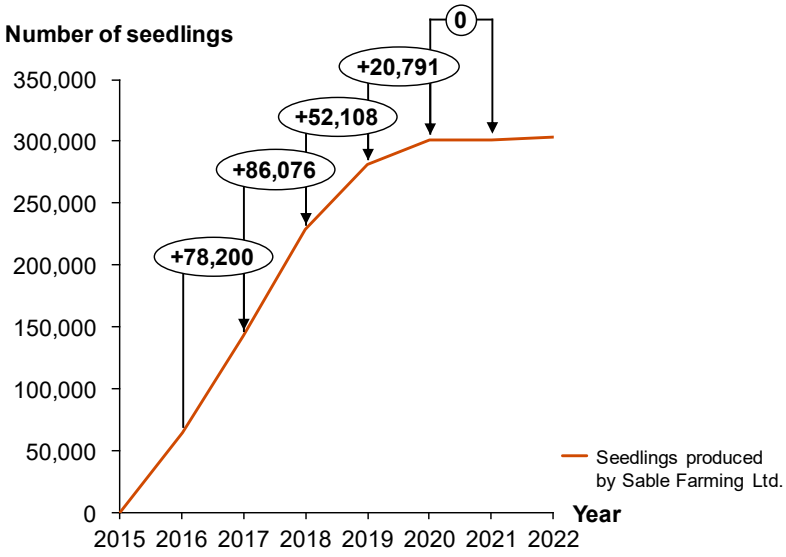

Figure 25: Number of macadamia nut seedlings produced and distributed by Sable Farming Ltd.

Supply side outcomes

(Short-term outcome) Farmers trained in nut management and marketing

During the project, smallholder farmers have followed a training programme on sustainable agriculture and macadamia nut production. In this programme, farmers have been trained in different areas. An overview of the different training areas and attendance can be found in the table below.

Although there was no specific certificate issued to farmers after following the training sessions, DAPP Malawi has tracked attendance for each session to indicate the participation of farmers in its training activities. In some cases, farmers did not turn up for training sessions, for example due to family engagements, village activities, community weddings or funerals, and other reasons.

Training area	16/17	17/18	18/19	19/20	20/21	21/22
a. Integrated pest and disease management control	2,960	2,700	3,000	3,000		
a. Manure production and nutrient balance	2,996					
a. Macadamia general production and physiological cycle		2,644				
a. Macadamia organic and inorganic fertiliser application		2,698	2,888			
a. Macadamia plant selection and planting procedures		2,686				
a. Mulching			2,887			
a. Intercropping of macadamia with other crops				1,927	2,898	
b. Firewood saving stoves		2,698				
b. Groundwater recharge		2,458				
b. Soil and water conservation				3,000		
c. Sorting and grading of nuts					2,845	2,887
c. Post harvesting of macadamia					2,794	

Table 19: number of farmers trained per training area, categorized (a-c)[185]

[185] a: macadamia production, b: sustainable agriculture, c: post-harvest practices.

Progress reports indicate that the agricultural training programme was taught by sixteen farming instructors (initially), who were mainly educated[186] in 2016/2017 to conduct the smallholder farmer training sessions. In August 2018, the project supported a refresher training on general macadamia production to the farming instructors. Besides, specific training sessions on *de-suckering* practices, plant nutrition, and soil and water management were given to about 430 lead farmers in 2018 and 2019. Subsequently, these lead farmers have since reached and trained most of their fellow farmers.

To ensure adequate implementation of the project activities, in 2019/2020 the project also conducted three periodic production planning sessions, where the implementation plans were broken-down into three periods (garden preparation, planting, and crop management) according to the season. In 2020/2021, the number of farming instructors was reduced to twelve and eventually eight farming instructors in 2022.This led to a doubling of the numbers of farmers per farming instructor.

In addition to the trainings listed in Table 19, farmers also followed training sessions on business/financial management, cooperative management, and entrepreneurship. Trainings in the field of financial management (financial literacy training, guidance record keeping, managing loans, budgeting during crop cycles) seem to have been performed mainly by Sable Farming Ltd. in cooperation with IFC (International Finance Corporation) and thus are not part of the project. Until 2021, 2,897 farmers received business trainings. In 2021/2022, the project followed up on these trained farmers and reached out to 103 farmers who were not trained previously. Furthermore, between 2019 and 2021, 2,882 farmers were given training on gender mainstreaming and development. Besides, between 2018 and 2020, 650 lead farmers and cooperative committee leaders received training on group dynamics and leadership, with the aim of imparting good group management skills, with an aim to increase cohesion, productivity, good governance, and unity among the farmer groups.

In 2020, the project held farmer-to-farmers exposure visits, where the farmers visited their fellow farmers from other clubs, with an aim of learning and sharing knowledge and skills about macadamia trees. These events were attended by 2,789 farmers, according to project documentation.

(Short-term outcome) Increased scale through organised structures

From 2019 onwards, per year about 45 ‘club actions’ were conducted in all the 90 farmer clubs. Club actions so far have included a wide range of activities that were conducted in farmers’ macadamia orchards, homesteads, fields, and gardens. According to the project documentation, examples of club actions include digital data collection, payment of cooperative fees and buying of cooperative shares, *mulching*, weeding, manure making, manure application, and fertiliser application. Furthermore, by borrowing money through 48 facilitated village-level saving plans and loan groups, more than 900 farmers have registered small businesses. Besides, 287 farmers opened bank accounts with Mpamba and Airtel money.

(Intermediate outcome) Improved agricultural practices and use of inputs

As indicated in Table 19, project farmers have been trained in macadamia production, sustainable agriculture, and post-harvest practices (among other topics). To assess whether trainings have led to improved agricultural practices by project farmers, M&E data has been analysed. Some relevant indicators could be derived from the M&E data, Table 20 indicates these indicators per training category. The subsequent analytical figures (figures Figure 26 through Figure 47) are derived from this data.

	Macadamia production (a)	Sustainable agriculture (b)	Post-harvest practices (c)
Tree growth	x		
Tree survival rate	x		
Main causes of tree damage	x		
Protection of trees	x		
Use of fertiliser to support growing	x	x	
Practice of *mulching*	x		

[186] These trainings have been performed mainly by DAPP Malawi, Sable Farming and IFC (farm instructors have been equipped with knowledge and skills on financial management in cooperation with the International Finance Corporation).

Frequency of watering	x			
Practice and understanding of *intercropping*	x			
Practice of *crop rotation* (one-year crops)	x			
Practice of *heavy tillage*, *slash-and-burn* and *monoculture*		x		
Ownership and usage of firewood saving stoves		x		
Use of aggregation centres[187]				x

Table 20: Selected M&E data indicators per training category

Project documentation indicates farmers in Mzimba received tree seedlings later than farmers in Thyolo. This is reflected in the tree growth data at an aggregated level (see Figure 26, Figure 27). From these figures, we can observe that tree growth is slower in Mzimba compared to Thyolo.

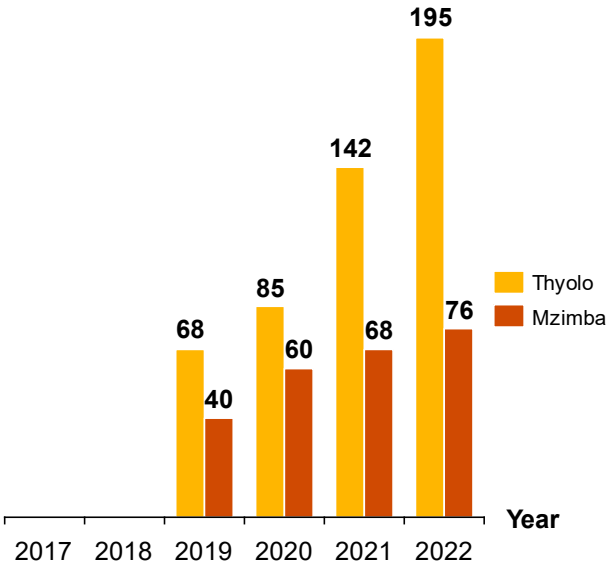

Figure 27: Plant height in cm of reference tree (short) (average values)

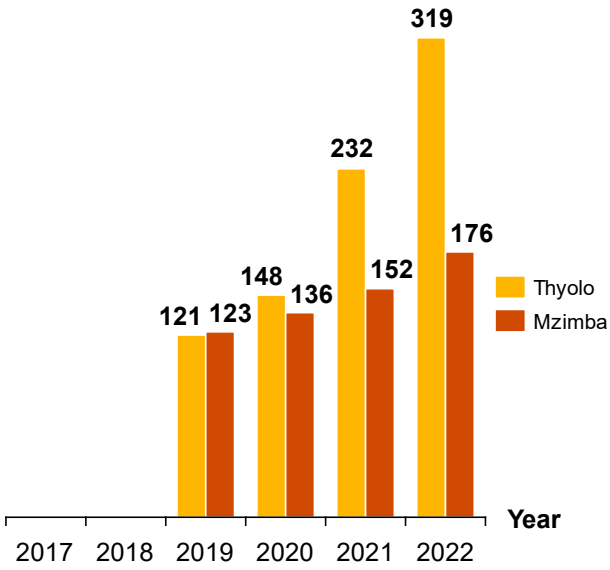

Figure 26: Plant height in cm of reference tree (tall) (average values)

From the M&E data, the main causes of tree damage can be observed (Figure 28, Figure 29). Despite significant training efforts in the field of integrated pest and disease management control, M&E data indicates that insect damage and disease are among the main causes of tree damage. In Mzimba, in almost all years between 2019 and 2022, the majority of those surveyed by the project indicated that insect damage was the main cause of tree damage. In Thyolo, disease and insect damage together made up around half of the indicated main causes of tree damage. M&E data indicates that disease and insect damage have become an increasing issue for smallholder farmers in maintaining good macadamia tree conditions.

[187] Elsewhere referred to as storage and trading centres.

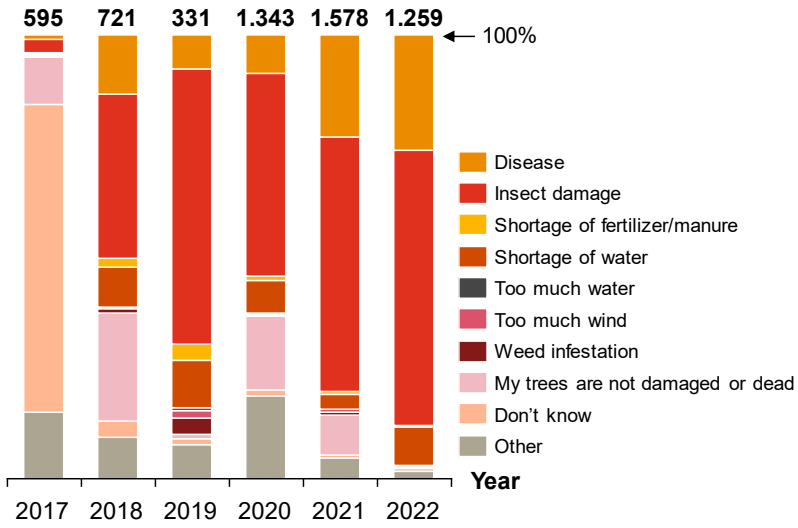

Figure 29: Main causes of tree damage (Mzimba)

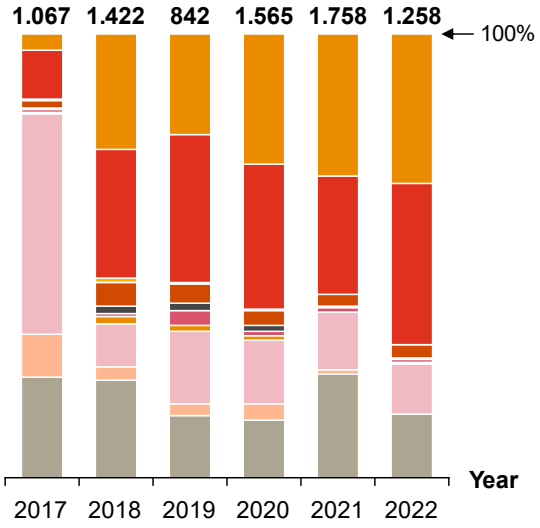

Figure 28: Main causes of tree damage (Thyolo)

From 2019 onwards, the project conducted twelve monthly checks on tree survival. According to project documentation, over 2019/2020, these checks revealed that 87% of the planted trees were in good condition, 1% in mild condition, and 12% had died. In 2022, these percentages had barely changed. Our M&E data analysis on the tree survival rate reflects this. M&E data (Figure 30) indicates that approximately 87% of the trees survived (12% died, 1% is in a bad condition). From the M&E data, no remarkable differences in the average tree survival rate could be observed between male and female farmers, nor between the averages in Thyolo and Mzimba. Project documentation indicates that the project has not replaced all dead trees. The project did intend to provide involved farmers with the opportunity to buy replacement trees (to be sold by Sable Farming Ltd. at the market rate).

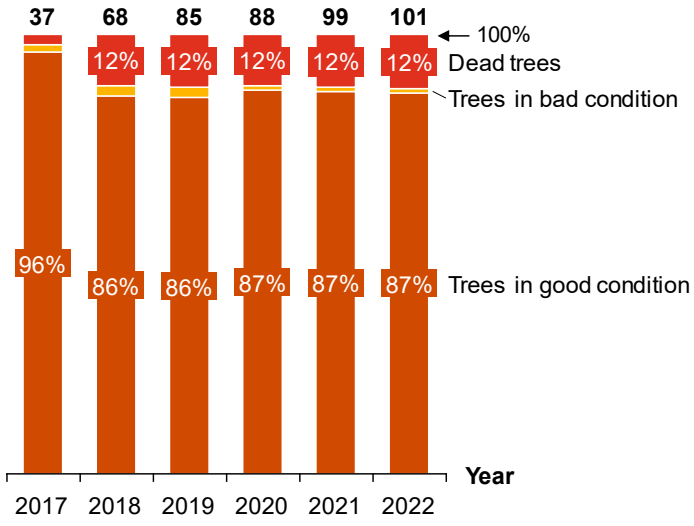

Figure 30: Tree survival rate (average values)

M&E data provides an impression of the ways in which farmers protected their macadamia seedlings/trees over the years. Broadly speaking, it seems that farmers have diversified their means of tree protection. In 2017, 60-70% of the involved farmers relied on supporting sticks and/or *mulching* for protection, whereas in 2022 a vast

majority of the farmers applied a wider range of protection measures (including some form of irrigation and *intercropping*) (Figure 31, Figure 32).

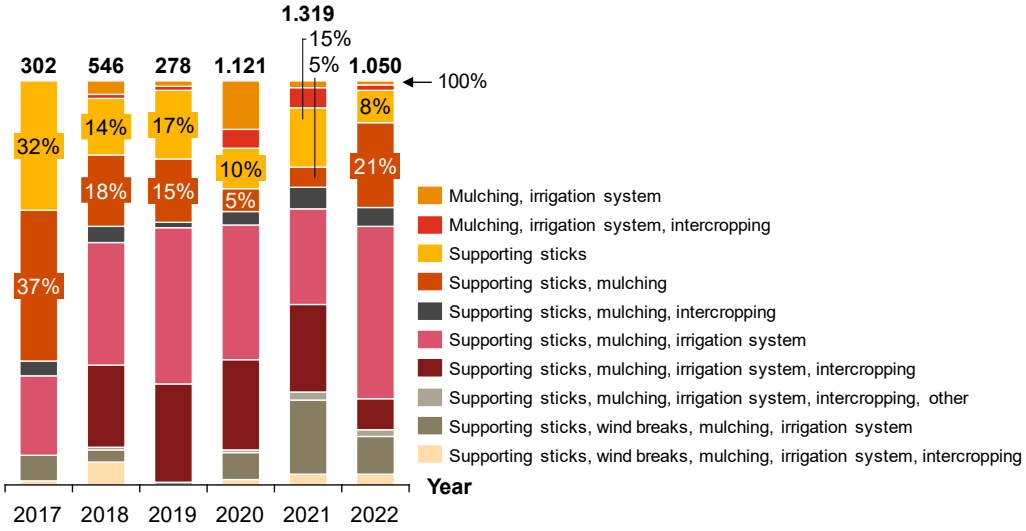

Figure 31: Seedling/tree protection (Mzimba), top-10 answers

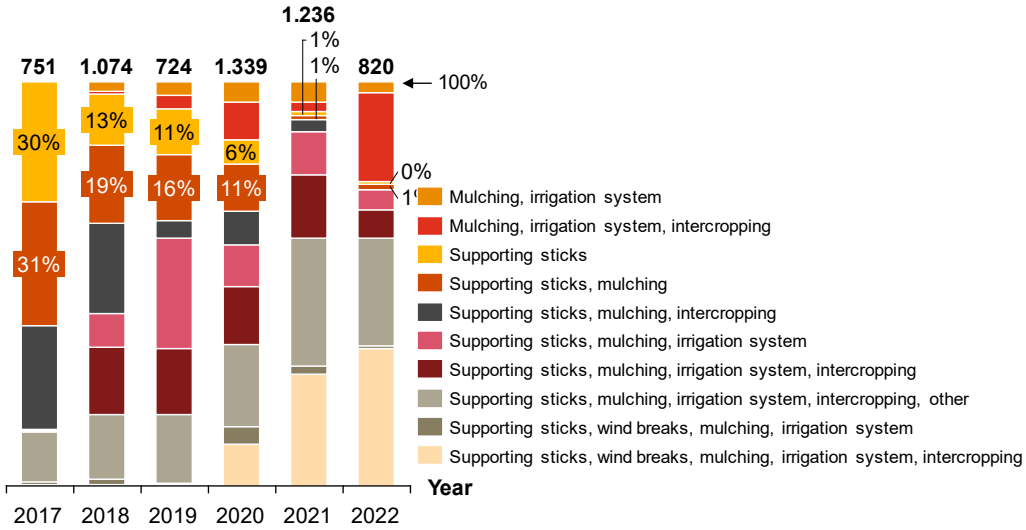

Figure 32: Seedling/tree protection (Thyolo), top-10 answers

According to project documentation, trainings on integrated pest management were intended to allow farmers to apply environmentally friendly practices to replace and reduce the use of chemical pesticides. No signs of reduced use of chemical pesticides can be observed from M&E data. In fact, M&E data indicates an increase in the use of chemical fertiliser (combined with farmyard manure and/or well decomposed/compost) in both project locations (Figure 33, Figure 34).

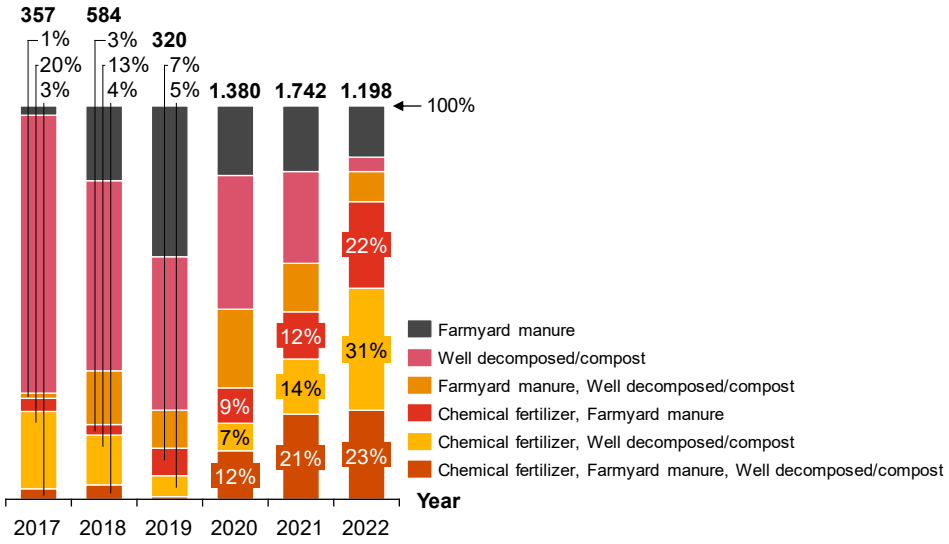

Figure 33: Fertiliser applied to help grow macadamia seedling (Mzimba), top-6 answers

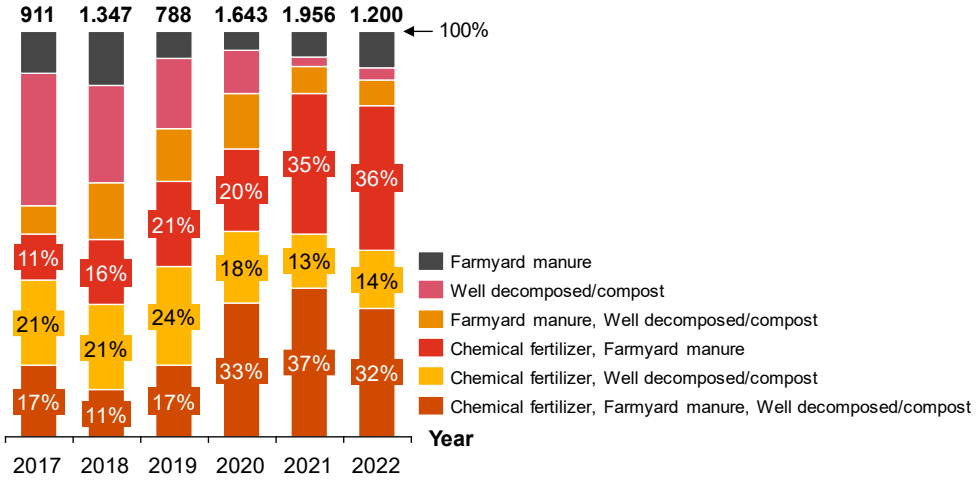

Figure 34: Fertiliser applied to help grow macadamia seedling (Thyolo), top-6 answers

In 2022, almost 100% of those surveyed reported to use the agronomic practice of *mulching* (covering the soil surface with mulch for soil and water conservation) (Figure 35Figure 34). From the M&E data, no large differences could be identified between Thyolo and Mzimba, or between female and male farmers.

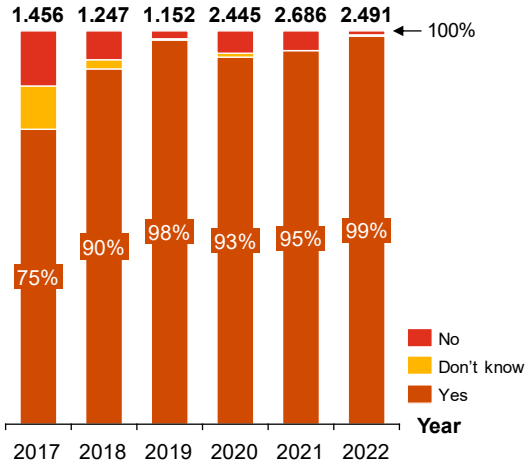

Figure 35: Use of mulching

When in M&E surveys smallholder farmers in Thyolo were questioned on how often they water their macadamia trees in the dry season (July to November) the majority indicated that they adapted the frequency of watering in the dry season. In Mzimba, relatively few participants (~25-30%) reported to do so (Figure 36, Figure 37).

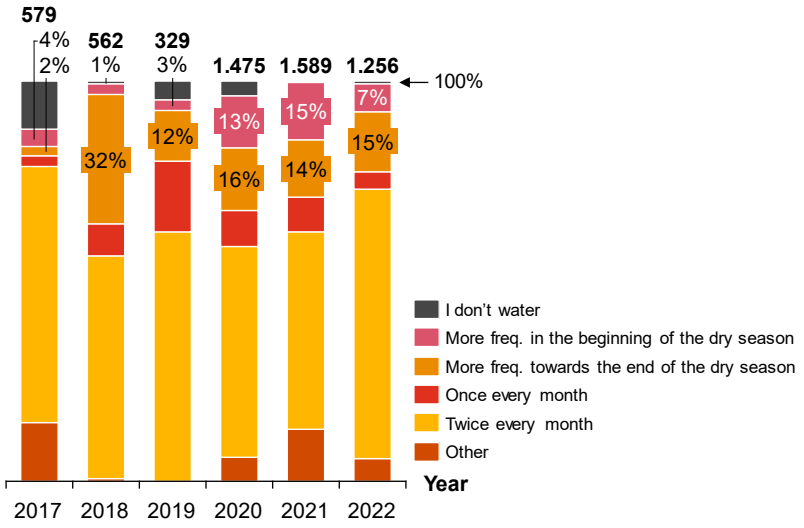

Figure 37: Reported frequency of watering (Mzimba)

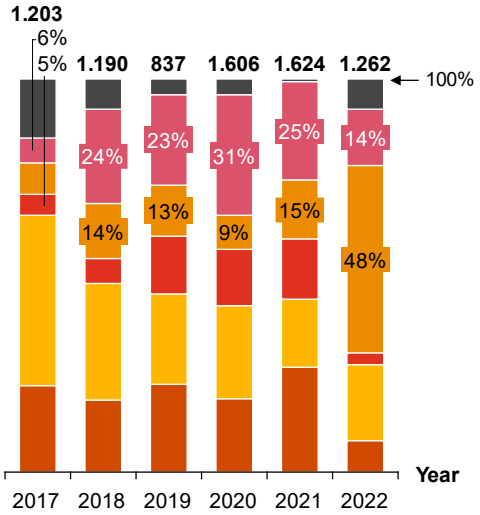

Figure 36: Reported frequency of watering (Thyolo)

Farmers have been trained in *intercropping* macadamia with other crops. M&E data indicates that almost all farmers practice intercropping. Analysis of the M&E data did not reveal any appreciable differences between female and male farmers. A remarkable observation to emerge from data comparison (see Figure 23, Figure 24), is that farmers in Thyolo seemed to have a better understanding of the concept of intercropping (the practice of intercropping (growing two or more crops in proximity) compared to farmers in Mzimba. In 2022, 18% of the participants in Thyolo indicated that intercropping refers to a situation in which crops are not planted close to each other whereas this was approximately one-third of the participants (30%) in Mzimba.

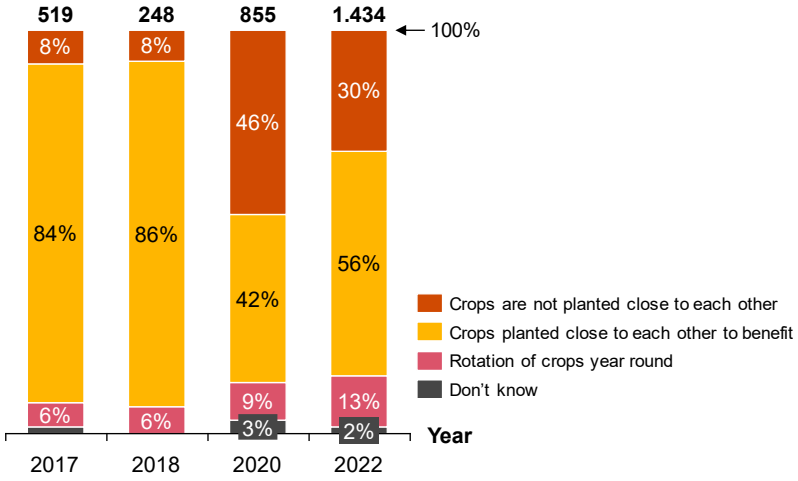

Figure 39: Definition of intercropping as indicated by smallholder farmers (Mzimba)

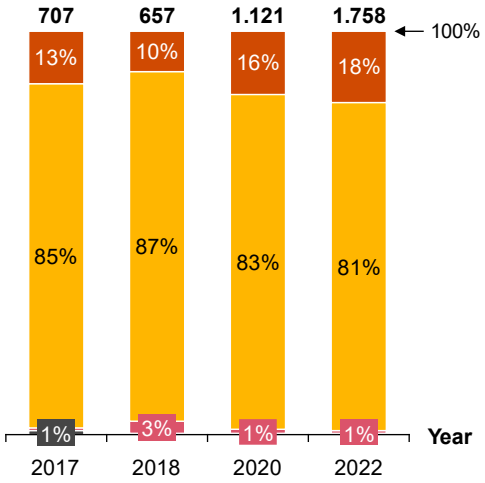

Figure 38: Definition of intercropping as indicated by smallholder farmers (Thyolo)

According to project documentation, farmers have received training on practicing *crop rotation*. Reportedly, a practice that helps to reduce the spread of pests and disease. M&E data (Figure 40, Figure 41) indicates an increase in the use of this practice between 2017 and 2022. In all years, *crop rotation* is practiced more by smallholder farmers in Mzimba than by smallholder farmers in Thyolo.

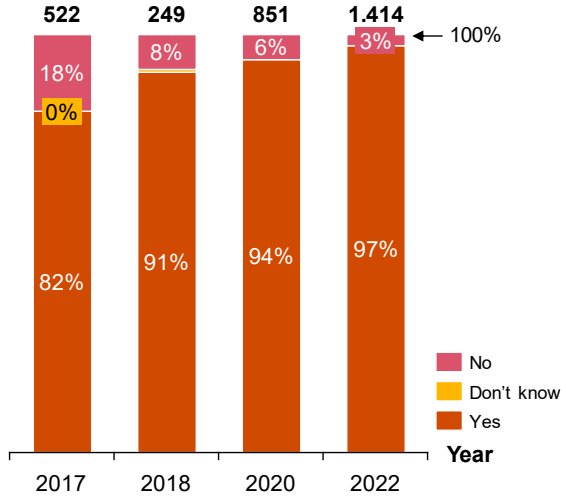

Figure 41: Practice of crop rotation for one-year crops (Mzimba)

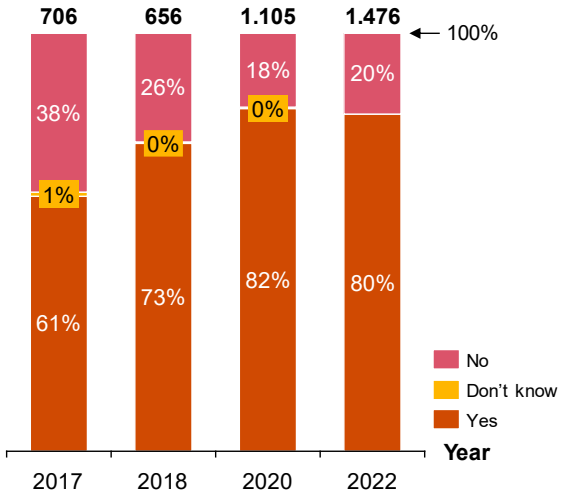

Figure 40: Practice of crop rotation for one-year crops (Thyolo)

Heavy tillage, *monoculture* and *slash-and-burn* are examples of agricultural practices with negative effects, for example on soil quality (soil erosion). No clear trend can be observed from the M&E data (Figure 42, Figure

43), although M&E data seems to indicate that farmers in Thyolo have stepped away from these unwanted practices to a larger extent than farmers in Mzimba.

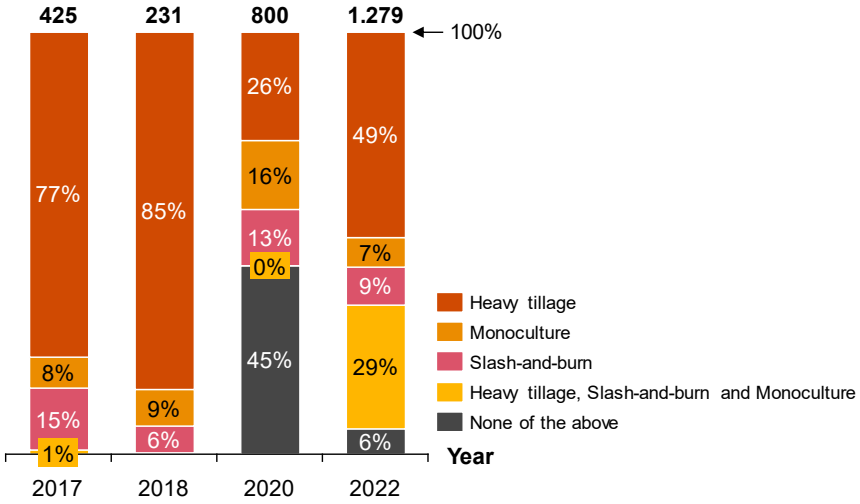

Figure 42: Practicing of heavy tillage, monoculture, and slash-and-burn (Mzimba)

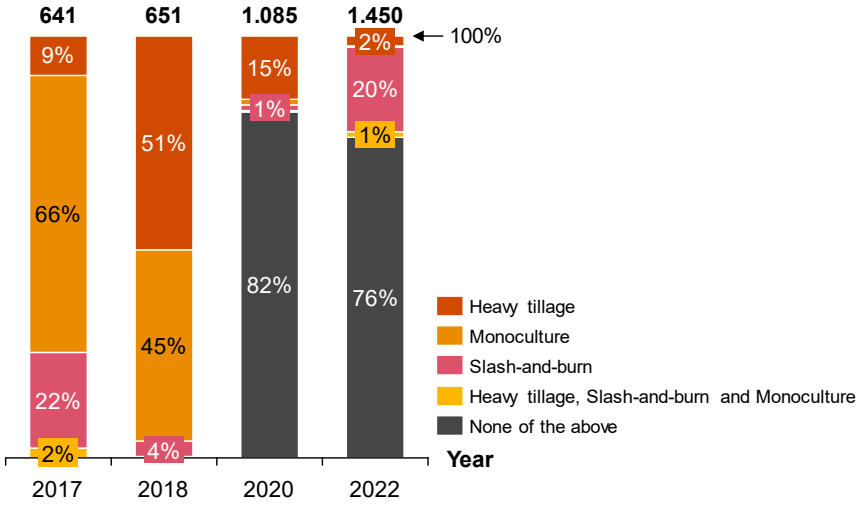

Figure 43: Practicing of heavy tillage, monoculture, and slash-and-burn (Thyolo)

Project farmers have also been trained in the construction of firewood saving stoves. Reportedly, a firewood saving stove uses less firewood than traditional three-stove cooking fires which would reduce the number of trees being cut for firewood by smallholder farmers. Use of firewood saving stoves also saves time. According to project documentation, in 2018/2019, 1,441 farmers used a firewood saving stove after the farmers received training on how to construct and use the firewood saving stoves. M&E data indicates that an increasing number of farmers owned a firewood saving stove (Figure 44, Figure 45). Of the approximately 3,000 farmers who completed the questionnaire in 2022 (Figure 46, Figure 47), a majority reported a usage of the firewood saving stove of twice a day or more. The values on ownership of a firewood saving stove from Figure 44 and Figure 45 are in good agreement with those reported in Figure 46 and Figure 47.

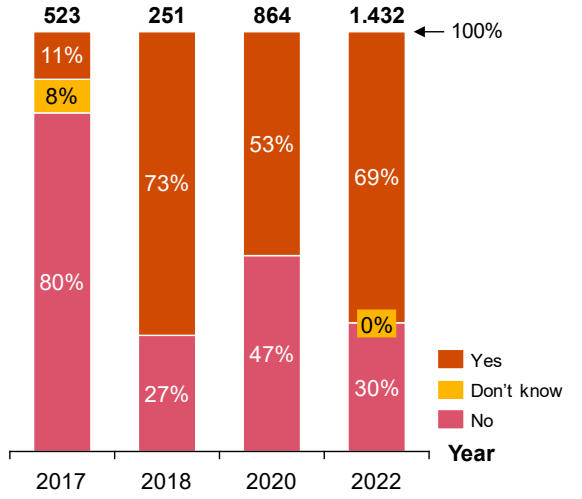

Figure 45: Farmers having a clean cook stove/firewood saving stove (Mzimba)

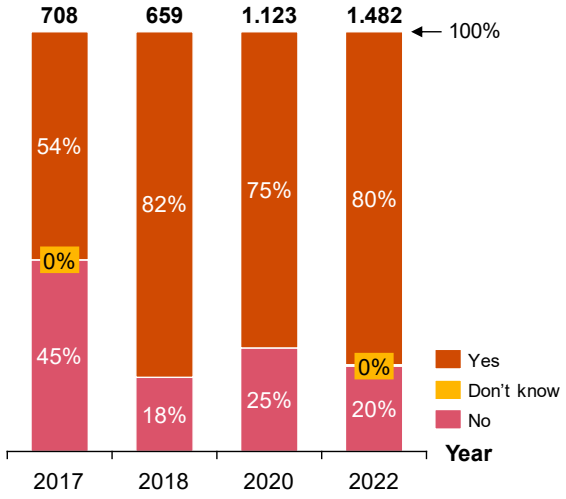

Figure 44: Farmers having a clean cook stove/firewood saving stove (Thyolo)

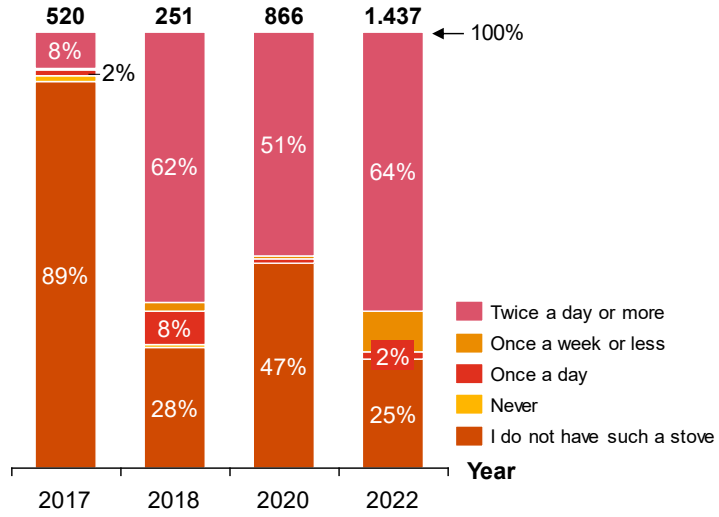

Figure 47: Use of firewood saving stove (Mzimba)

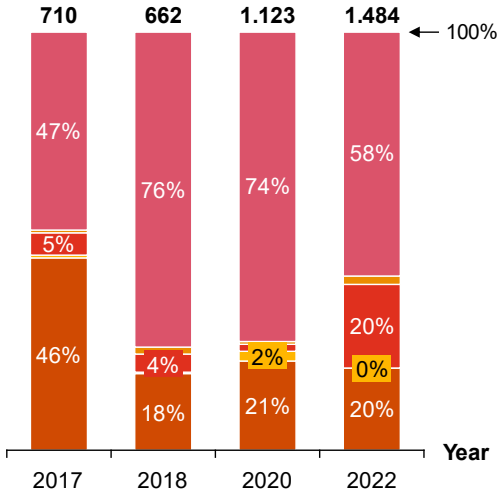

Figure 46: Use of firewood saving stove (Thyolo)

Although aggregation centres (storage and trading centres) have not yet been established by the project, from the M&E data, an upward trend can be observed in the use of aggregation centres by smallholder farmers (in both project locations), from ~5% in 2017 to ~17.5% in 2022. This could indicate that farmers are using other or temporary aggregation centres.

(Intermediate outcome) Increased production & productivity

In 2020/2021, the first 1,000 kg of macadamia nuts was harvested in Thyolo. In 2021/2022, the total harvest from Mzimba and Thyolo was around 6,500 kg (Wet-In-Shell). Only some farmers were able to harvest from their trees. These farmers hoped to harvest an average of 100 kg per farmer. According to project documentation, in 2021/2022, on average farmers harvested between 35- and 50-kg. The challenges that farmers encountered in realising a good yield were discussed and reportedly possible solutions were found.

Private sector development outputs

(Output) Information channels established

The project intended to establish information channels on macadamia nut management and on the macadamia market (product information, prices, etc.). Information channels have been established by linking smallholder farmers in Thyolo and Mzimba to DAPP Malawi, Sable Farming Ltd. and (indirectly) Intersnack Procurement B.V. It however does not become clear from project documentation how the project contributed to establishing information channels on market information. In September 2016, two District Executive Meetings were conducted to brief government officials about the macadamia project and its objectives.

(Output) Facilities established or expanded, Processing machinery procured/installed

In 2016/2017, the project purchased two ten-MT trucks (owned by Sable Farming Ltd.). According to the project plan, these trucks are intended to be used for the distribution of tree seedlings to farmer clubs and eventually for the collection of produced nuts from buying points. Furthermore, two motor vehicles and four motorbikes were procured (owned by DAPP Malawi).

The project established an out-grower nursery, which was closed after the distribution of seedlings in both project locations was finished. According to project documentation, most workers previously employed in the nursery were transferred into other activities of Sable Farming Ltd., thereby staying employed.

Anticipating on an increase in supply – from project farmers – Sable Farming Ltd. is expanding its processing facilities and procuring and installing additional processing machinery. Due to COVID-19, the hardware realisation of the project has been delayed. The processing factory and related storage and trading centres hence can only be constructed in 2022/2023. Project documentation indicates the following infrastructure investments, most of which still have to take place at the time of writing.

Hardware	Size of investment	Ownership of assets
Cracking and kernel/shell separation area	~€230,000	Sable Farming Ltd.
Drying & storage facility for 300 MT of NIS - to be built at existing processing facility	~€220,000	
Aggregation centres (storage and trading centres) – cooperative infrastructure	~€110,000	
Processing facility building modification	~€97,000	
Processing ancillary equipment	~€70,000	
Kernel styling area	~€65,000	
Boiler - 4 MT shell fired	~€54,000	
Transport cost - from South-Africa to Thyolo by road	~€34,000	
Installation cost	~€33,000	
Electrical works and control panel	~€33,000	
Colour sorter	~€20,000	

Table 21: Hardware investments Sable Farming (only listed are investments with a value greater than €20,000)

Project documentation indicates the project has decided to integrate the smallholder processing factory into the already existing Sable Farming factory, meaning the existing factory will be upgraded and expanded to meet the new market and capacity demands.

Private sector development outcomes

(Short-term outcome) Increased nut processing capacity

Due to delays, most investments to increase nut processing capacity have not yet taken place.

(Intermediate outcome) Jobs created

As intended, at the start of the project, 48 new jobs were created in the tree nursery. The ratio male/female was about 50%. After completing the distribution, reportedly, most of the workers were transferred into Sable

Farming Ltd.'s other activities and kept their jobs. The outgrower nursery has been fully closed. Sable Farming Ltd. continued a reconfigured and smaller nursery operation with six to eight workers to cater to its own farm annual plant requirements. According to the project plan, the project intends to create 68 new jobs at the Sable Farming Ltd. processing factory. To date, no jobs at the processing facilities have yet been established by the project.

Key Informant Interviews

This project has introduced macadamia to approximately 3,000 smallholder farmers in Malawi. Since the crop was new to most of the involved farmers, an extensive training programme was required. DAPP Malawi and Sable Farming Ltd. together developed training manuals for field workers interacting with farmers. Sable Farming Ltd. is responsible for knowledge development within the project and therefore field visits to farmers are organised annually. Vice versa, farmers have visited Sable Farming Ltd. This is part of an ongoing collaboration between DAPP Malawi and Sable Farming Ltd.

The level of knowledge and skill differs between farmers, and so does the adoption of new technologies. It has been stressed that proper planning has been crucial in preparing the training sessions. From conversations with project partners, we can observe good cooperation. Together, project partners have learned from difficulties (e.g., weather conditions and the COVID-19 situation). No problems between projects partners have remained unsolved.

Current status

A project partner explained that the project is three months behind due varying reasons, but that there is confidence within the partnership to finish it well. In the beginning of the project, the adaption of techniques was slow, but certainly, farmers became more observant. Farmers also got in touch with trainers more quickly. According to this project partner, currently daily trainings are no longer required – since knowledge is built up within the established farmer clubs. Within farmer clubs, farmers can observe which farmers do best, and imitate practices.

Last year, the first harvest took place. The northern project location, Mzimba, is one year behind on the southern project location, Thyolo, as grafted plants were delivered one year later here. Harvested quantities are therefore also lagging somewhat behind in this region. The project has a database with indicators on tree performance (amongst others, tree survival). Project partners currently are determining an exit-strategy to ensure the relationship between smallholder farmers and Sable Farming Ltd. remains after project completion in August 2023.

Challenges

The project monitors whether farmers implement what they have learned by making use of a data-collection tool. Project partners discuss challenges in online meetings taking place monthly. Challenges mentioned in Key Informant Interviews are summarised below (1-9).

First, drought (particularly in the second and third year of the project), which has been destructive for smallholder farmers not close to water sources (1). A project partner stressed that the project initially relied much on farmer effort. It is recognised that in future projects, irrigation needs should better be accounted for in the project design. An important recommendation according to a project partner therefore is to bundle macadamia projects and water projects, where possible.

Another challenge mentioned is a (2) higher number of dead seedlings than expected – in the first year of implementation, about 10% to 12% of the macadamia trees died. From Key Informant Interviews it is our impression that the project generally adapted well to changing circumstances. In this example, by applying better ways of planting and tree management in following years.

During the project, macadamia seedlings have been confronted with various pests and diseases (3). According to a project partner, productivity can be further increased when more resistant macadamia seedlings are used. In addition, crop protection remains important. It has also been stressed by a respondent that when macadamia orchards are 'sprayed', the recovery (kernel quality) is better. Furthermore, several project partners and stakeholders indicated that it is of great importance that farmers are trained in so-called 'scouting techniques' to combat pests early. Spraying of pesticides then can be targeted and thus cost-efficient. It has been stressed by a respondent that without adequate spraying, insect infestation damage is not always visible until the macadamia orchard is already infested.

Project partners indicate that now provided with trees and training, smallholder farmers will be able to produce macadamia nuts that have the same quality (or even of a higher quality) as those produced by commercial estates – without using the equipment and inputs that commercial estates use (e.g., drip irrigation, chemical fertiliser, crop spraying inputs). In part, this is because of the limited size of smallholder farmers' orchards. Also, farmers have been trained in applying low-cost alternatives.

It has also been raised that while usually smallholder farmers have a handheld device to spray trees, for larger trees mechanical spraying was said to be necessary due to the height of the trees. To allow for mechanical spraying, this should already be considered when aligning the trees during planting. It has been suggested that, within the project, to make targeted spraying of crops more accessible, it would be possible to develop facilities for this within cooperatives.

Besides the damage that can be done by pests and diseases, harvesting too early (4) also affects the quality – up to a point where processors will not buy. Although the reason for early harvests is well-understood, this remains a point of attention.

Project partners are aware that cashflow problems (5) may limit the ability of smallholder farmers. The project introduced the use of manure, which farmers produce themselves, instead of chemical fertiliser to lower investment costs. Generally, access to finance is considered a key issue for smallholder farmers to make productivity-enhancing investments. Sable Farming Ltd. expects that the income generated through macadamia sales will enable farmers to buy the required inputs to maintain quality production of nuts. As more trees mature, smallholder farmers will be able 'to get more out of the crop'. As mentioned, then, smallholder farmers however will also need to protect the orchard more.

It has been pointed out in several Key Informant Interviews that commitment both from farmers and processors is required (6) to build a sustainable farmer-processor linkage. This can be laid down in contracts. It has been stressed that a contract can protect farmers involved and may also prevent farmers from opting for a best deal on 'the spot', although trust seems to remain the most important factor for this.

The training programme has formally ended. In a Key Informant Interview it was raised that the demand for technical assistance will be greater when the trees are fully grown (7). Need for continued technical support was also expressed by a project partner during our field visit. It was stressed that, as more trees mature, smallholder farmers will also need to protect their orchards more (also from theft, for example). It has been stressed by a project partner that the Mzimba cooperatives are particularly hard to assist, because of the distance from Sable Farming Ltd. (8). Currently (at the time of evaluation), there is no dedicated technical assistance from Sable Farming Ltd. assigned to the cooperatives - only some visits to the farmers every now and then.

To bridge the period until maturation, a challenging period (9), *intercropping* between the macadamia trees can generate income on a seasonal basis. Intercropping was part of the training programme of the project.

Quality of smallholder produce

The quality of the first batches of macadamia nuts delivered by smallholder farmers was of a substandard quality, key informants indicate. Nuts were harvested too early, meaning Sable Farming Ltd. received mainly immature nuts. Furthermore, insect damage was a major problem. Also, some macadamia nuts were sold to another processor.

According to Sable Farming Ltd., smallholder farmers understand that they need to improve the quality of production. Sable Farming Ltd. is also supposed to manage the quality, for example, it needs to control which chemicals are used (maximum residue limits, MRLs). Scouting and targeted spraying needs to happen consistently, in all phases of growing the tree.

During our field visit in October 2022, it was explained that from August 2023 onwards, when the project formally ends, what remains is the relationship between project smallholder farmers and Sable Farming Ltd.

During Key Informant Interviews it has been explained that after harvest, macadamia nuts must be dehusked (which currently is done manually) and dried properly as soon as possible to maintain quality. The project acquired land for setting up storage and trading centres near cooperatives. Land is registered with the cooperative; Sable Farming Ltd. will become the owner of the storage and trading centre itself and the equipment placed there. Trucks, purchased through the project, will be used to transport Nut-in-Shell (NIS)

from these centres to Sable Farming Ltd. Macadamia shell husks are used by Sable Farming Ltd. during the drying stage using a shell-fired boiler. Shell waste thus is used to generate renewable energy.

Supply from smallholder farmers to Sable Farming Ltd.

Sable Farming Ltd.'s supplier base consists of its own estates and smallholder farmers who received technical assistance from DAPP Malawi and Sable Farming Ltd. (i.e., the cooperatives in Mzimba and Thyolo). Currently (at the time of evaluation), Sable Farming Ltd. does not procure from smallholder farmers that are not involved in the project. Sable Farming Ltd. is only interested in cooperating with smallholder farmers who follow Sable Farming Ltd.'s practices, amongst other because of maximum residue limits (MRLs) to which Sable Farming Ltd. must comply.

It was estimated that Sable Farming Ltd. is responsible for approximately 40% of the macadamia production in Malawi. The total amount of macadamia nuts processed by Sable Farming Ltd. currently (at the time of evaluation) is around 300 MT per year (saleable kernel at a 1.5% moisture level). Turnover largely depends on the quality of nuts procured (which is influenced e.g., by pests and diseases) and the recovery of the nut (kernel quality). Last year, the supply from smallholder farmers was around 18 MT. Sable Farming estimates that in 2022, the intake from smallholder farmers will reach around 20% of the total intake.

Current processing capacity allows the processing of around 300 MT macadamia nuts per year. With the expected increase in supply from smallholder farmers (through their involvement in the project), this capacity will no longer be sufficient. Therefore, Sable Farming Ltd. will expand its factory. Sable Farming Ltd. indicated that it will be able to take care both of its own and the involved smallholders' future growth with the expansion.

Pricing

According to a project partner, commercial growers and smallholder farmers receive the same price for their produce based on the quality. Sable Farming Ltd. determines its purchasing price based on the saleable kernel quality. From the outside (NIH/NIS), it is not possible to determine the quality of supply. The size of the kernel can only be determined after dehusking, shelling and drying to a 1.5-2%-moisture level. Lower-quality produce is downgraded and used in other products with less market value. Reportedly, macadamia sells on 'the way its looks'. During our field visit, it was explained that Sable Farming Ltd. does not compromise on quality. Its main goal is to generate high-quality saleable kernel, for which the source of production does not matter. Currently, at the time of evaluation, Sable Farming Ltd. is not Fair Trade Certified™. Sable Farming Ltd. is Rainforest Alliance certified.

Although transport is arranged by Sable Farming Ltd., making use of trucks purchased through the project, it remains somewhat unclear from Key Informant Interviews how costs for transport are distributed. It has been underlined by a respondent that the transport distance most likely will influence the price farmers receive. Long transportation time furthermore may also affect kernel quality, and thus price.

During one of the Key Informant Interviews, it was explained that smallholder farmers prefer to receive payment almost immediately after delivery of their produce to a buyer. As a result, some farmers will sell their crops, for example to a 'suitcase-buyer' offering immediate payment, even if the price offered is lower.

Employment

During our field visit it was explained that no additional jobs will be created through the expansion of the capacity of Sable Farming Ltd.'s factory. Some new equipment will increase the overall efficiency of the factory, while other equipment will require additional labour force.

Entrepreneurial risk

A project partner has explained that, in principle, Intersnack Procurement B.V. will buy the smallholder supply processed by Sable Farming Ltd. However, it was stressed that Intersnack Procurement B.V. has strict quality requirements. The main markets for Sable Farming Ltd. concern export markets, namely U.S., Japan, and Europe (The Netherlands).

It was explained by a project partner that there is some flexibility for farmers, as they can also sell nuts to other parties if they would like so. However, it was also explained that in that case, farmers are not allowed to use the storage and trading centres set up by the project. This would be mainly due to quality considerations.

The risks involved with investing in a single (export) crop have been discussed in Key Informant Interviews and were largely acknowledged.

Impact

Respondents generally agree that the most important potential impact of the project for farmers is a more stable income. It is too early to observe real impact, however. Again, the quality of production is stressed as of the utmost importance. Little concessions are made in this respect by purchasing parties.

Trust in the relationship between farmers and processing companies is important. Generally, achieving this relationship between farmers (farmer clubs), cooperatives and processors is considered difficult, but necessary for quality assurance and fair trade. The project expects to save costs at various levels of the value chain by setting up storage and trading centres in growing regions. This suggests economies of scale through aggregation of supply.

Small commercial nurseries are established in several regions in Malawi, which are not necessarily linked to the project. The nursery that was set-up by the project to supply smallholder farmers with grafted pants, however, has been closed. Still, it has been stated that the project has created a general awareness about the growing value chain of macadamia and, supposedly as a result of which, also farmers outside of the project have become involved in production. At the same time, accessibility of macadamia seedlings/grafted plants remains a challenge for smallholder farmers due to availability and cost. From Key Informant Interviews, scaling potential therefore seems to be limited.

It has been explained by a subject-matter expert that despite increased production and demand for macadamia, almost no finished macadamia products are processed in Malawi – possibly limiting the potential for in-country value addition.

Focus Group Discussions

The FGD-results allow us to make community-level observations relevant to the supply side pathway of the project Theory of Change (ToC).

We follow beneficiary-level project activities based on the Focus Group Discussions in all project locations (cooperatives in Thyolo and Mzimba district).

We can observe that farmers have been reached through various channels, resulting in the participation of (women) farmers. They have been trained on agricultural practices relevant to macadamia farming, and they have received macadamia tree seedlings for free. Also, farmers typically are aware of the business logic underpinning macadamia farming, and they have organised themselves in cooperatives. From a beneficiary perspective, this part of the project seems to have gone reasonably well.

From Focus Group Discussions with farmers, we can observe the project indeed reached the desired end-beneficiaries, although landholdings of farmers reached are smaller than intended. The majority of farmers spoken with in Thyolo district cultivate one or one-and-a-half acre, and some as much as five acres. In the Mzimba district, farmers in the focus groups typically held two or three acres of land, with some as much as ten or fifteen ha. A large share of the farmers involved in the discussions were women farmers. Youth farmers were underrepresented, presumably as they do not (yet) own land that they cultivate. The farmers spoken with practically all were not involved in macadamia farming before the project started.

After project inception and initial trainings, the beneficiary perspective allows us to observe specific challenges.

Some farmers describe that, even though they felt sufficiently trained, they quickly realised they lacked the resources to implement the methods for which they were trained. In several focus groups in the Mzimba district, farmers indicated that for this reason they were not entirely satisfied with the trainings.

According to project farmers spoken with, this translates to challenges related to the actual management of the macadamia trees. For the early stages of the project, losing trees is reported in several of the focus groups in the Mzimba district. Farmers describe losing trees to heavy rains, bad soil, and erratic farming practices. Other farmers describe losing half of their trees to termite attacks. Over the subsequent years of tree management, farmers describe difficulties with irrigation, as they are situated long distances from water sources, and they describe the dangers of insect attacks, pests and diseases, and reported that they lack the spraying equipment

that would help them to mitigate these. Project farmers indicate they lack the capital to purchase the chemicals that would help them care for the trees, and they reported theft of trees and produce as a structural problem.

Part of the efforts also focussed on helping farmers understand the business logic behind growing macadamias, and this seems to have gone relatively well. However, in farmers in focus groups reported that they considered the amount of time and energy needed to manage the macadamia trees to be high, and the current prices received to be low. Farmers in focus groups also expressed concern about the level of care the macadamia trees require before they produce nuts, and the inputs and tools they reported to need and – at the time of the evaluation – cannot afford. What keeps farmers motivated to maintain their level of investment in time and energy is the prospect of future earnings that could significantly raise their standard of living.

Some of the farmers spoken with have already been able to harvest first (relatively modest) batches of macadamia. Farmers reported to encounter several problems while storing and collecting harvested macadamia produce. These problems are described to revolve around the lack of storage facilities and the lack of capital to construct warehouses (which at the time of evaluation are under construction). In the absence of storage facilities, farmers reported to use their dwellings instead or to store them out in the shade, both of which have impact on the quality of the nuts and make them vulnerable to theft.

Macadamia farmers spoken with in focus groups overwhelmingly reported that they consider Sable Farming Ltd. to be the most suitable buyer of their produce in the vicinity. The farmers in the focus groups also reported that the prices offered by Sable Farming Ltd. fluctuate and are unsatisfactory. In all Focus Group Discussions with the macadamia farmers, challenges with selling macadamia produce to Sable Farming Ltd. have been discussed at length and in detail. The biggest challenges they describe, based on their experiences with the first harvest, include miscommunication on what Sable Farming Ltd. actually buys from farmers, transparency on buying prices, unsatisfactory price levels, late and absent payments, and a monopolistic position of Sable Farming Ltd.

Increased crop supply has not yet emerged. Subsequently, increased year-round income of farmers also has not yet improved. These farmers describe that since most of the trees have not yet started to yield nuts, they not yet enjoy the benefits that of macadamia farming. Subsequently, they reported that they do not see a difference between themselves and farmers that focus on other crops. The farmers in all the focus groups describe that they expect better living standards, where they will be able to feed their households with healthy meals. They describe they expect this to come about when the macadamia trees start producing more macadamia nuts they can sell.

Below, we provide more detail on these issues.

Local project inception

Project activities at the beneficiary level are reported to have started between 2016 and 2017. NGO representatives and extension workers connected to village elders to get in touch with farmers interested in participating in the project. With the farmers that were interested, farmer clubs and cooperatives were formed, and trainings organised.

Interest in the project was reportedly garnered by describing economic achievements through macadamia farming in farming estates (as was reported to have occurred in the Thyolo district, where farmers spoken to specifically mentioned that the owners of the estates are white), by describing the goal of the project to be to eradicate poverty (as was reported in the Mzimba district), and through the novelty of farming a nut that grows in a tree above ground (as was reported by women in the Mzimba district).

In some of the focus groups, farmers reported that only farmers that owned sufficient land were invited to participate in the project. Some of the focus groups indicate that fees were collected for cooperative membership contributions, ranging from MKW 2,000 to MKW 4,000, and in some cases even MKW 10,000.

All focus groups discussions reported that the farmers received advice on macadamia production through extension services from DAPP Malawi, with information from Sable Farming Ltd. The advice given was delivered to groups of farmers, and the farmers considered the advice valuable and of good quality.

Training on agricultural practices

Participating farmers were trained on agricultural practices. From the Focus Group Discussions, this seems to have gone quite well. Farmers in focus groups could explain in length and detail what they were trained on, describing specific trainings per growth stage of the tree, including *mulching*, manure application, (drip) irrigation, planning and other crop husbandly practices, pit planting, mixed cropping to make full use of the land, pests and diseases management, compost manure making, tree supporting methods (using sticks), basin planting, and good harvesting and post-harvest practices. In some focus groups, farmers even mentioned practices that could help mitigate levels of aflatoxin.

In all focus groups, farmers commented highly positive on the trainings, stating that it helped them become well-knowledgeable farmers, and that without the trainings they would not have known how to practice macadamia farming at all. One focus group in the Thyolo district stated the quality of the trainings gave them the confidence needed to expect good outcomes from macadamia farming.

In another focus group in the Thyolo district, farmers reported that even though they felt sufficiently trained, they quickly realised they lacked the resources to implement the methods for which they were trained. Farmers in a focus group in the Mzimba district indicated that part of the trainings were specifically designed to mitigate the negative effect of long distances between the land of the farmers and the nearest source of water (e.g., basin planting).

In several focus groups in the Mzimba district, farmers indicated that they were not entirely satisfied with the trainings. They reported that they wanted to learn the technical know-how needed to graft macadamia trees. They were taught the theory of grafting, yet felt they needed hands-on training to be able to put it into practice. They reported that they specifically asked DAPP Malawi extension workers for these trainings, but that DAPP offered no help in this regard.

Understanding of the business case

Part of the efforts also focussed on helping farmers understand the business logic behind growing macadamias. From Focus Group Discussions, we can observe this has also gone well. Farmers describe that the macadamia nuts would bring both economic and food security to their households, and that the trees would yield nuts for typically 45 years and in some cases 85 years. They also describe that they will need to care for the trees for five years before they can expect the first produce.

Farmers in focus groups reported that they considered the amount of time and energy needed to manage the macadamia trees to be high, and that they were either expecting or hoping for high returns on this investment. Both in the Thyolo district and in the Mzimba district, farmers in some of the focus groups discussed price levels above which the business model would hold, and below which they would rather switch back to growing maize.

In several focus groups in the Mzimba district, farmers indicated that they also understood the value of the macadamia trees themselves within the business logic. They said they wanted to understand the process of grafting the macadamia trees on a level that would allow them to grow new trees by themselves. They also reported that macadamia trees that were lost could only be replaced at a cost of MKW 3,000, which they described as too high, and they reported annual incomes of MKW 50,000 to MKW 100,000.

In one of the focus groups in the Mzimba district, understanding among farmers of the business logic was limited to the promise of the project to eradicate poverty.

Tree reception and management

In all focus groups, farmers reported that the trees were given to them for free, and that they were allowed to plant them on their land. Farmers typically reported to have received 100 trees, although for some women farmers this was typically 60 trees. In one focus group in the Mzimba district, farmers explained that women farmers struggle to access enough land sufficient for macadamia production, due to the patrilineal nature of the traditional authority.

Several farmers indicated that some confusion has occurred in the handing out of trees. In one focus group in the Mzimba district, farmers received 100 trees even if their land could not accommodate this number and were told to hand any excess trees to neighbours or relatives. It is unclear if these neighbours and relatives would then be included in project-related training activities. In another focus group in the same district, farmers reported that they received 50 trees per farmer in a first phase, with the idea of receiving another 50 trees per

farmer in a second phase. However, when the 50 trees from the first phase were unfortunately destroyed, the 50 trees per farmer in the second phase would effectively replace these first 50 trees – and were subsequently considered to make up a total of 100 trees per farmer.

Losing trees is reported in several of the focus groups in the Mzimba district. Farmers describe losing trees to heavy rains, bad soil, and erratic farming practices. Other farmers describe losing half of their trees to termite attacks. They reported that they would like to replace these trees, but that this costs them MKW 3,000 per tree, on annual incomes ranging from MKW 50,000 to MKW 200,000.

In several focus groups, farmers reported that they intercrop macadamia trees with other crops, including maize. In some cases, the macadamia trees grow in maize-dominated fields.

Over the subsequent years of tree growth, managing the macadamia trees comes with challenges. Farmers describe difficulties with irrigation, as they are situated long distances from water sources, while the growing trees each require 5 litres of water every week. Farmers also describe the dangers of insect attacks, pests and diseases, and reported that they lack the spraying equipment that would help them to mitigate distance (e.g., their equipment cannot reach the top of the trees once they reach a specific height). Moreover, farmers say they lack the capital to purchase the chemicals that would help them care for the trees, reporting that a bottle of chemicals needs be procured for MKW 3,500.

Farmers also indicate confusion over the information received from Sable Farming Ltd. through the extension workers, describing that macadamia farmers are advised to employ local remedies to such problems, while workers on the estate farms of Sable Farming Ltd. use modern and efficient chemicals for the same problems. Requests for such chemicals from farmers to extension workers are reported to not have led anywhere.

Other challenges they mention are termites (sometimes drawn to the *mulching* materials) that damage the tree roots resulting in the tree drying out, lack of access to fertiliser, and theft of trees – mostly by children gathering firewood. In some places, theft reportedly has become such of a problem that laws were put in place that would fine parents of stealing children MKW 5,000. Lists of challenges go on to describe soil that is not as fertile as hoped, livestock breaking the valuable trees, and bush fires destroying macadamia trees – one woman is reported to have lost all her trees to a bush fire.

Concerns and motivations

Farmers in focus groups expressed concern about the level of care the macadamia trees require before they produce nuts, and the inputs and tools they reported to need and – at the time of evaluation – cannot afford. For five years, farmers invest their time and a significant share of their land in the macadamia trees. Among other things, they point to irrigation difficulties as an example. They reported that while they own 50 or 100 trees, each macadamia tree requires five litres of water every week, and they can be removed 800 meters or more from a water point – meaning they need to carry 250-500 litres of water over an 800 meter stretch weekly, using carts or carrying the water in kegs and vats.

What keeps them motivated to maintain their level of investment in time and energy is the prospect of future earnings that could significantly raise their standard of living. They describe that this is what drives their patience. Some of the farmers describe this prospect in terms of hoping for the best rather than expectation. Extension workers are reported to have organised specific activities aimed at raising morale, such as having farmers visit successful macadamia orchards.

Harvesting practices

A fair share of the farmers spoken with in focus groups has already been able to harvest macadamia nuts. Focus Group Discussions with farmers indicate that, during harvesting, farmers employ the practices they have been trained on. They typically harvest the nuts after they have fallen from the tree onto the ground. They shake trees to determine their maturity.

Farmers in the Focus Group Discussions in the Thyolo district all reported to store harvested macadamia nuts in their dwellings, which they say are well ventilated. They place them on an elevated platform where the nuts are dried and stored. In the Mzimba district, in some focus group the farmers describe the same practice, drying and storing the nuts on an elevated platform inside their (ventilated) dwelling, while in other focus groups in the district farmers describe to store harvested nuts on an elevated platform in the shade.

Farmers reported to encounter several problems while storing and collecting harvested macadamia produce. These problems are described to revolve around the lack of storage facilities and the lack of capital to construct warehouses. This lack of warehouses is what leads farmers to using their dwellings as storage facilities. Keeping macadamias stored at home puts them at risk of consumption by members of the household and their visitors. Especially when yields are not yet very high, this consumption can eat away a fair share of the produce. Storing macadamias out in the shade puts them at risk of theft, which in some focus groups is reported as a major issue. Farmers describe that in some villages, fines of MKW 5,000 are levied on people caught stealing macadamia nuts, while in other villages farmers reportedly threaten would-be thieves with traditional penalties. In yet other villages, local police has been asked to be more vigilant towards theft of macadamia nuts.

In one focus group in the Mzimba district, farmers explain that they had plans to develop a warehouse where macadamias could be stored safely, yet that these plans were put on hold as they grew sceptical of the involvement of Sable Farming Ltd. as the only buyer of the macadamia produce

Macadamia yields

During the Focus Group Discussions, farmers that already were able to harvest macadamias reported on their actual yield, while others described their projected yields for the coming year. In the Thyolo district, farmers typically reported to expect an average yield of 50 kg-100 kg from their orchard, with expectations going as low as 25 kg per orchard. Farmers that already harvested macadamias reported yields of 15 kg through 50 kg per orchard in their first year of harvesting, and 22 kg through 106 kg per orchard in their second year of harvesting. In the Mzimba district, farmers typically reported an average yield of 4 kg through 16 kg per tree (as opposed to per orchard as is reported by the farmers in the Thyolo district). In several of the focus groups, farmers spoken with have not yet been able to harvest macadamia nuts. One farmer in the Thyolo district reported theft to be the most important cause for her inability to harvest yet. In several focus groups in the Thyolo district, farmers described they do not have the capital required to care for the trees in a way that has them produce more and better macadamia nuts.

Selling macadamia

Macadamia farmers spoken with in focus groups overwhelmingly reported that they consider Sable Farming Ltd. to be the most suitable buyer of their produce in the vicinity. In all the focus groups in the Thyolo district farmers reported to have been able to sell macadamias to Sable Farming Ltd. In one of these groups, farmers explicitly mention that they do not sell to vendors. Based on their experiences with selling first batches of produce, farmers reported a number of challenges. Farmers describe price drops of 25%-40%, starting from USD 9.25 per kg in some cases and from MKW 7,000 per kg in others. Farmers reported that the reasons they receive for these price drops are described in terms of COVID-19 and the quality of the produce. In all Focus Group Discussions with the macadamia farmers, challenges with selling macadamia produce have been discussed at length and in detail. The biggest challenges include miscommunication on what Sable Farming Ltd. actually buys from farmers, transparency on buying prices, unsatisfactory price levels, late and absent payments, and a monopolistic position of Sable Farming Ltd.

Farmers in the focus groups also discussed transportation of macadamia nuts. In the Thyolo district, farmers reported that their produce is collected by a truck from Sable Farming Ltd. Sable Farming Ltd. collects the macadamia nuts from aggregation centres. The farmers transport the nuts to the aggregation centres by themselves. These farmers also explain that they believe that after two years of production, Sable Farming Ltd. will stop sending trucks to collect the macadamia produce. From that moment on, farmers in the Thyolo district will need to organise their own transport. The farmers describe that they do not think they will be ready to transport the nuts to Sable Farming Ltd. by that time, and that they would prefer it if the period of transportation assistance from Sable Farming Ltd. would be extended. They describe that they feel two years into production is too short of a timeframe.

Farmers in the focus groups in the Mzimba district reported that they send their nuts to aggregation points through individually hired transport, as the distances are quite large. From the aggregation points, they hire AXA couriers as a cooperative to send the produce to Sable Farming Ltd.

Impact

As a result of the above, increased crop supply has not yet emerged. Subsequently, farmers spoken with indicate year-round income also has not yet improved.

During Focus Group Discussions in the Thyolo district, farmers described themselves as poor. They describe that they believe they could do a better job managing the macadamia trees, but they describe themselves as constrained due to resource deprivation. In one focus group, farmers reported a current annual income of about MKW 80,000 to MKW 150,000.

These farmers describe that they not yet enjoy the benefits that the macadamia trees were predicted to bring, since most of the trees have not yet started to yield nuts. Subsequently, they reported that they (at the time of evaluation) do not see a difference between themselves and farmers that focus on other crops. In all focus groups in the Thyolo district, the farmers reported that it is not yet easier for them to buy food.

The farmers in all the focus groups describe that they expect better living standards, where they will be able to feed their households with healthy meals. They describe they expect this to come about when the macadamia trees start producing more macadamia nuts they can sell.

They make the following suggestions on how this situation can be brought closer:

- Transparency from Sable Farming Ltd. on pricing and payment
- Legitimate, well-structured markets for farmers to sell to, on equal bargaining footing
- Help with chemicals to treat termites and other diseases

B14. Macadamia VCE – Detailed analyses Q3.2, Q3.3

Key Informant Interviews

Stakeholders note that DAPP Malawi and Sympany+ have been working together for a long time in setting up educational programs. DAPP Malawi has experience in collaborating with local farmers and providing them with training. In this project, Sympany+ acts as a coordinator in the partnership and organises periodic meetings with farmers and project partners. Stakeholders note that, during the project, Sable Farming Ltd. invited representatives of cooperatives visit the Sable Farming Ltd. factory. In interviews, complementarity of the partnership has been stressed multiple times. Also, there would be a good learning experience between project partners and farmers. Farmers are now able to produce the macadamia crop. It is emphasized that all partners within the chain need each other.

Stakeholders tell us that, although DAPP Malawi does not play a role in the negotiations between smallholder farmers and Sable Farming Ltd., DAPP Malawi has encouraged both to discuss prices for macadamia nuts. Intersnack Procurement B.V. is also involved in the project as a private party, which ensures that purchasing can be planned more easily. Moreover, “growing together” is an Intersnack-value that is being realised in this project. Important for the success of the project is a supporter of the project within the various project partners involved.

Stakeholders note that it was very useful for this project that DAPP Malawi already has a lot of experience in working with local farmers. DAPP Malawi provides training to farmers on how to gain insight into macadamia tree care and tries to put them in charge of growing their own crops. The collaboration between DAPP Malawi and Sympany+ also went well in this project.

Stakeholders expect that soon, the collaboration within the partnership will go to a next stage, entailing a new and closer collaboration between Sable Farming Ltd. and Intersnack Procurement B.V. and Sable Farming Ltd. and project farmers.

Focus Group Discussions

As local experts warned for the risk of household-level conflict when income levels rise suddenly, farmers in Focus Group Discussions were asked who in the household has control over the proceeds. In the Thyolo district, all focus groups reported that what to do with the proceeds of the macadamia trees at household level was decided as a family in a conversation between the two spouses. In the Mzimba district however, in most of the focus groups the participants predicted household-level conflict between family members. They predicted conflicts to erupt by the time significant incomes are generated from the macadamias. One of grounds for conflict would result from the situation that typically one of the spouses works on macadamia farming, while the other spouse does other work to help the family. Another ground for conflict was described as men’s dominance. These predictions seem to be quite in earnest, as in one focus groups the participants describe

that at the level of the cooperative, they agreed to come up with bylaws that will be acted upon during macadamia nuts income related disagreements in families.

Another point of tension described in one of the focus groups in the Thyolo district related to conflict between on the one hand owners of commercial estates that grow macadamia trees, and on the other project-related macadamia farmers. Focus group participants describe that when selling their harvest, estate owners accused them of having stolen the produce they were selling. Farmers spoken to specifically mentioned that the owners of the estates are white. On a related note, these focus group participants describe fears among macadamia farmers of having their lands confiscated, specifically mentioning Malawian farmers that have lost their lands to tea estates.

B15. Macadamia VCE – Detailed analyses Q5, Q6, Q6.1

Desk study

The available documentation supports the idea that the intervention has led (or will eventually lead) to change in system elements. The intervention may not be scalable. Annual Progress reports from 2016 onwards state that without the support of the FDOV, the 3,000 smallholder farmers would not have started growing macadamia on this scale. After almost four years all the farmers in the project have embraced growing macadamia as an important part of their farming system. They support each other and solve problems together. This seems to suggest that the project is now in the hands of the farmers themselves who will carry on growing macadamia nuts beyond the duration of the project. Social sustainability therefore seems to have been achieved. On the other hand, this change may not yet be systemic. To be systemic the project would need to have an impact beyond the 3,000 farmers in the project.

In terms of scalability however, this is more questionable. Macadamia nut trees cannot be planted everywhere. The regions chosen were selected based on suitability. In one reporting period there was a problem with rainfall. This points to the natural constraints to where in Malawi macadamia nuts can be grown. Besides, availability of grafted macadamia seedlings may form an important constraint for scalability.

Project documentation indicates that steps have been taken to ensure that benefits will continue even after FDOV funding has stopped, but there are some question marks around how this will work out in practice. To ensure the longevity of the intervention farmers are organised in cooperatives, and they are trained on tree management, pest control and more. The project has also set up Village Savings and Loan Groups (VSLGs) among the farmers to be able to pool financing and sustain the macadamia farming for the long term. Macadamia trees will usually reach full production in twelve to fifteen years and a good tree can produce macadamia nuts for forty years. In this sense the revenue model depends on a large upfront investment by FDOV (providing the trees) and the farmers (caring for the trees), before becoming financially sustainable when the trees mature. The VSLGs were set up to overcome this high initial investment cost. Nonetheless, in 2018-19 the project reported that there was a need for more VSLGs, as there were only 37 groups in both districts. Later this figure grew to 90. It is unclear if this figure has grown further and/or whether this number is enough.

In addition, project documentation indicates there were some plans by Sable Farming Ltd. to set up a revolving fund for the farmers for the last two years of the project until 2024. The revolving fund should cover maintenance costs of the trees during the four years that the production is limited due to the age of the trees. In 2018-19 the partnership was still looking into how to implement this. It is unclear from the project documentation what happened after this.

RVO.nl field notes from the project assess the sustainability to be guaranteed because when FDOV funding ends, the project will be in the hands of Sable Farming Ltd. together with the farmers, and project documentation reports that knowledge will be sufficiently embedded first of all with Sable Farming Ltd., and with the sixteen farming instructors and the project managers. In addition, 60 students from the Mikolongwe Vocational School will have successfully followed the Macadamia module. This assessment also states that the farmers themselves and their children are also building up knowledge on smallholder Macadamia production.

We note however, that other project documents indicate that the involvement of the farming instructors and project managers, for example, will end at the end of the project, meaning that their impact cannot be taken for granted beyond the duration of the project. Likewise, whether the 60 students will be able to put their macadamia farming expertise into practise may likely depend on other factors in addition to their knowledge acquirement.

Furthermore, we would like to nuance RVO.nl's assessment in view of the set-up of the project which gives unequal market power of Sable Farming Ltd. vis-a-vis the farmers who cannot determine the quality grading of their nuts themselves, nor influence the price. This creates information asymmetry which ultimately benefits Sable Farming Ltd., the very party responsible for continuing the project once FDOV funding has ceased. A lot therefore seems to depend on the goodwill of Sable Farming Ltd.

Joint field visits with project partners and the Ministry of Agriculture and Youth have served to strengthen collaboration and ensure project sustainability, but from the project reporting it is unclear what role, if any, that the Ministry will play in the future.

Project reporting indicates that the project has established the foundation for a sustainable market infrastructure for macadamia nuts production by smallholder farmers for the coming 30 years. There are several aspects that contribute to this and that are listed in the project documentation.

- Project documentation states that the farmers who participate in the project are the future lead farmers on macadamia management and will contribute to scaling up the number of macadamia trees in years to come, as there is base potential of more than one hundred thousand farmer households in the Malawian macadamia growing areas. To ensure that both knowledge and marketing structures remain in place after completion of the project, all farmers are receiving entrepreneurship training and are coached in setting up cooperatives. The cooperatives will act as a backbone for marketing of the macadamia nuts grown by the farmers.
- Likewise, the farmer clubs are to provide permanent structures where farmers are the driving force able to make decisions on what technical support that they need from the project staff. It is based on the farmer clubs that four macadamia cooperatives will be established to facilitate cooperation between farmers, Sable Farming Ltd., and Intersnack Procurement B.V. Furthermore, storage and trading centres will be established during (towards the ending of) the project.
- The Village Savings and Loan Groups (VSLGs) are also important for project continuity and sustainability

One last main reason why project documentation concludes that the intervention will have long-term results beyond the project timeline is Sable Farming Ltd.'s role in the project. Sable Farming Ltd. has acted as a hub in the project providing technology and training and refreshing project staff on various topics and techniques. Since Sable Farming Ltd. is in Malawi for the long run, the project documentation concludes that sustainability can be assured as technology and know-how will be trickling down to farmers for a longer period. In this assessment there is however no discussion about what might happen if the farmers and Sable fall out or if they cannot agree on a fair price. Project documentation does not report on the distribution of market power between Sable Farming Ltd. and macadamia producers.

Key Informant Interviews

Stakeholders explain that the project has been aware from the beginning that cash flow issues of smallholder farmers could affect project effectiveness. Cash flow issues may prevent smallholder farmers from making investments necessary to improve the quality of their produce.

Stakeholders also point to other challenges to project continuity. Not all farmers have access to irrigation. This may cause delay in tree growth. Stakeholders think it would be helpful to have an irrigation project within the Macadamia project. The nursery has closed, and Sable Farming Ltd. thus, at the time of evaluation, is only producing seedlings for its own estate. Farmers do want to buy trees, but this (in general in Malawi) is considered a significant challenge.

Stakeholders underline the importance of trust and cooperation within the value chain. It is emphasised that all partners within the value chain strongly need each other and that cooperation between farmers and processors is of great importance. It is explained that only if farmers remain satisfied with the relationship, they would be interested in, e.g., entering into a business agreement with a company or the company is regarded as a market partner. If the relationship deteriorates or the commercial interest from the company declines, farmers may sell their macadamia nuts elsewhere. Maintaining the farmer-processor linkage thus is important for the longer term.

Stakeholders often state that tea plantations are being replaced by macadamia plantations. It is stated several times that only in recent years significant investment have been made in the production of macadamia in Malawi. From conversations, it follows that this development is quite rapid and there is an increase in the number of investments in the value. From these conversations, we can also observe that macadamia trees can be of great value. A difficulty, however, is that macadamia is not yet a preferred crop. At the same time, it is stated several times that the demand for macadamia and macadamia seedlings is increasing strongly. Several respondents have posed that growing macadamia over time can contribute significantly to income generation, partly due to *intercropping*.

Stakeholders indicate a demonstration effect exists to some extent. The project has contributed to the involvement of smallholder farmers in the macadamia value chain, which according to stakeholders has led to more interest in macadamia cultivation. Currently (at the time of evaluation), Sable Farming Ltd. does not buy nuts from smallholder farmers who are not involved in the FDOV project, and in general there is only interest in collaborating with smallholder farmers who adhere to Sable Farming Ltd.'s guidelines.

The macadamia value chain is highly dependent on land availability and the possibility of obtaining grafted plants. If there is no possibility to expand the growing area and to ensure sufficient access to grafted plants (of the right variety), scaling up production is not possible. In Mzimba, however, land ownership was not a problem, allowing farmers to buy and grow more crops and to increase yields.

B16. Macadamia VCE – Detailed analyses Q7

Desk study

The CSR plans are relevant. The CSR aspects that were considered at the planning stage were anti-corruption, freedom of association, labour conditions, forced labour, child labour, discriminations and gender equality, health and safety at work, CSR standards in the supply chain, as well as climate and energy, biodiversity, deforestation, and water use and water supply. All of those are relevant to the local Malawian context and the standards set appear to be adhered to.

Sable Farming Ltd. has a CSR policy and Intersnack Procurement B.V. has a Sustainability Policy. Both have signed the ETI Code and Rainforest Alliance.

Project documentation is less clear on the results achieved through the CSR plans. Intersnack Procurement B.V. and Sable Farming Ltd. both had CSR plans in place and project documentation reports that the two companies act in line with those policies. Reportedly, the jobs created by the project have safeguards such as a working week of 48 hours maximum, limited overtime, sufficient rest time, holidays, sick-leave, and wages that are at least in line with national labour law for all employees.

Project reporting describes that environmental aspects play a large role in the project and that the effects are positive. Reportedly, the planting and management of macadamia trees in new geographical areas is both ecologically sound and climate smart. The trees themselves would contribute to the reduction of greenhouse gas emissions, and improved agricultural practices would contribute to better soil management, including soil stabilisation.

Project reporting states that the Macadamia project contributes significantly to environmental conservation, which in turn contributes to the reduction of greenhouse gas emissions. Research conducted by Intersnack Procurement B.V. on the CO2 sequestration potential for macadamia trees claims that sequestration could be 10-15 kg CO2 per tree annually. This would mean 3,000-4,500 MT CO2 annually for the 300,000 trees.

According to project documentation, the main positive effect on the natural environment is due to the adoption of better agricultural practices, *intercropping* and *crop rotation*. In 2020, 1,927 farmers practiced *intercropping* of macadamia with other crops, and the farmers had also been trained on *crop rotation*, which helps reduce the spread of pests. All 3,000 farmers were trained on soil and water conservation to control the runoff water which contributes to soil degradation. Some farmers also adopted subsoil irrigation systems as a new and efficient way to irrigate by providing water direct to the roots of the trees.

Also described in project reports is that the construction of firewood-saving stoves has been another key component of environmental conservation in the project. Reportedly, in 2020, 1,441 smallholder farmers in the program were using firewood-saving stoves, which, if used the right way, can help save up to 75-80% firewood compared to local traditional stoves. The result is that less wood would be used annually - fewer trees are being cut for firewood - and the farmers themselves save time on gathering firewood, thus making time for better farming practices as well as other household chores.

In terms of fertilisers there are some questions around the nitrogen content of cow dung compost compared to other fertilisers. Field notes from 2019 state that the project needs to monitor if the correct NPK (nitrogen, potassium, phosphorus) have been applied, supposedly suggesting that this had not been monitored so far. This would indeed also be important from a conservation natural environment angle.

This is a publication of
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This publication was commissioned by the ministry of Foreign Affairs.
© Netherlands Enterprise Agency | January 2024

Publication number: RVO-020-2024/RP-INT

NL Enterprise Agency is a department of the Dutch ministry of Economic Affairs and Climate Policy that implements government policy for Agricultural, sustainability, innovation, and international business and cooperation. NL Enterprise Agency is the contact point for businesses, educational institutions and government bodies for information and advice, financing, networking and regulatory matters.

Netherlands Enterprise Agency is part of the ministry of Economic Affairs and Climate Policy.