

Towards a Living Income: Planning a comprehensive approach



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From cash to crop: training cocoa farmers to adopt good agricultural practices

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Abstract

Good Agricultural Practices (GAP) training is a potential tool to support poor smallholder cocoa farmers of West Africa secure a Living Income. 100WEEKS is interested in developing GAP training in that area. In our research, we looked at the available knowledge on GAP training for cocoa farming, we assessed the local communities, and investigated their needs to support 100week's goals. We conducted an extensive literature review and interviewed several stakeholders ranging from scientific researchers to West African cocoa farmers. We report the basic agronomic principles that can be generally implemented, and our findings on how to make training effective. Yet we found that there is a further level of complexity, concerning the lack of access to resources. After proposing ways to overcome this, we realised that there is an even further level of complexity which is the role that environmental, economic, and social sustainability play, as well as ethical considerations. All these levels of complexity should be taken into account in order to achieve a comprehensive approach. One of our main findings is that the issue of poverty in cocoa smallholder farming is a very complex one, and that only through an integrated approach improvements can be achieved. Moreover, it is fundamental to stress that the solution to this matter will not come from a simple linear process, and that any intervention should take into account the interests of all the relevant stakeholders. As a consequence of our findings, we also suggest a possible change of paradigm in the way western NGOs perceive the task of delivering knowledge to local communities through training.

Key words: *Good Agricultural Practices, Empowerment, Living Income, Agronomic trainings, Cocoa, Sustainable Livelihood, knowledge*

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Introduction

100WEEKS is a Netherlands based non-governmental organisation concerned with development projects targeted to African local communities. Its main goal is to contribute to increasing living income, which has been defined as "a sufficient income to afford a decent standard of living for all household members" (Fairtrade, n.d.). The organisation has previously developed a program that unconditionally provides a fixed instalment of eight euros per week over the course of 100 weeks, to women in need. Additionally, they also provide them with financial training. 100WEEKS is investigating the possibility of expanding their programme to cocoa (see glossary) farming households, providing training on Good Agricultural Practices (GAPs), also including men.

Currently, about 70% of the global cocoa production originates from West Africa, of which Ivory Coast and Ghana have the lion's share, namely approximately 80% (Marius Wessel & Quist-Wessel, 2015). Smallholder farmers from West-Africa represent 73% of the global cocoa production (*Towards Sustainable Cocoa in Côte d'Ivoire*, 2018). Then 75% of cocoa smallholder farming households in Ivory Coast and Ghana do not earn a sufficient Living Income, which causes their inability to meet their basic needs (Waarts, 2021).

Since the early 2000s, farming households' income has been drastically decreasing due to the unbalanced power distribution along the supply chain of cocoa, the increased costs of production and the reduction of soil fertility (van Vliet et al., 2021). On the other hand, an increase of the total cocoa production has been observed in recent decades, mainly due to the increase of the plantation area. Yet this often leads to deforestation and reduction of biodiversity (Ruf et al., 2015; (van Vliet et al., 2021; Van Vliet & Giller, 2017). However, the per hectare production of cocoa remains remarkably low such as 300-500 kg per hectare while the increase potential can reach 3000 to 5000 kg per hectare which is a tenfold increase (Asante et al., n.d.).

The adoption of GAPs can help to bridge the yield gap. Consequently, this increase in yields has the potential to produce a significant positive impact on the income of the household (van Vliet et al., 2021; Olutegbe et al., 2021). GAPs are defined as a set of recommendations which link knowledge to agricultural activities, intending to address the environmental, the economic and the social sustainability of farm production and post-production processes (FAO, n.d.) (FAO, 2003).

In this report we aim to analyse and pinpoint how 100WEEKS can develop an intervention with the goal of improving current incomes of cocoa farming households in West Africa, along with the possible pitfalls that such a programme might entail. To fulfil this objective, we investigated the links among GAP and cocoa farming, researched previous training projects, identified the characteristics that make a training effective with a focus on ensuring the continuity of positive outcomes even after the project completion, and assessed the role that the context can have on the outcome of an intervention. This report will describe our findings in a practice-oriented manner, beginning from an ideally simple hypothetical scenario, then adding levels of complexity on top of that.

Chapter 1: Conceptual Framework

To coherently and consistently analyse and identify possible income-increasing cocoa farmer training for 100WEEKS, we firstly constructed a conceptual framework, which will be elaborated upon and underpinned in the following chapter.

From the beginning it became clear to us that agricultural training alone would not be sufficient to effectively improve farming households' livelihoods (F. Obeng Adomaa, personal communication, June 10, 2022; Kiewisch & Waarts, 2021; Ruben, 2022; Waarts et al., 2015). With the goal of structuring our research in a rather comprehensive manner, we found support in the concept of *empowerment* as an underlying framework. This is in line with 100WEEKS' goal to empower smallholder farmers by fostering positive impact through a change in knowledge, attitudes and behaviour (Terms of Reference 100WEEKS, 2020). Additionally, *knowledge*, the first mechanism of *empowerment*, remains a fundamental part of a training whereby the concept of *technology appropriation* provides a clear and more defined theoretical explanation. Accordingly, how exactly knowledge is transferred or appropriated will be explored. Lastly, we included *sustainable livelihood* as a supporting concept, since it offers a holistic and long-term oriented perspective on *empowerment* and the development of livelihoods. Moreover, it aligns with the (sustainability) objectives of 100WEEKS, as it is also closely related to the concept of Living Income (see glossary).

Empowerment

Empowerment is a debated concept, because it lacks a clear and agreed upon definition. Generally, *empowerment* is posed as a way to reduce poverty (Hennink et al., 2012)), since central to the concept is the process of gaining power and self-control by groups with fewer resources (Gutierrez, 1990; Nikkhah and Redzuan, 2009). *Empowerment* does not *per se* indicate structural change, but can also describe merely a sense or feeling of growing power or control (Gutierrez, 1990). For this project we partly make use of the definition of *empowerment* as given by Narayan (2002), describing it as an increase of freedom of choice and action and therefore a control over resources and decisions. This widely used definition fits with our project because it stresses the relevance of including farming households' perspectives and of a comprehensive approach, which we deem fundamental in delivering a training. Narayan (2002, p. 14) approaches *empowerment* via four aspects, namely "the access to information, inclusion and participation, accountability, and local organisational capacity". For people living in poverty who generally lack considerable power and voice, acquiring these four aspects is often limited e.g., leaving them with little access to information and accountability mechanisms (Narayan, 2002). *Empowerment* has also been defined by Hennink et al (2012), who offer a more detailed description of the concept that is more applicable to our project. After researching 49 international organisations, Hennink et al. (2012) defined three levels of *empowerment* (i.e., individual, community and organisational) and six mechanisms fostering *empowerment* (**Table 1**).

Table 1 - Mechanisms of Empowerment (Hennink et al., 2012, p. 206)

Mechanism	Definition
Knowledge	Access to education, training and information from formal or other sources
Agency (a) Self-identity (b) Decision-making (c) Effecting change	Capacity to act independently and make choices – comprised of three components: (a) self-confidence and self-efficacy to set and achieve goals (b) ability to make informed decisions that are recognised and respected (c) belief in own ability to take action to effect change based on own goals
Opportunity structure	Existence of an enabling environment of social, political, institutional and community support to foster individual and community development
Capacity-building	Harness community capacity to provide or advocate for services or self governance, and to seek accountability from government service provision agencies
Resources	Access to physical and financial resources, or skills for seeking resources, to develop communities
Sustainability	Ability of communities to develop and support initiatives towards long-term sustainability

These levels and mechanisms are interrelated, since the mechanisms addressed depend on who is being empowered. A combination of *agency*, *knowledge* and an enabling environment are considered to be the foundation of the individual level, whereas community and organisational *empowerment* can be fostered by *agency*, *capacity-building*, resource provision, *opportunity structure* and *sustainability* (Hennink et al., 2012). The definition given by Narayan (2002), along with the levels and mechanisms provided by Hennink et al. (2012), offer us a comprehensive tool through which we can assess aspects and purpose of a training programme. We will use this framework to strive for ultimately empowering farming households through the development of their power and voice (*agency*) in decision-making processes and actions on an individual level. Moreover, for this research we also agree on the importance of *empowerment* mechanisms that focus on *capacity-building* and *opportunity structures*, as well as access to and control over *resources* and *knowledge*, on a communal and organisational level (Narayan, 2002; Hennink et al., 2012).

Technology appropriation

As a few of the mechanisms of Hennink et al. (2012) describe, *empowerment* can be fostered by access to *knowledge*, *opportunity structures* and *capacity--building*. One of the main objectives of the current 100WEEKS programme is centred around the integration of knowledge in training (Terms of Reference 100WEEKS, 2020). The matter of technology transfer, or more in general of knowledge, is however highly complicated. For this reason, the first mechanism of *empowerment*, knowledge, required more explanation and a definition. In various ways, technologies are being transferred from technologically developed countries to developing countries. In case a technology transfer is not carried out carefully, it may eventually do more harm than good, e.g. leading to dependence or passivity. Some forthcoming critiques to the notion

of technology transfer are related to the supposedly privileged position that scientific knowledge has over traditional forms of knowledge. Disregarding local forms of knowledge oftentimes has contributed to the overlooking of local technicians' *agency*, or in this case: farmers. Moreover, there is critique on the idea that the technology does not change whilst being transferred (Glover et al., 2018). Technology does not only change as it travels, but it also gets constructed in reality and is thus subject to change (Glover et al., 2018).

Seeing the previously described possible pitfalls of using the notion of 'technology transfer', our team values approaching it as *technology appropriation*. *Technology appropriation* is one of the underlying concepts of this project seeing that it aligns with the concept of *empowerment* as described by Hennink et al., (2012), which focuses on the *agency*, thus the capacity to act or decide upon technology in your own way, of local technicians. The Ghanaian philosopher Kwame Gyekye (1994, chap. 3) defines *technology appropriation* as a perspective or method with active, skilled, and intentional initiative and participation of individuals when obtaining or making it one's own of a technology. According to Gyekye (1994) it should address basic needs, adaptability of technological products to local circumstances and most cherished values of a culture. In short, we consider it fundamental to not approach the transfer of technology and/or knowledge as a one-way street but rather emphasise the co-responsibility and the *agency* of farming households and communities in terms of listening to their needs and opinions in making a training intervention effective.

Sustainable Livelihoods

The last mechanism of *empowerment* 'sustainability' requires more explanation and emphasis considering a main goal of 100WEEKS is to lift poor households out of poverty in a *sustainable* manner. *Sustainable livelihoods* and the concept of *empowerment* could be considered to be intertwined as they both touch upon similar aspects e.g., control over and access to *resources*. The concept provides the opportunity to attach the value of sustainability to the concept of *empowerment* (Chambers & Conway, 1991; Terms of Reference 100WEEKS, 2020). *Sustainable livelihoods* offers a holistic approach (see Appendix A **Figure 1**) that considers one's required capabilities, assets and activities that can guarantee means of living, which are then considered sustainable once they are resilient to stress and shocks (see Appendix A **Figure 2**) (Chambers & Conway, 1991; Tao & Wall, 2009). This approach considers social, economic, environmental, and political existing conditions, as well as the resources needed for a sustainable livelihood (Chamber & Conway 1991; Kiewisch & Waarts 2020). The resources have to contain a sustainable function in terms of utilisation, maintenance and enhancement in order to ultimately fulfil the purpose of preserving livelihoods (Chamber & Conway 1991). Seeing that 100WEEKS finds it important to have a long-term effect after the programme stops, *sustainable livelihoods* offer the objective of long-lasting and resilient *empowerment* mechanisms (Hennink et al., 2012).

Whilst empowering the target group, technology appropriation can strengthen e.g., *agency* and *opportunity structure* mechanisms and as such the ways in which the training is perceived by both local and non-local stakeholders. In this way, the concept of *sustainable livelihoods* offers the added value of going beyond *capacity-building* per se and aiming for improving the livelihoods of the local community at large. We thus consider the concepts of *empowerment*, *technology*

appropriation and sustainable livelihoods to be mutually reinforcing, and adhering to the ultimate purpose of lifting farming households sustainably out of poverty (Terms of Reference 100WEEKS, 2020).

Chapter 2: Methods & Methodology

In this chapter we will firstly provide information on which methods we decided to use and what motivated and substantiated our choice. Thereafter, the methodology and methodological concerns will be discussed.

Literature review

Literature review represented a fundamental contribution to our research. We conducted this review with the support of WUR's library, searching through online journal websites, Google Scholar, Scopus, and other collections of scientific peer-reviewed material. Additionally, we used grey literature such as reports from organisations on the ground and national governments. This technique allowed the collection of data from resources that already exist (Glass, 1976). One of the biggest advantages here is the fast and often easy access to relevant information (Hox & Boeijs, 2005).

The vast amount of material regarding such an intricate topic required efficient planning ahead. We divided the research question into sub-questions for a further refinement of our research. Within these sub-questions, we first highlighted keywords to be searched in our preliminary and general assessment of the available literature. By doing so, we were able to effectively scan through the catalogues for valuable knowledge and retrieve specific pieces of literature to support our findings. Aside from the main databases of scientific literature, we also looked into websites of national governments, NGO's, cooperatives, corporate brands and others.

Interviews

We conducted two kinds of interviews in our research: some were informal while others were formal and semi-structured, these second ones were transcribed and cited in the final output. The choice of these two interview forms was motivated by their potential to systematically provide us with relevant and valuable insights, from the beginning of the project. For all these interviews we drafted preliminary talking points, specifically for the semi-structured interviews we further developed these talking points into interview guides. As these predetermined questions could be modified for each participant, this allowed the collection of in-depth data (Adler & Clark, 2014).

For the analysis of the interviews, we used both deductive and inductive coding. After transcribing, we developed several head codes under which the eventual smaller codes could be categorised. Additionally, we developed a few head codes when coding the transcripts, since we discovered that not every coded part of the transcripts could be placed under the already existing head codes. With these new codes that are drawn from the data, this research combined a deductive approach with inductive coding (Cho & Lee, 2014). Both the deductive and inductive

head codes helped us identify the common topics and concepts that turned up, these were considered key points to discuss and compare with the available literature and were eventually used in the final output.

Methodology

Firstly, the informal interviews, along with general literature search, laid our initial fundamental knowledge. We spoke with many scientific researchers and NGO collaborators, to understand the many aspects of the topic we dealt with. During these conversations we posed general questions regarding the cocoa farming industry, major difficulties that the farmers face, and insights from personal and professional experience of the interviewees. This moment allowed us to expand our network with relevant stakeholders, providing a comprehensive idea of all points of view we could have had access to. In a second moment, once we had a clearer idea of the general topic, we were able to contact local cocoa farming cooperatives from Ghana and interview household members to focus on these stakeholders to collect more detailed specific insights. In the same way we approached the literature search, looking for general keywords at first, and developing more specific searches later on in the project. We also collected and used interview material from a previous ACT project that assessed West African communities' motivation for uptake of agricultural practices.

Ethics

There are a range of other aspects of our methodology that we deem worthy of mentioning because of their intrinsic ethical value.

First of all, we always referred as standard to the [Netherlands Code of Conduct for Research Integrity](#) and to WUR's own guidelines on how to conduct scientific research in an ethical manner (NWO, 2018),. We also kept as paramount in our research other principles, such as:

- The intention to “do no harm” (see glossary).
- The intention to avoid activities that might characterise along the lines of the “western gaze” (see glossary) and “neo-colonialism” principles.

We recorded the interviews only after asking for explicit written or verbal consent by the interviewees. It was also explained to each interviewee that they were free not to answer questions in case they would not feel comfortable doing so, without having to explain their reasons.

Finally, we consulted experts on social research methodology when developing our research questions and methods. Validity of the research was ensured by applying triangulation, which is the comparison between the outcomes of different sources and methods (Carter et al., 2014). The interview transcripts are available in the appendix. Furthermore, people involved in the local context were also asked to reflect on the topic guide before interviews were carried out, to assess whether our questions may in fact help us uncover the necessary insights. Finally, our

academic advisor was asked to review the topic guide to ensure that it is scientifically and ethically sound.

Chapter 3: Preliminary considerations

The first step when trying to design an intervention of any kind should be the definition of its desired goals. As we discovered in our assessment, the goal of lifting people from poverty is not a simple one, because of the number of dimensions (social, environmental, economic, etc.) involved, nor one that can be solved in the short-term. Simplistic approaches would lead to partial or even negative impacts, therefore the first issue that 100WEEKS will face will be to figure out a way of integrating its long-term declared goals with the target contexts in order to identify realistic objectives. From the literature we collected some insightful thoughts on strategies that could contribute to lifting poor farming households out of poverty (Kiewisch & Waarts, 2020).

A first strategy could be to focus on securing minimum prices for cocoa, since the low negotiating power of farmers negatively affects their profits. Given that cocoa is a perennial crop, granting long-term minimum prices would allow for more consistent and stable income streams, resulting in less income insecurity at the lowest levels of the cocoa production sector. Currently, the supply chain of cocoa is heavily unbalanced in its power distribution, with farmers often receiving less than 10% of the final price of a chocolate bar (K. Giller, personal communication, June 7, 2022; van Vliet et al., 2021; Y. Waarts, personal communication, June 3, 2022).

Other programmes instead target quantities, aiming to improve the yields of cocoa farms, thus providing more product to be sold on the market. This, *ceteris paribus* (see glossary), should guarantee increased returns to farming households and contribute to lifting them out of poverty. As for the first objective, the current situation offers much room for improvement in this goal as well, with cocoa yields in West Africa often ranging between 300-600 kg/ha, which is way lower than the tenfold quantities that the agronomical context could be capable of producing (van Vliet et al., 2021) (Asante et al., 2021; K. Giller, personal communication, June 7, 2022; Y. Waarts, personal communication, June 3, 2022).

In the literature we found contrasting points of view regarding these two approaches. Some researchers support the benefits of increased yields to the poorest smallholder farmers, while asserting that the price control would significantly affect only those that already own larger fields (**Figure 1** and **Figure 2**) (K. Giller, personal communication, June 7, 2022; Kiewisch & Waarts, 2020; Y. Waarts, personal communication, June 3, 2022). Another opinion pushes for the need of the price control scheme (Ruben, 2022), assessing that this might indeed guarantee minimum profits for all farmers, when correctly implemented. Finally, we found proof of the partiality of both approaches in support of a more comprehensive design ((van Vliet et al., 2021). Developing both solutions together means granting minimum prices for the product, while improving yield whenever possible. This last comprehensive approach went a step further, not only mentioning policy and agronomical measures that could be considered, but also expanding the hypothetical intervention to the social aspect and the access to inputs (Ruben, 2022).

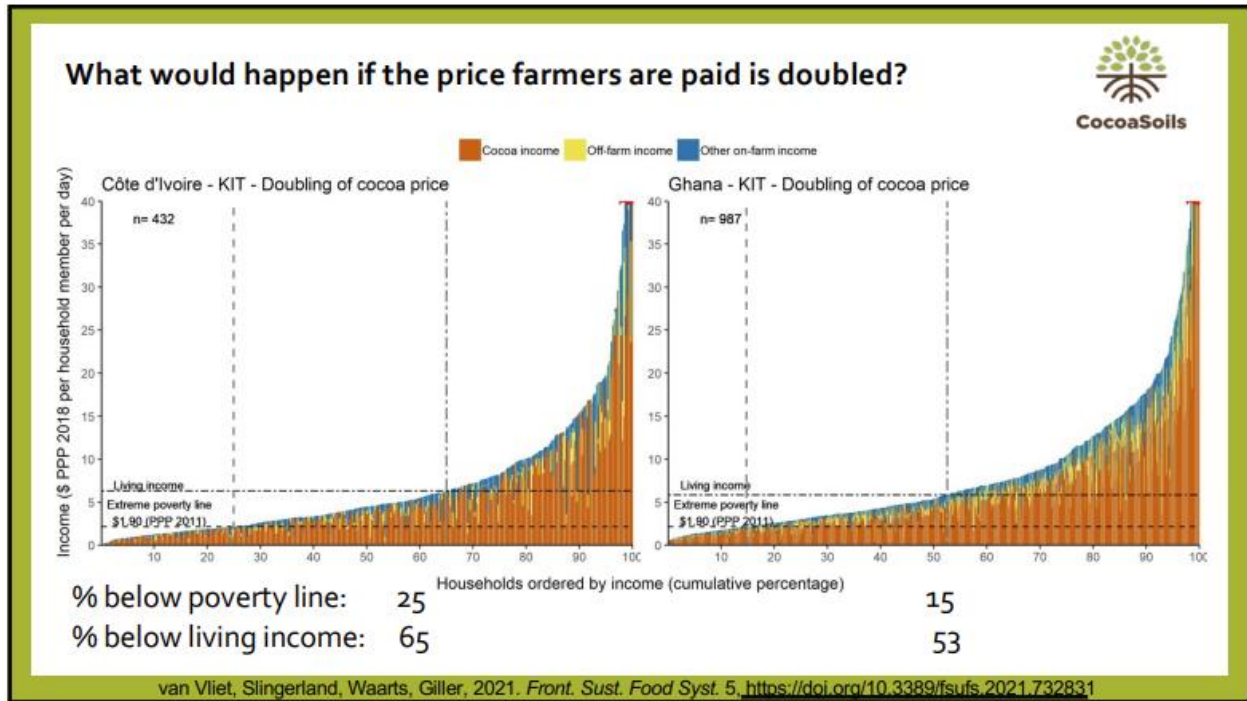


Figure 1 - possible consequences of a guaranteed minimum price for cocoa in Ivory Coast. Source: K. Giller (personal communication, June 7, 2022)

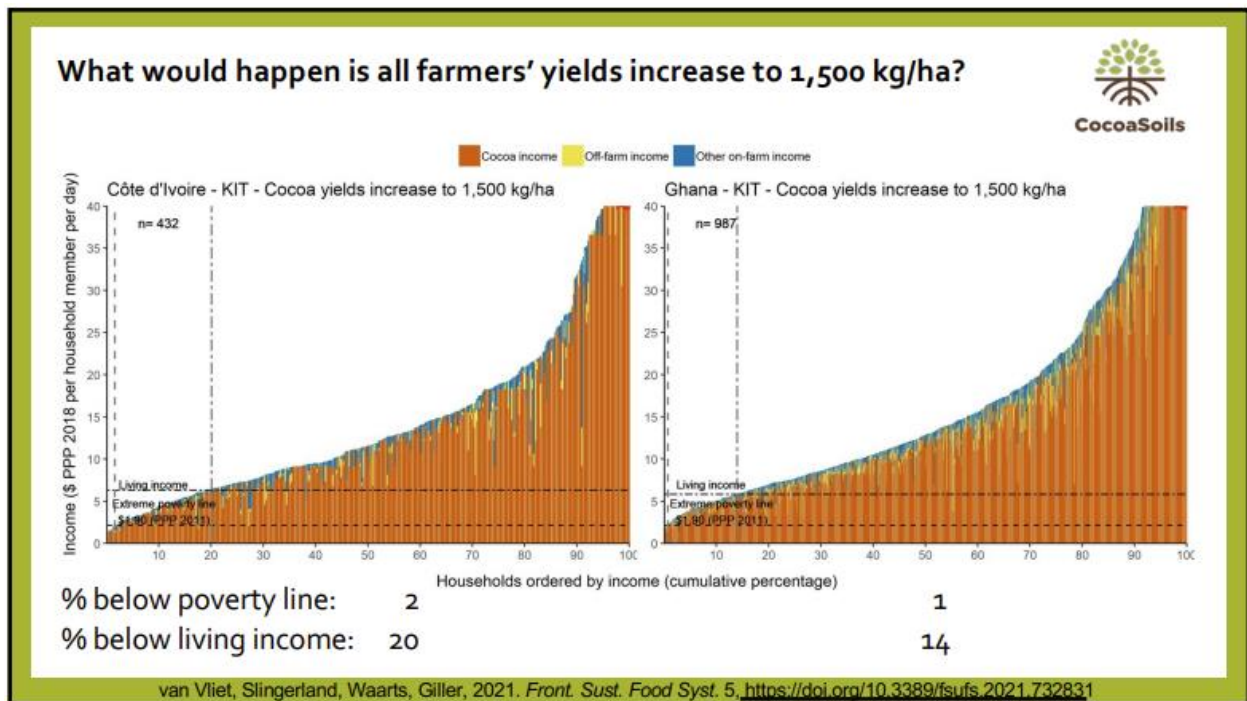


Figure 2 - possible consequences of improved cocoa yields for cocoa farmers of Ivory Coast. Source: K. Giller (personal communication, June 7, 2022)

On top of a clear goal and the throughput considerations that follow in the next chapters, another fundamental step that should be outlined from the beginning of a project should be a

monitoring and evaluation phase with which 100WEEKS is clearly familiar. The goal should be translated into concrete action points, which allow the identification of performance indicators for the final assessment of the entire project. The lack of this last phase could result in the risk of overlooking possible improvement for future similar projects, it would not allow future interventions to continue building up on what has been already accomplished and in the end, it would lead to possible waste of resources.

Chapter 4: Agronomic aspects

In this chapter we will share and go into a stepwise approach for cocoa GAP practices based on literature review and the interviews we have conducted.

4.1 A stepwise approach

Extensive reports on cocoa GAP practices have been carried out from various stakeholders, such as organisations, research institutes and universities (Asare & David 2011; Bymolt et al., 2018; Catholic Relief Services, 2007; Umaharan, 2018). We distilled the most effective practices from those reports, that can be applied in a stepwise approach, which is based on the importance of each practice, its potential to increase yield and also on the investment cost to implement the interventions (**Figure 3**). Additionally, providing farming households with information on such practices is in line with *empowerment* as it also supports the access to *knowledge* (Hennink et al., 2012; Narayan, 2002).

A STEPWISE APPROACH



Figure 3 - A stepwise approach. Inspired by K. Giller (personal communication, June 7, 2022)

Step 1 Pruning, weeding & sanitisation

First and foremost, attention should be paid to *pruning*. Proper pruning is complex, yet the benefits it offers are manifold. Pruning helps to keep the trees in a manageable height, improves aeration, and as a consequence reduces disease incidents. Additionally, it helps maintain a balance between vegetative growth and fruit production.

The main principles on cocoa pruning are:

1. Formative pruning, based on:
 - a. The fact that the cocoa fruit grows directly on the trunk and the large branches (**Figure 4**). Pruning therefore assists in developing a good framework of branches.
 - b. Height control. If the cocoa tree is left un-pruned it can reach up to 10 metres high, which would make the tree unmanageable. Pruning to ensure a maximum height of 4 metres is believed to be a good practice.
2. Maintenance and sanitising pruning: cut the low-hanging branches, to regularly remove the damaged diseased or dead branches, as well the chupons/suckers (**Figure 4**).
3. Rejuvenation pruning: to rejuvenate old and unproductive trees, usually more heavy pruning is suggested (Catholic Relief Services, 2007; Asare & David 2011; Bymolt et al., 2018; Umaharan, 2018).

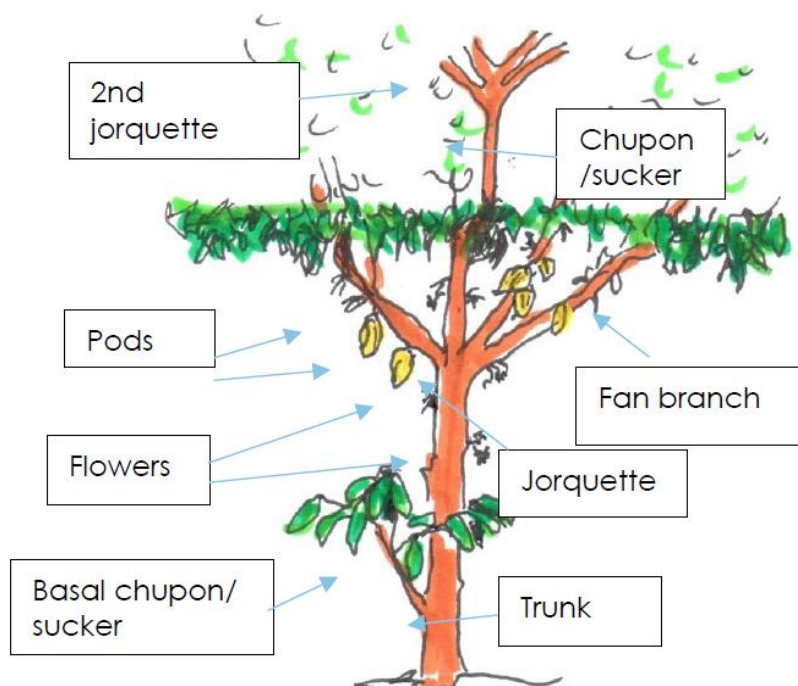


Figure 4 - Parts of a cocoa tree. Source (Guidance I: Pruning | Rainforest Alliance, n.d. p. 28)

The second important consideration is *weed management*. Weeds directly compete with the cocoa trees for the above and below-ground resources and at the same time might provide habitat for pests and diseases. Weed management, usually done either manually or with the use

of herbicides, is of great importance for a cocoa plantation and especially for the first two to three first years. As the canopy develops weeds become relatively easier to manage. (Konlan et al., 2019). Herbicide use has however been associated with negative impacts for the environment and human health (Van Bruggen et al., 2018). At the same time some weed species are developing resistance towards herbicides. Therefore, technical knowledge and safety measures are needed in order to apply the herbicides and also there is a cost in order to obtain them. Manual weeding on the other hand can be extremely labour intensive. The need to hand-weed can range up to 4-6 times per year for an early-stage plantation (Asare et al., 2018).

Alternative practices to suppress weeds effectively, which are proven to be environmentally friendly, are intercropping and mulching. Intercropping here is defined as the practice of planting diversified non-cocoa species. This could be other fruit trees, other food crops, or nitrogen fixing trees such as *Gliricidia sepium* also known as the “mother of cocoa” (K. Giller, personal communication, June 7, 2020). Mulching is the practice of spreading a layer of material around plant roots. In cocoa plantations this material could be chopped leaves, straw, saw-dust, dry vegetable waste products and more (Asare et al., 2018). Both these practices can have many benefits other than weed suppression. Diversification through intercropping may ensure food sustainability for the household, improve the household income, and provide resilience in seasons when the cocoa price might be low (Asare, 2011). Mulching other than weed suppression can help in improving soil fertility, conserving soil moisture, and reducing run-offs. Yet, both alternative practices demand extra working-hours for planning and implementing them.

Finally, *sanitisation* is the third factor that should be taken into account along with pruning and weeding. Crop sanitisation means that all the diseased infected branches, the husks as well as any mummified pods, should not remain in the plantation because they have the potential to spread or intensify disease incidents (Opoku et al., 2007).

Step 2 Fungicide and insecticide application

After the first step, it is essential to also address the application of fungicide and insecticide. Cocoa was originally a forest tree; breeding attempts focused on creating cocoa varieties that are more productive than the original. By doing so, though, the tree might have lost much of its resilience. Then there are also different climate induced factors that the tree was not used to before systematic cultivation. The combination of these factors led to cocoa being more sensitive to pests and diseases (F. Obeng Adomaa, personal communication, June 10, 2022). The second step then, would be to try and address that. Cocoa’s main enemies are the black pod disease and capsids which have been proven to have significant impact on productivity (Kongor et al., 2018). Even though pruning, weeding and sanitisation are the initial steps that must be taken to minimise those incidents, the need for more aggressive measures such as fungicide and pesticide application cannot be disregarded. These interventions are however well known for the negative outcomes on the environment and human health. Also, they are costly, and technical knowledge is needed on what amounts to use, when exactly the application would be most effective and to make sure safety measures are followed. These factors suggest that this step would be more effectively tackled if larger groups than individual farmers try to address, such as farmer unions or even better each country’s agricultural ministry. This would guarantee that

decisions about spraying would be taken by experts who have the technical knowledge to decide if and when sprayings will be applied.

Step 3 Soil fertility support

The third step to be taken would be to address soil fertility. Clearing forest areas and creating cocoa plantations in their place has been the norm in cocoa farming. The forest's soil is very rich in nutrients and allows for a very productive cocoa plantation initially. However, if there are no nutrient inputs in the system over the course of years the soil's nutrients are getting depleted. Then the farmer moves on to start the procedure of deforestation and replanting cocoa (**Figure 5**) (Amponsah-Doku et al., 2022). This cycle cannot go on indefinitely; the forest land is limited and along with that, deforestation is detrimental to biodiversity. To ensure the long-term continuation of cocoa production, it is essential to add nutrients back to the soil. This is usually done in the form of fertilisers, since they are the most convenient and condensed form of soil nutrient inputs. Hoffmann et al. (2020) conducted 73 on-farm trials in Indonesia and found that fertiliser application increased the production by about 35% across all management levels and weather conditions. On the opposite side though, fertilisers appear to be too expensive for smallholder farmers to afford (K. Giller, personal communication, June 7, 2022; F. Obeng Adomaa, personal communication, June 10, 2022; Y. Waarts, personal communication, June 3, 2022; World Cocoa Farmers Organization Ghana, personal communication, June 16, 2022) and excessive use of them leads to negative environmental outcomes (Cameron et al., 2013). Finally, Dossa et al. (2018) demonstrate that the site-specific fertiliser recommendations based on soil fertility factors, performed better than the general recommendations that are usually given.

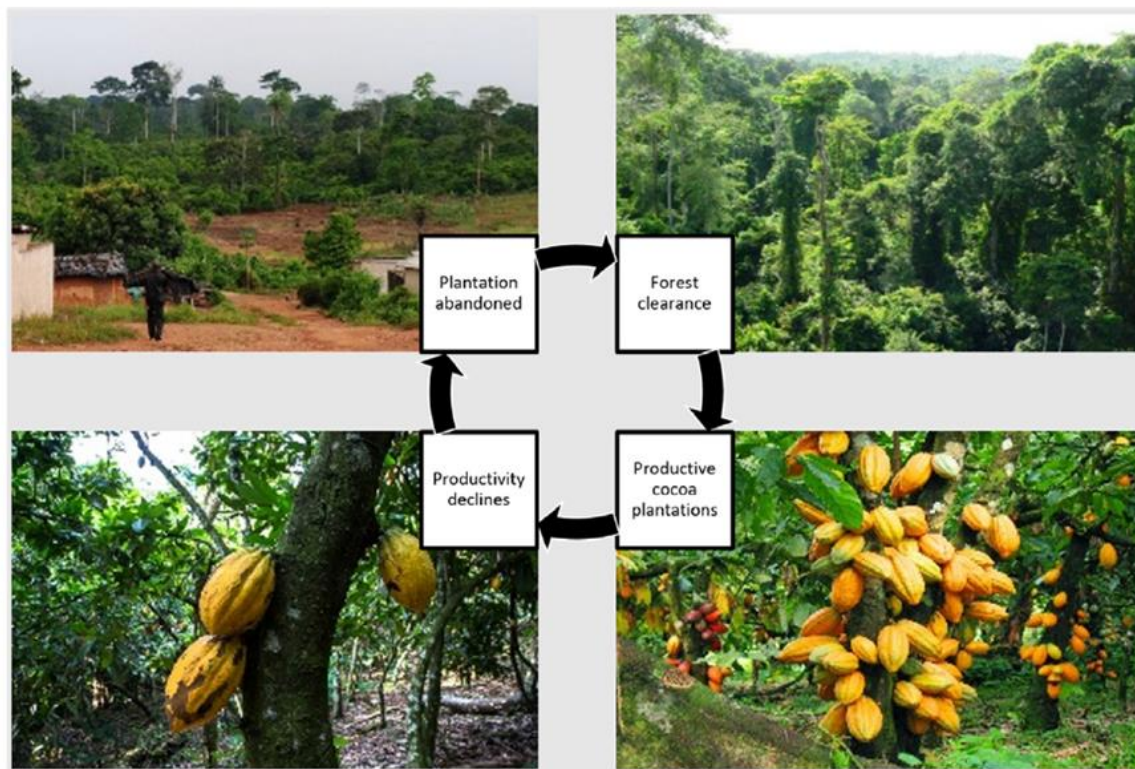


Figure 5 - Depiction of the unsustainable cycle of cocoa production systems in Ghana whereby virgin forest is cleared to establish cocoa farms which are initially productive, but then decline in productivity, eventually leading to abandonment and further clearance of more virgin forestlands. Source: (Amponsah-Doku et al., 2022)

Alternative or complementary practices to support the soils would be to add any livestock manures available, use the shade tree cuttings as soil enriching material, start composting the remaining of husks after harvest to implement in the soil, and make use of nitrogen fixing trees within the plantation. Although, none of this comes without challenges. Examples of these challenges include transporting the manure, technical knowledge on composting and the extra labour to apply any soil enriching material or plant and manage new trees.

Chapter 5: Agronomical training

In this chapter we will describe ways to train agronomic knowledge, and the corresponding advantages and pitfalls of these methods.

Training can be an effective method in conveying the aforementioned stepwise approach. Scientific literature about implementation of agricultural training is favouring the use of practical demonstrations and methods, since practical demonstration enables the farmers to try the techniques themselves on small plots, and evaluate afterwards (Oladele & Olufemi, 2022). Additionally, to design meaningful GAP training for cocoa farmers, it is crucial to make it context specific. This is because there are many aspects in cocoa farming that can differ between

countries, regions and even households (F. Obeng Adomaa, personal communication, June 10, 2022).

The use of Farmer Field Schools (FFS) is one way that is prominent in scientific literature when it comes to contextualised and practical training. It aims at localised and multidisciplinary knowledge production in the specific context of application (Akinmolafe & Ajoyi, 2022; Muilerman & Vellema, 2017). It promotes farmer experimentation with the training material, and community action (Guddanti, 2015). The concept of Farmer Field Schools is currently being used by various different institutions in Sub-Saharan Africa, including the FAO and different NGOs, like Catholic Relief Services (Braun et al., 2006). Both the demonstration farms and contextualization are important for improving farmers' *agency* through offering space to act independently by improving self-confidence and self-belief, but also creating *opportunity structures* through the freedom to try and adapt (Hennink et al., 2012; Narayan, 2002).

Current training often fails to capture the context specificity, because coaches are tied to specific rules, guidelines and existing manuals provided by supervisors or companies. This results in the training being predominantly top-down. Coaches assigned to work with farmers often do not derive from these guidelines and therefore the farmer's perspective is disregarded. Due to certification regulations, affiliated farms have to meet certain general conditions, which also contributes to information being trained in a generic and not context-specific way. The lack of context specificity results in the inability of training to actually benefit the farming households. The practices that are recommended might then have negative results, which could lead to distrust between the coaches and the farmers (F. Obeng Adomaa, personal communication, June 10, 2022). Providers of training should not underestimate the skills that farmers already have. Many of them have been working in the cocoa industry for years and are thus experienced in the working of the cocoa tree in its specific context (Nova Cocoa Farmers Cooperative, personal communication, June 15, 2022).

Extension offices or agents can be considered, since they make GAPs training meaningful for farmers. They are able to put in the time and effort to visit farms and talk about specific conditions (F. Obeng Adomaa, personal communication, June 10, 2022). These offices are regulated by the (local) government and provide farm specific recommendations (Kassem et al., 2021). Extension is an informal educational process, which ensures involvement of farmers in solving their own problems. It is about collaborating *with* locals, and not working *for* them, rejecting the notion of a top-down intervention. It secures the position of rural farmers as the main actors (FAO, 2019). Consequently, GAPs could be contextualised in such a way to make them beneficial for each specific farm conditions. Attention should for example be paid to the type of soil the tree species are planted in, the slope of land, the amount of shade trees, the moisture, and the presence of any other crops (F. Obeng Adomaa, personal communication, June 10, 2022).

Training should also be aligned with the seasonality of the cocoa trees, and other jobs and activities that farmers need to attend to. The cocoa plantation might not always be the main priority of the farmer year-round (K. Giller, personal communication, June 7, 2022). It is valuable to set up the training according to the main activities that are being done on the cocoa farm at a specific time of the year. Since pruning in West Africa is done in a specific period, the training on pruning

should be given during this time, similar to providing training on other practices, like harvesting (Nova Cocoa Farmers Cooperative, personal communication, June 15, 2022).

Thus, to be able to develop an intervention that effectively improves incomes of cocoa farming households, the benefits and, especially, the pitfalls of technical aspects of a training explored in this section have to be taken into account. Technical training can be beneficial for farmers but only if certain contextual factors are considered. The access to *knowledge* and *resource skills* does empower participants, but the form of a training is critical for the uptake of GAPs and the ultimate purpose of sustainably empowering the farming households and communities. Considering the training to be a form of *technology appropriation*, a training that disregards the *agency*, or the capacity of farmers and others to act or decide how they want, can for example lead to non-adoption (Glover et al., 2018; Hennink et al., 2012). Varying forms of training exist by which FFS seem promising in terms of their sensitivity for *agency*, locality and multidisciplinary knowledge production and contribute to *sustainable livelihoods* (Chambers & Conway, 1991; Hennink et al., 2012). Both the use of FFS and extension offices are however very labour intensive. Since West Africa is home to so many cocoa smallholders, and farms are so context specific, there would be a need for an enormous amount of extension agents and trainers (F. Obeng Adomaa, personal communication, June 10, 2022). Therefore, these methods lack the ability to create scalability. Moreover, mechanisms of *empowerment* such as *opportunity structure* and *capacity-building* on a communal level, and *access to resources* are not necessarily taken care of within FFS (Hennink et al., 2012). While the FFS has drawbacks it could prove more effective when combined with other approaches. Investing in *capacity-building* and *opportunity structures* which strengthen communities and cooperatives could ensure the stimulation of positive spillovers. In this way, participants of the FFS can spread the knowledge to others, pursuing *sustainable livelihoods* (Chambers & Conway, 1991; Hennink et al., 2012). To be able to adhere to this, it remains important to bear *agency* in mind as a positive self-identity, power in decision-making and a belief in the ability to make changes are vital for FFS participants to spread the knowledge (Hennink et al., 2012).

Chapter 6: Access to resources

In this chapter we will move beyond the stepwise approach for GAP cocoa farming and agronomical training. The focus of this chapter will be on access to resources. Even though a stepwise approach and agronomical training may sound promising, in itself this is likely insufficient for achieving change. Therefore, this chapter will touch upon constraints for *empowerment* and improving livelihoods, predominantly discussing the inaccessibility of resources as (6.1) Service delivery and inputs, (6.2) Infrastructure, (6.3) Land and (6.4) Labour.

Applying the stepwise approach described in Chapter 4 has the potential to significantly increase yields. However, to be able to implement the skills learned in training, actual (material) inputs are also required, and as long as farming households have a lack of access to resources and inputs, a training alone can only make a small difference (F. Obeng Adomaa personal communication, June 10, 2022; Hennink et al., 2012). Therefore, another challenge for cocoa production and therefore earning a living income for farming households is the insufficient access to resources (Anang, 2016; Kiewisch & Waarts, 2020). This resource inequality, as described by

Kiewisch and Waarts (2020), refers particularly to land and assets, since limited access to land tampers the opportunity to produce and reduced investment capacity prevents the farmers from producing sufficient yields. Additionally, labour availability is also scarce (Ruben, 2022). Considering these scarcities, training alone is not sufficient to produce a positive change (F. Obeng Adomaa, personal communication, June 10, 2022). Nevertheless, the resource conditions needed for a sustainable livelihood are only attained or surpassed by one-third of the farmers (Kiewisch & Waarts, 2020). This means only a small number of farmers are able or would be able to earn a living income from cocoa farming alone (Waarts et al., 2019).

This chapter explores the manner in which sustainably *empowering* farmer households can be strived for through providing for *resources* fostering an enabling political environment. Similarly, *capacity-building* can improve the community's ability to advocate or provide for services the government does not provide, or seek accountability from service provision agencies (Hennink et al., 2012). However, while opportunities related to resources such as the improvement of infrastructure or increasing labour seem promising, their drawbacks have to be taken seriously. Even when the drawbacks of some resources seem manageable, their effectiveness in local context can differ greatly as will be described below.

6.1 Service delivery and inputs

Bymolt et al. (2018) collected data from cocoa farming households in Ghana and Ivory Coast. They focused on the cocoa production practices and the use of certain inputs on the cocoa farms. While in Ghana the use of inputs as fertiliser is relatively common among cocoa households, cocoa farmers in Ivory Coast have been less familiar with the use of farming inputs. The reason behind this difference is the fact that Ivorian farmers are not provided with free inputs, while Ghanaian cocoa farmers receive fertilisers from the government (Bymolt et al., 2018). Ivorian cocoa households have, however, experienced an increased access to farming inputs over the past years, since companies in Ivory Coast have increasingly been focussing on the provision of farming inputs as seeds, fertiliser, and pesticides (Ingram et al., 2017). Nevertheless, due to the increasing prices, the accessibility to farming inputs has not always been improved in the rural areas of Ivory Coast. When conducting focus group discussions with Ghanaian cocoa households, participants expressed low satisfaction with the delivery of input services. Although the delivery of farming inputs has been prioritised in the past years, cocoa households in Ghana still experience an insufficient supply of farming inputs (Bymolt et al., 2018). When interviewing cooperative members in Ghana (Nova Cocoa Farmers Cooperative, personal communication, June 15, 2022), interviewees shared their concerns about the provision of farming inputs.

“Then also pesticides are being given to the cocoa farmers, but it is not sufficient to cover their own farm. So, you have to support or buy extra to complete your whole farm and machines that will help you. But they just provide us with some random machines, and the cooperative also gets us some fuel, but it is inadequate and insufficient for the farmers.” (Nova Cocoa Farmers Cooperative, personal communication, June 15, 2022)

Hence, while the adoption of fertilisers can be considered positive in some way, high costs and large farms that need more fertiliser for example are important indicators for non-adoption (Anang, 2016). This should thus be taken into account when considering input services as part of a development programme.

Companies, government-controlled institutions, and other organisations such as the World Cocoa Farmers Organization Ghana (Nova Cocoa Farmers Cooperative, personal communication, June 15, 2022; World Cocoa Farmers Organization Ghana, personal communication, June 16, 2022) have been providing cocoa households with several farming inputs, among which also machines. As these machines are too expensive for the farmers, organisations import machines that will help farming households in their practices. Nonetheless, the farming households are not asked about their opinion on what kind of machines are needed on the farms and therefore have no power to decide for themselves. Furthermore, the members used the example of the spraying machines of which they have two in their cooperative. Due to the distance between the farms and the fact that they only have two machines, it is difficult to spray all farms at the right time causing some farming households to have to wait for weeks (Nova Cocoa Farmers Cooperative, personal communication, June 15, 2022).

6.2 Infrastructure

According to Kiewisch & Waarts (2020), a farmer's income and thus livelihood is affected by many interrelated factors, among which physical infrastructure is one of those factors. In a discussion with Ken Giller, Professor of Plant Production Systems with research experience on smallholder farming systems in sub-Saharan Africa (K. Giller, personal communication, June 7, 2022), he mentioned how the infrastructure in countries such as Ghana and Ivory Coast is poor. This has also been stressed by cocoa farming households in the interviews, since it constrains them to get hold of necessary inputs.

“During the rainfall some of the rivers or streams get flooded. So, it is very difficult, especially for women, to even cross. And also, it gets difficult to transport the machines to the other farms. So sometimes we need some small bridges which are beyond our destiny. In our school, we cannot afford the building of bridges. We have made numerous appeals to the assemblies and government bodies and a lot of NGOs. But we have not got that help from them.” (Nova Cocoa Farmers Cooperative, personal communication, June 15, 2022)

From this example it can be argued that access to farming inputs is highly dependent on infrastructure and that the government or NGOs fail to provide this. Organisations such as the World Cocoa Farmers Organization Ghana lack the financial and human capital to support cocoa households with farming inputs (World Cocoa Farmers Organization Ghana, personal communication, June 16, 2022). A related proposed intervention by Ruben (2022) to improve cocoa governance, explains how public policy should focus on the promotion of public investment in physical and commercial infrastructure to enhance farmer's access to information and markets.

6.3 Land

A third factor which is important to highlight is the issue of land. Currently, research has shown that cocoa households in Ghana and Ivory Coast do not have sufficient land to produce large volumes and are therefore also limited in their ability to achieve good yields (Kiewisch & Waarts, 2020). Waarts (personal communication, June 3, 2022) also emphasised the scarcity of land, contributing that almost all of the land is already divided. This does not only take away the chance to produce large volumes of cocoa, but also leaves little land for the next generation. Sometimes the only option left for children in cocoa households is to live with the rest of the family on the same land. Kiewisch & Waarts (2020) proposed multiple approaches for creating significant impacts in the lives of cocoa farmers by which one of them is the implementation of land reform that focuses on the increase of farm sizes. Land rights, as explained by Ruben (2022) will also create incentives for investment. Yet, pitfalls of this strategy are the expenses of land and labour and the aforementioned availability of land e.g., existing arrangements (Kiewisch & Waarts, 2020).

6.4 Labour

Once the issue of land is resolved, another one remains. Cooperative members highlighted how children in cocoa households are losing their interest in farming. This is because of the strict measures around child labour, which does not allow for children to work on the cocoa farms (Nova Cocoa Farmers Cooperative, personal communication, June 15, 2022).

“So now, the youth are also not interested in cocoa farming anymore. I think they can see that this is not a good future for them. So, it is all the old people who are working in the cocoa farming. Therefore, labour is one of our main constraints.” (Nova Cocoa Farmers Cooperative, personal communication, June 15, 2022).

As the youth are less interested in working at the cocoa farm and they also stay in school longer, cocoa households experience a shortage in labour. Households become more dependent on their own labour resources (Bymolt et al., 2018). Nevertheless, older farmers are less able to perform certain tasks such as pruning, which is one of the key things explaining higher yields (Y. Waarts, personal communication, June 3, 2022). Therefore, older farmers then have to hire wage labour for these specific tasks. Labour service providers in Ghana are trying to engage with the youth with the aim of encouraging them to work on the cocoa farms and help the older farmers with the farming practices they cannot do themselves (World Cocoa Farmers Organisation Ghana, personal communication, June 16, 2022). However, there are only a few of these labour service providers and at the same time, farming households have experienced an increase in the labour costs (Waarts et al., 2015). Training farmers on important practices like pruning, as discussed in the previous sector, could be beneficial for improving livelihoods. Yet, due to a shortage of labour the desired effect of training cannot always be reached.

Concludingly, while the findings from the interviews and literature indicate the importance of access to *resources*, solutions such as land reforms or an increase of labour will only have a

substantial effect when the structural driver of farmers' behaviour is changed. Considering *agency* mechanisms of *empowerment*, disregarding farming households' opinions in decision-making processes will lead to non-appropriation of technology, hence to non-sustainable livelihoods (Hennink et al., 2012; Gyeke, 1994; Chambers & Conway, 1991). A structural change in the dynamics of the cocoa sector can be generated by transformations in governmental policies and institutions but also among stakeholders in the cocoa chain (Ruben, 2022). Just as important are structural changes concerning economic resilience and environmental impacts for the purpose of creating an economic and environmentally sustainable cocoa sector, which are addressed in the following chapters (Wessel & Quist-Wessel, 2015). As such, instead of designing a training that will fit within the current cocoa sector a more radical training is needed. This is one that looks not only at on-farm practices, but also off-farm, and in doing so changes existing structures within the sector (Ruben, 2022).

Chapter 7: Sustainability concerns

In this chapter we will outline which concerns should be considered for the sustainability of the programme. We will firstly touch upon environmental concerns (7.1). Thereafter we will discuss social concerns (7.2) by analysing incentives for farming households (7.2.1), knowledge sharing and capacity-building (7.2.2), community structures and characteristics (7.2.3) and gender roles. Lastly, the economic concerns will be explored (7.3).

Once the agronomical training and the access to resources have been considered, we shift now to a new level of complexity adding the possible concerns for the sustainability of an intervention. The topic of sustainability is a fundamental one from 100WEEKS' point of view, but also for its financial supporters and local communities of West Africa, who will have to live with the long-term outcomes of such projects. Sustainability has many facets, in order to make the matter clear, while still providing practical insights, we aggregate them around three main subcategories: environmental, social, and economic sustainability. Within this classification, we will describe below aspects that 100WEEKS should consider when trying to design sustainable interventions.

7.1 Environmental

Every farming activity has environmental impacts. Those impacts should be identified and addressed when considering environmental sustainability. In West African cocoa farming the major concerns towards environmental sustainability are the biodiversity loss due to deforestation (van Vliet & Giller, 2017) and the negative outcomes of excessive synthetic input use (Pimentel, 1995; Cameron et al., 2013). The way to stop the vicious circle of deforestation illustrated in **Figure 5** is to ensure that attention is paid towards replenishing the missing nutrients back into the soil so that the production per hectare remains satisfactory, and the need to keep expanding to forest land ceases to exist. To make sure that the negative outcomes of pesticide and fungicide use remain on the lowest level possible, tackling those issues on a higher level than individual farmer households is necessary. State experts from the Ministry of Agriculture should be involved in order to coordinate large scale operations that take place when most needed, and to ensure

that complementary sprayings will not be needed. Finally, the fertiliser application recommendations should be context specific instead of general to ensure that the negative losses remain as low as possible. These environmental sustainability aspects are in line with the *sustainable livelihoods* concept for the farming households (Chambers & Conway, 1991; Kiewisch & Waarts, 2020).

7.2 Social

An effective training program needs more than the technical knowledge and the (material) inputs. Next to the inability of farmers to pay for the costs associated with innovations, such as fertiliser and seeds, there might also be a lack of incentives for farmers (Shikuku et al., 2019). Training may cover all technical components and provide material input, yet farmers will eventually decide on what to adopt (K. Giller, personal communication, June 7, 2022). Therefore, it is crucial to consider behavioural drivers for adopting and engaging with certain skills and training (Ruben, 2022). Choices are influenced by many factors, not only individually, but also on the community level. In other words, sustainably empowering the individual works through increasing their power and voice to decide and act as they wish. Empowering the community can be done through creating an environment that fosters development, and strengthening the community's capacity to be either self-sufficient or advocate for services, as the *capacity-building* mechanisms explains (Hennink et al., 2012). Consequently, the specific context of the farm and farming household should again be taken into account when developing a training, because it is the basis on which their choices are based. Participatory Rural Appraisal is a method which ensures that development programmes incorporate the knowledge and opinions of local people during an intervention (Chambers, 1991). This is one approach that includes the local context and therefore allows for moving towards a more sustainable livelihood approach (Chambers & Conway, 1991).

7.2.1 Incentives for farming households

To ensure the social sustainability of an intervention, it is firstly important to consider issues that shape the farmers' prospects for engaging in training and adopting the trained skills. Additionally, the incentives of extension agents should be taken into account, since their continuous involvement can result in long-term resilience within the targeted community (Shikuku et al., 2019). When considering the farmers' prospect for engaging in training and adopting the trained skills, it is crucial to take several aspects into account.

First of all, the decision for taking part in training and applying certain skills can be based on economic incentives. Farming households may adopt when their net revenue can improve. Whereas adopting certain GAP can increase yields and therefore income (Hobbs, 2003), which allows the farmers to provide for their families (Tabaluzinga Village coaches home, personal communication, November 27, 2021). It can however also increase their variable costs of production and higher labour requirements, or lead to the need for new capital investments (Hobbs, 2003).

Secondly, the priorities of farming households do not always concentrate around the cocoa plantation year-round. Therefore, their incentives to take part in training are not always positive. It is therefore important to consider the timing of training (K. Giller, personal communication, June 7, 2022). During particular times of the year, other crops might have priority, and additionally, there are problems outside farming that farming households might need to attend to (K. Giller, personal communication, June 7, 2022). These problems might also relate to the bigger picture of productivity, and not only the technical skills to improve yield. For example, labour is scarce, which undermines the cultivation of the land. Material inputs are thus not always enough to persuade farmers to join in training or to sustainably apply the learned skills (Hobbs, 2003). Weekly cash is also often not sufficient to invest in the farm, since other expenses in the household, like paying for school uniforms or funerals, are often prioritised when it comes to spending money (F. Obeng Adomaa, personal communication, June 10, 2022).

Besides, as mentioned in chapter 4, trust between NGOs or coaches and farming households might be damaged, due to disappointing results. Engagement with training might therefore be hindered. This might also apply to scepticism that farming households may experience due to experiences that others have had with these kinds of training (Tabaluzinga Village coaches home, personal communication, November 27, 2021). Farming households talk amongst themselves within the community, and this kind of 'negative' information can spread quickly (F. Obeng Adomaa, personal communication, June 10, 2022).

7.2.2 Knowledge sharing and capacity-building

Considering extension of agricultural knowledge, it is important to look at incentives for farmers to motivate and encourage others in adopting certain skills and technologies. These incentives are occasionally based on the existing social cohesion within a certain community or village (Shikuku et al., 2019). In this case, farmers are intrinsically motivated to help others by which over time they will learn other farmers the knowledge and skills they have learnt (Tabaluzinga Village coaches home, personal communication, November 27, 2021).

Yet, another incentive might be the gaining of a certain status or recognition when helping others (Hobbs, 2003). Tangible rewards might be a motivation to diffuse agricultural knowledge as well (Shikuku et al., 2019). The other way around, 100WEEKS participants of the women cash programme were motivated to meet former participants. They said during their interview they admire the other women and would like to learn from them and get motivated to work harder. They later contributed to this, saying it would help them to work together after 100WEEKS would leave (Tabaluzinga Village coaches home, personal communication, November 27, 2021).

In both the interviews with the cocoa farmers *capacity-building* was one the main topics being mentioned. During the interview with World Cocoa Organisation Ghana, *capacity-building* was mentioned as necessary for strengthening leadership. Currently, cooperatives lack any capacity to organise or structure itself (World Cocoa Farmers Organisation Ghana, personal communication, June 16, 2022). Similarly, the wish to unite as farmer groups to have one common voice for cocoa farmers was made during the interview with members of the Nova Cocoa Farmers Cooperative (Nova Cocoa Farmers Cooperative, personal communication, June 15, 2022). As

explained by Ruben (2022), individual farmers are no match for cunning traders or input providers and would benefit from organising into a farmer's organisation.

7.2.3 Community structures and characteristics

In addition, attention should be paid to the structure of the community. An effective training is one that not only addresses individual farmers, but the households and communities as well. As farmers in many cases either make use of family labour or hired labour, the structure of households and communities are very important (Bymolt et al., 2018). The following quote of Faustina (F. Obeng Adomaa, personal communication, June 10, 2022) indicates the influence a farmer community can have on the process of a training:

“This kind of contextualization is very critical because farmers talk among themselves and as much as we would wish that the good information would spread quickly, it doesn't. But one farmer just prunes the tree, and one tree dies out within a week, everybody within a neighbourhood is talking about how the farmer pruned their tree, and the tree died. And that becomes viral information.”

Similar counts for certain prejudices or feelings of mistrust community members hold towards NGOs after hearing rumours or experiences of disappointment and not being listened to (Nova Cocoa Farmers Cooperative, personal communication, June 15, 2022). As has been stated before, it is important to take contextual information into account for the effectiveness of a training in terms of the process and the output. Currently, training is often still based on generic knowledge and too little attention is paid to context specific factors. Farmers receive a lot of training but their need for inputs is disregarded, leaving the farmers with a certain fatigue towards agricultural training (F. Obeng Adomaa, personal communication, June 10, 2022). Moreover, coaches delivering the training commonly follow certain guidelines or manuals, offering no space for local farmers to give any form of input and making the training top-down (F. Obeng Adomaa, personal communication, June 10, 2022). For this reason, a manual or app for farmers to adapt agricultural practices often does not work as a discussion or collaboration on farm management “create[s] an enabling environment” (Y. Waarts, personal communication, June 3, 2022). Other cultural conditions, such as illness (of family members), the habit of borrowing money and the ageing of farmers should be taken into account as barriers for adopting the appropriation of knowledge by the farmers (Nova Cocoa Farmers Cooperative, personal communication, June 15, 2022). The same applies for illiteracy of farmers whereby practical training was said to be preferred by farmers, because demonstrations would be received better (Nova Cocoa Farmers Cooperative, personal communication, June 15, 2022).

7.2.4 Gender roles

It is also important to consider the target population of a training in terms of gender roles. In both Ghana and Ivory Coast men are usually recognized as the head of the household,

meaning they are generally central in decision-making processes on and often as well off the farm. Men are hence the decision-maker when it comes to cocoa (Bymolt et al., 2018). When designing a farming training that solely focuses on women, one can imagine the frustrations coming from men (Y. Waarts, personal communication, June 3, 2022). Gender differences within households exist not only within domestic tasks but within the cocoa production process as well by which women for example mainly participate in pod breaking, mostly alongside men, preparing food and fetching water (Bymolt et al., 2018). Adoption of certain skills is for example significantly influenced by gender differences. This results in the need to be gender-responsive in training and training design (Kiwanuka et al., 2020: article 4). In the past, wrong assumptions have been made when deciding who should be trained, due to gender inequalities (Mudege et al., 2017: article 5). However, women rights on land, products and revenues should be recognised, since this is a step towards a more balanced household decision-making. Moreover, women *capacity-building* is proven to be impactful for e.g., labour productivity and a sense of security yet also improves households' decision-making towards a *sustainable livelihood* perspective for the whole household (Chambers & Conway, 1991; Hennink et al., 2012; Ruben, 2022).

Concludingly, to ensure the sustainable uptake of skills learning in training, it needs to have added value for the farming households (Y. Waarts, personal communication, June 3, 2022). Therefore, it would be helpful for the farming households if they would be able to see the 'large time horizon', meaning that they know what their adoption of GAP will hold for them and their farm in the long-term. However, this information is subject to change due to, amongst other things, climate change and frequent weather changes (Ruben, 2022). Nevertheless, the development of training should be based upon a bottom-up approach, resulting in a training that is tailored towards the needs of the households (Y. Waarts, personal communication, June 3, 2022). Only if farming households feel like they need knowledge or assistance, the training will be welcomed. A bottom-up approach increases the chances of the training and learned skills being sustainable and will eventually empower the farmers. An applicable access to *knowledge* and the development of farming household's *agency* can be strived for through including them in the process of designing, implementing, and evaluating the training (Chambers, 1991). Despite the fact that FFS have the drawback of not being scalable, they are a good example of the way farming households could be involved in the process. Moreover, adapting a training to a community's need an enabling environment is created that stimulates other development and *capacity-building* is fostered (Chambers & Conway, 1991; Hennink et al., 2012).

7.3 Economical

As the third branch of sustainability, the economical aspect provides a variety of interesting discussion points, which we will touch upon in the following section. Economic sustainability runs across our entire conceptual framework of *empowerment*, and thus plays a key role in our assessment (Hennink et al., 2012; Narayan, 2002). To deal with *empowerment* in an economically sustainable way means to meditate on the nature of the *resources* that the target populations need, to reason on the ways in which such *resources* are conveyed, and to thoroughly consider the long-term consequences on the real self-control opportunities that such *resources* bring along to the local communities (Chambers & Conway, 1991).

100WEEKS already has in place programs that provide cash transfers to poor households. The unique approach that the organisation has to this practice is that its cash transfers are diluted during a long period, and are unconditional on the use that the individuals will make of such resources. From the NGO's reports, as well as talking with experts, we were able to reflect on the benefits that this system brought around for local communities, allowing a generally consistent positive impact on the households' income, establishing a virtuous cycle of change which has proven to self-sustain in the long-term, and determining positive spillovers also on other activities, such as the agricultural practices (Ruben, 2022; 100WEEKS, 2020).

These cash transfers can be considered a direct supply of resources provided to cocoa farmers. However, economical resources can also be provided in an indirect way. An indirect form for example could be the NGO facilitating the creation of "pruning gangs" which will then go around farms supplying an increased amount of labour (Y. Waarts, personal communication, June 3, 2022). When it comes to deciding on either one of the two provision strategies (direct or indirect), the long-term resilience of each option should be taken into account, as well as its potential to establish a self-sustaining positive impact.

Another talking point that we already mentioned in other sections of this report is the importance of not focusing merely on agronomical training, if the final goal is to spark a consistent durable positive change. To translate this point into a general economical approach, any intervention should focus on the promotion and establishment of a diversified set of revenue streams for the farming households of West Africa. We already characterised cocoa farming as non-exclusive, meaning that those who plant cocoa usually already grow other agricultural commodities for self-sufficiency or commerce (**Figure 6**) (Y. Waarts, **personal** communication, June 3, 2022). An economically sustainable intervention should therefore consider this aspect, providing support in the development of these alternative sources of income, or to foster the initiation of other activities, either for their potential higher remuneration, or for the beneficial synergies they could generate with the pre-existent ones. To design an intervention that only focuses on cocoa farming, assuming the full dedication of farmers' activities to this crop, would not only be unrealistic, but also potentially detrimental to the subsistence equilibrium that some farming households currently rely on (van Vliet et al., 2021).

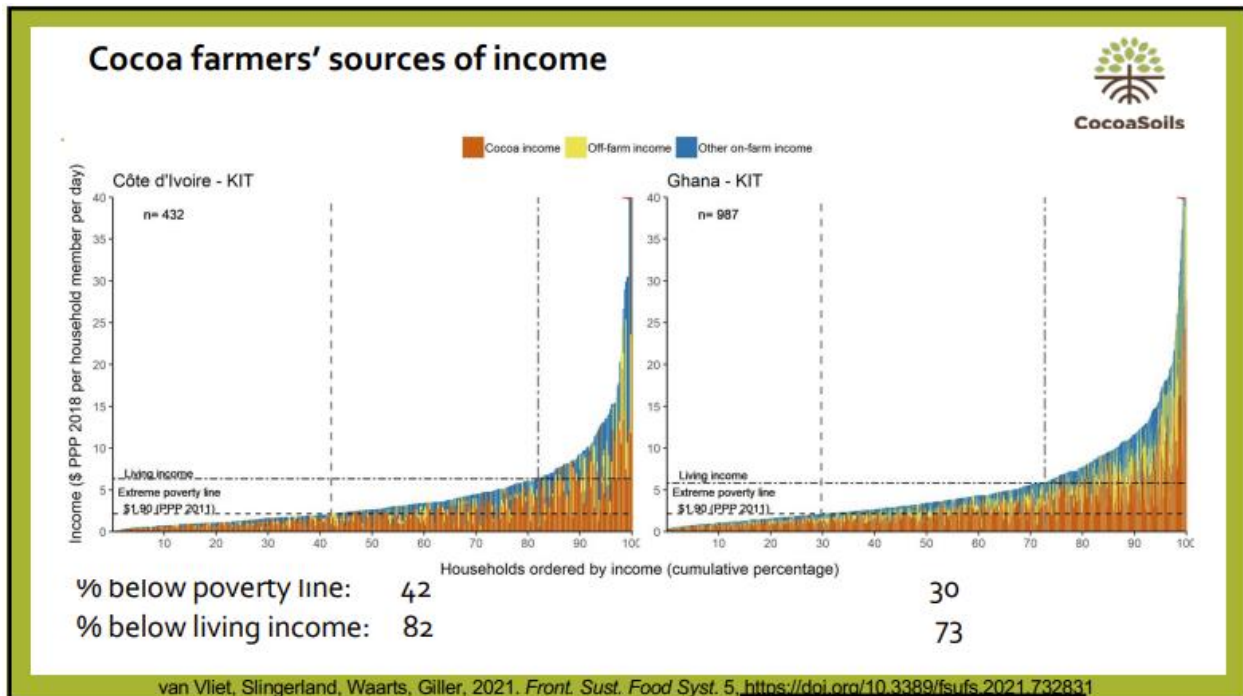


Figure 6 - Different income sources of cocoa farmers. Source: K. Giller (personal communication, June 7, 2022)

Furthermore, another topic that any intervention must acknowledge is the substantial imbalance in the distribution of powers along the cocoa supply chain, which results in the uneven repartition of returns. This is an aspect on which international organisations might be able to have an influence, thanks to their independence, the effectiveness of their resources and network, and the role they play shaping opinions in the international market. To be able to speak about the economical sustainability of a program, it must first be granted that the underlying activity of cocoa farming is inherently sustainable for the farming households themselves. The coordination of cooperatives and farmers groups, the provision of negotiation skills training, and the establishment of stronger links with other organisations and institutions might provide the farmers with the tools to secure more influence in the supply chain of cocoa (K. Giller, personal communication, June 7, 2022; Ruben, 2022; van Vliet et al., 2021; Y. Waarts, personal communication, June 3, 2022).

A final observation is then to be made on the matter of the economic characteristics of cocoa as a farming commodity. With cocoa being generally inelastic (see glossary) in both its demand and its supply, as introduced in the Preliminary Considerations section, given also the high volatility of the cocoa world price, farming households are considerably vulnerable in their income security (Tothmihaly, 2017). Demand inelasticity in fact takes the form of a more than proportional drop in price when an increase in supply happens, resulting in lesser total revenues for the farmers (see Appendix B **Figure 1** and **Figure 2**). Such characteristic of this crop contributes to the challenges to its economical sustainability, becoming a further motivation in support to a more comprehensive approach for any intervention targeted to improve cocoa farming households' conditions. A potential effective strategy to tackle this critical point has been

identified in the promotion of crop diversification (Piot-Lepetit & M'Barek, 2011), which would help reduce volatility in the first place, by scaling down the size of shocks in supply that farmers' reactive investments determine at global level. This adds up to the benefits of crop diversification which have already been detailed at the beginning of this section.

To conclude this chapter, sustainability is a fundamental characteristic in development projects, not only because the changes they foster should have an overall positive effect, but because these improvements should be resilient in time, allowing for the generation of long-term stable developments. In our conceptual framework sustainability is a key point. For this research we assessed it as a multi-disciplinary theory, as we wished to exploit the virtuous synergies that a comprehensive approach could generate. For example, improved and environmentally sustainable technical knowledge for cocoa farming will diminish the impact of agricultural activity, favouring a long-term increase in the yield's quality and quantity. Subsequently allowing spillovers that could positively affect both social and economic aspects of the farming households' contexts.

Chapter 8: Ethical reflection

In this section, we will first discuss the methodological considerations mentioned in Chapter 2. Hereafter we will move to the general considerations which often are, as aforementioned, forthcoming from direct or indirect provision of resources and the inclusion and exclusion processes they generate. After the general considerations, we will touch upon other ethical questions that arose during the conduction of interviews.

As was explained in Chapter 2, our team followed guidelines from the start of our project that we deem important, especially when it comes to the ethical position of this research and the possible anchoring of it in the eventual training intervention. The fundamentality of the "Do No Harm" principle and of being conscious and cautious when it comes to possible neo-colonialist thoughts or influences should not be overlooked. Also, there is a clear relation between *empowerment* and the just mentioned aspects, as they all contribute to local ownership. Most of all, local ownership can be of huge support to the sustainability of the entire programme. For all these reasons, reiterative reflection on the ethical aspects of the programme should be considered.

A first ethical concern regards the inclusion or exclusion of knowledge. As mentioned in the conceptual framework, we recommend the concept of *technology appropriation* in place of the "technology transfer" idea, since it emphasises the *agency* of local technicians. This relates to the concept of epistemic justice (see glossary), which raises the question: 'whose knowledge counts?' or in other words, whose knowledge should be considered. The *technology appropriation* concept presupposes the equal valuing of diverse forms of knowledge, i.e., equally valuing the knowledge of local stakeholders and scientific knowledge. When it comes to setting-up the content of the training, it is thus important not to overlook input from the farmers themselves, and to try to integrate them in the training programs.

Another relevant consideration concerns the possible ethical implications of different stakeholder's agendas when setting the intervention's goals. Clearly, this programme is funded by donors who have a stake in it. Donors may have pre-existing ideas of certain targets that need

to be met and can thus influence the project (Margit Van Wessel et al., 2019). Agenda-setting by donors may not be prevented easily, yet it is crucial to be aware of how it may influence the project. It may overshadow the interests of local stakeholders and can tamper the impact potential of the programme. On a global scale, this topic is increasingly debated and finds its embodiment in the Shift-the-Power movement. This movement indicates a consensus around the idea that *agency* should be more equally distributed among those parties that deliver the intervention and those who receive it, namely among international NGOs, their donors and local communities in developing countries, since too often these last ones are assumed to have less *agency* (Partos, 2022).

Also, the interviews provided us with more insights into ethical considerations from the stakeholders' side. As mentioned above, *empowerment* is closely linked with the lack of access to resources, and the provision of these (either direct or indirect) is a complex topic under the ethical perspective. A first insight from our interview regards how gender roles should be considered in cash transfer programmes (or other programmes providing access to resources), indeed deciding *a priori* to only include women (or men) in a (cash transfer) programme can create jealousy within households and communities or even unsafe situations (Y. Waarts, personal communication, June 3, 2022). Also, these forms of exclusion exist on a broader level. Projects in the past have raised conflicts amongst community members concerning local traditions, hierarchies or other structures that had not been taken into account whilst deciding on whom the project will be targeting. Another interviewee raised a question on the accessibility of training, which is often not accessible to all farmers since they need resources to participate. This may contribute to inequality amongst them, possibly doing harm by excluding people (Nova Cocoa Farmers Cooperative, personal communication, June 15, 2022). Moreover, women's accessibility to training might depend on factors that are different from those that determine men's attendance (Ruben, 2022). This interviewee also highlighted that the support offered by either governmental organisations or NGOs are often not specific enough towards the local context, resulting in insufficient or even disappointing forms of support. As an example of this instance, we witnessed the struggle of Ghanaian farmers who received farming machineries, which in the end did not match their real needs. A last ethical consideration that had been raised in our interviews regards the farmers' age and adaptation process to training (World Cocoa Farmers Organization Ghana, personal communication, June 16, 2022). The average age of cocoa farmers is relatively high, and in the recent past these farmers may have already had to adapt their production techniques to keep up with new market standards. Yet, doing this at a relatively old age can have an impact on the individual, and should not be underestimated. The question that should be considered here is: "To what extent can you expect a farmer to renovate his agronomical practices over and over again?", especially if he or she does not have the necessary access to labour resources.

In short, the principle of Do No Harm and always taking into account the specific local context may help overcoming some ethical challenges. Yet, it is hard to define general ethical considerations that are always valid, and there is no incontestable way of avoiding ethical issues especially as these will highly depend on local contexts and cultures. In the end, the above-mentioned reflections are considerations that should be adapted to the goals and context of the programme.

Chapter 9: Integrative approach

After collecting all this knowledge on the many aspects of a virtuous intervention, we want to stress the importance of integrating all of them when designing a single project. As we said in our preliminary considerations, a simple solution is not possible to such complex problems as the poverty conditions of West African cocoa farmers, but a virtuous process is needed. Such a process will be the result of successful endeavours, which should be all realistic in their target, exhaustive in their approach, and coherent in their evaluation (Ruben, 2022). A sound strategy to guarantee these characteristics would be to have a guide on how to design such projects, but since distinct contexts have very diverse needs, a general one-rule-fits-all model would be hardly imaginable. Our research aims at providing an approach, which would be generally applicable, to make sure that at least the fundamental aspects that amount to the concept of *empowerment* are considered when designing an intervention. 100WEEKS would be able to reason on these topics assessing the knowledge contained in this report based on the characteristics of the context of its intervention, thus establishing a thorough program for its activities.

Discussion

In this section we wish to detail our point of view on the knowledge we collected within this research, to put the accent on some aspects that we consider fundamental when designing, implementing, and evaluating a training intervention, and to share some final consideration that we matured while carrying out the project.

Firstly, there are no prescribed “silver bullets” to improve the situation for cocoa households or their communities at large, the complexity of the problem demands a process-based approach, (Kiewisch & Waarts, 2020). Such a process should take into account the characteristics of the local context, and it should not be based on prescribed guidelines that could assume a simplistic linear pathway towards lifting farming households out of poverty. In approaching the intervention as a process, iteration is crucial and could be guaranteed by making use of a model as visible in **Figure 1** (see Appendix C), assessing both the problems and impacts whilst taking into account aspects regarding politics, ethics and knowledge (Maat, Intro lecture Critical Reflection, February 14, 2022). Yet logically it should be extended and preferably applied to the context of supporting cocoa households in West Africa.

In order to ensure the design of an effective intervention, and to optimally manage the available resources (human, technological and economical capitals), it is also paramount to have clear in mind (and on paper) its final goal. To be able to make choices from the beginning, scoping on a reachable yet relevant goal, is a first step in order to guarantee accountability to the entire project. Beginning a project with only a general idea of commitment could lead to partial or even negative impacts in the end.

The assumption that these kinds of intervention generally aim at “doing good” should not serve as an excuse to overlook the necessity of a structure for accountability. Moreover, along with initial specific goals, a plan for monitoring and evaluation (i.e. means of verification or specific indicators) of the intervention’s outcomes should be designed as well.

An aspect that emerges from the complexity of the problem at hand is the opportunity to “break” it down into its components, which can then become an organised sequence of goals for the iterative implementation process described above, providing integrable solutions to a complicated issue. This step is fundamental to adapt an intervention to its pre-existence, to structure a project coherently with the current needs of the context, and to make sure that future developments will be able to pick up from what the current design will accomplish.

As previously elaborated upon, we have chosen to focus our conceptual framework around *empowerment*, *technology appropriation*, and *sustainable livelihoods*, all-encompassing concepts to the final goal of lifting farming households out of poverty (Chambers, 1991; Gyekye, 1994; Hennink et al., 2012) Narayan, 2002). We would advise to take into consideration the development of these overarching values whilst assessing the many phases of the intervention. Accordingly, when it comes to the sustainability of the programme, the cruciality of local ownership (**glossary**) for improving the livelihoods of the cocoa communities cannot be overlooked. A main contribution to this local ownership will be the setting-up of an exit-strategy on forehand, to ensure the continuity of positive outcomes even after the project completion. Disregarding this step might as well indicate an underestimation of the local stakeholders’ capacity and *agency* to further manage and develop the established intervention.

Regarding the sustainability of the project, we also deem it necessary not to focus on farmers as individuals but on farming households, as quite often decisions are being made on the household level. Moreover, we recommend 100WEEKS not to consider only the option of agronomical knowledge transfer (i.e. *capacity-building*) directly to farmers, and instead broaden its attention to include access to *resources*, promotion of virtuous networks, and non-agronomical forms of *capacity-building* (Hennink et al., 2012). The above-mentioned considerations show the cruciality of engaging with local communities, throughout the phases of the intervention. An already existing approach that aligns with our recommendations on empowerment on a household level (see section 7.2.3 and 7.2.4), valuing bottom-up initiative, the visibility of improvements, community mobilisation and interaction between different (local) institutions is the PIP approach (see Appendix D for more information). Moreover, we deem this approach interesting for setting up the training intervention. In the next paragraph, we will further explain our motivation to shift the perspective in ‘A change of paradigm’.

A change of paradigm

From the beginning of the project, we interpreted our commissioner’s request as an investigation on how **100WEEKS** could deliver knowledge to **farmers** in the most effective way possible. During the development of the research, with more and more relevant points of view piling up on our initial preconception, we had to rethink our understanding of the conceptual framework we had been moving in.

An initial consideration regarded the definition of “farmers”: in literature we found instances where other members of a farming household did not consider themselves “farmers”, even if they carried out a significant share of the farming activities that a cocoa field needs, this can be due to social preconceptions, and was particularly true in the case of women (Mudege et al., 2017).

Since “understanding the context” has been a constant mantra in the development of this research, given that the concept of “farmers” might expand to include other family members depending on many community-specific features, considering also the influence that proper targeting might have on the outcomes of an intervention, and in order to promote a non-biased approach when designing a project: we think that 100WEEKS should enlarge its focus from individual “farmers”, to “farming households”, allowing this variability to be taken into account case by case.

Based on our conversations with the stakeholders we were also able to understand the relevance of providing options and a range of solutions, not unique directives; this in order to let farming households adapt their choices to their real needs, and to avoid discouraging participation (Ruben, 2022). The consequence of such consideration would be a larger body of technical knowledge to be conveyed, resulting in exponentially increased complication and need for resources in the case of a widespread disaggregated training. A solution to this issue could be to adapt the target of the training again, concentrating more on the role that 100WEEKS can fulfil in delivering technical knowledge through extension agents, coaches, or Farmer Field Schools (see chapter 5: Agronomical Training, for further detail). In this case, the bulk of resources from 100WEEKS could be spent optimising the quality and the amount of technical knowledge provided at this level of aggregation, possibly resulting in lower expenses than a structure in which the NGO takes care directly of coaching farmers one-to-one.

Finally, thanks to all the knowledge collected, we learned the importance that the context has in facilitating or disrupting the implementation of agronomical practices. Lack of inputs or incentives, access to credit, unfavourable social structures, or adverse policies can all represent determinant factors for the diffusion of proper such practices. It is fundamental that 100WEEKS considers these aspects when designing its own intervention, and that it grants a facilitating environment for the picking up of the trained agronomical practices. What could be saved by the shift in focus described in the previous two points could then be invested to provide access to inputs, to develop supporting networks for the farming households, and to deliver non-agronomic capacity building. In this sense, proper targeting of the intervention recipients, and resource management by the NGO could play a key role granting the success of an intervention and its sustainability, while fostering a more scalable approach.

To sum up, we believe that 100WEEKS should focus on promoting knowledge appropriation at the level of extension agents, coaches, and Farmers Field Schools. On top of this, it should spend the remaining resources to grant a facilitating environment for the diffusion and implementation of the conveyed technical knowledge: by granting access to inputs, fostering favourable policies, and supporting social organisations schemes. This could result in better performing and more scalable programs (see following page **Figure 7**).

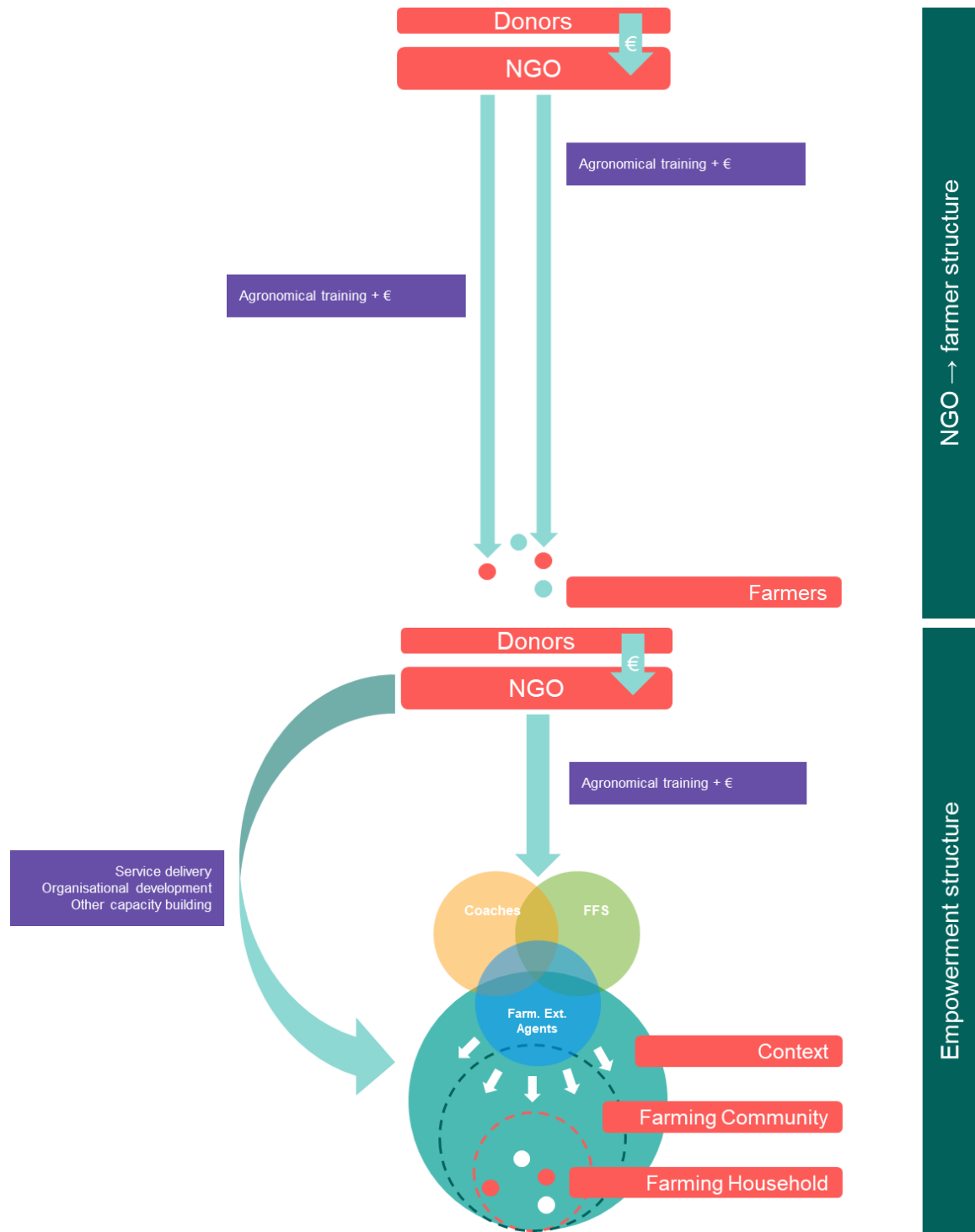


Figure 7 - Suggested change in paradigm representation. Source: own production

Benefits

We were able to effectively re-interpret the commissioner's request into a researchable objective. The team aimed for a comprehensive approach to the problem, also thanks to our many expertise, realising from the start that there is no simple or one-size-fits-all solution. We chose therefore to include both top-down and bottom-up approaches, as well as economic, environmental, social, and ethical aspects in our understanding of the problem. Combining literature research with conducting interviews with experts and the target group made us more acquainted with the root causes of the problem and the way it affects the target group in their daily lives. Moreover, we found it important to reflect on our positions and forthcoming biases, which strengthened our motivation to include local stakeholders. We thus highly valued the perspectives of the local stakeholders, as they are in fact the ones whom the training programme will eventually concern. The semi-structured interviews provided the interviewees with the opportunity to share matters which they thought should not be overlooked. Furthermore, the interviews did not only give us insights on what has been shared orally, it also gave us glimpses of the living or working environment of the interviewees.

Pitfalls

The most obvious limitation of this research is the time constraints we faced, we do not perceive our assessment as partial, but we are also aware that much more research is necessary on the matter since a single study cannot completely cover it. The most direct impact of the short time available has been our inability to further expand the group of interviewed stakeholders, this might negatively affect the completeness of points of view we were able to consider. Also, even with a team with experience in at least three different disciplines, we realised that the issue could have been assessed from even more perspectives.

Future development

As mentioned above, the content of this report is to be considered in the context of our commissioner's goals and geographical focus. Yet, we delivered a report also supported by the knowledge we found assessing more general literature and experts on the field of cocoa farming in West Africa. For further research, we would firstly suggest increasing the quantity of interviews with various local stakeholders, since almost all the persons we spoke to put emphasis on this. Fitting the project in the local context moreover will contribute to securing the sustainability of the eventual training programme of 100WEEKS. Secondly, exploring the work of other organisations in the area could help avoid 1) missing the opportunity for the creation of positive synergies/collaborations, and 2) possibly counteracting each other. Even more, it could give more insight into the real impact that GAP training has, which aligns with our third suggestion for follow-up studies: setting-up a pilot programme/case study for such training on the base of the knowledge made available, to test the possibly existing gap among theory and practice.

Finally, further research should dive more into other contexts, developing comparable assessments in order to increase the specific knowledge available to various stakeholders, and

allowing the subsequent study of the differences determined by the change of location, target groups, or scale.

Conclusion

The adoption of GAPs has the potential to significantly improve the cocoa production and consequently the household's income, they should therefore be considered a valuable strategy for development programmes. Optionality, seasonality, social and ethical aspects are all essential for the design of effective trainings. The critical importance of context specificity, for the application of GAP but also for the training effectiveness, was evident in all the interviews and in the literature review we conducted. Based on that, we propose a paradigm shift of the way in which NGOs deliver knowledge to local communities. Finally we highlight that a possible solution cannot come from a simple linear process, but instead it should approach the matter holistically, as it should account for the interests of all the relevant stakeholders involved.

All the amount of the collected knowledge gave us a more complete perspective on the issue, and it allowed our team to develop our point of view. Further research is still needed on the matter, but as we said "it is a process", and we believe that this report could contribute positively to the progress towards the greater goal.

Glossary

Ceteris paribus

This Latin sentence, generally translated in English as “all else being equal”, is used in economics to indicate a situation in which, apart from some mentioned changing variables, all other variables of the system are assumed to not change.

Cocoa

Cocoa is the fundamental ingredient for chocolate production, and it was cultivated by the Mayas in the pre-Columbian times in tropical America (Almeida & Valle, 2007). Cocoa grows in pods on the cocoa tree (*Theobroma cacao*), which is cultivated in warm and humid climates.

Do no harm principle

"Do no harm" indicates zooming out from an intervention to be able to perceive the context as a whole and to expect and reduce possible negative effects (socially, economically or environmentally) (Martial et al., n.d.).

Epistemic (in)justice

The systematic and structural exclusion of (Indigenous) ways of knowing and doing (Boogaard, n.d.).

Living Income

“The net annual income that enables a family to afford a decent standard of living for all members of that household. It takes into account food, water, healthcare, education and other essential needs, including provision for unexpected events” (Kiewisch & Waarts, 2020).

Local ownership

People recognise their capacities to mobilise resources and strengthen development processes (Schirch, 2020).

Price Elasticity

“Elasticity” is an economic indicator of the sensibility of a variable A, to the change of another variable B. In other words, it is a calculation that compares the size of the change that happens in variable B, with the size of the change that consequently happens in A. In the case of price elasticity, the two variables are a commodity's own price and its quantity, and it is indicative of how proportional a change in price will be, given a change in quantity for the commodity. The formula for the calculation of such elasticity is as follows:

$$E_{q,p} = \frac{\% \Delta \text{Quantity}}{\% \Delta \text{Price}}$$

Price elasticities generally range between $-\infty$ and 0, and the commodity is said to be inelastic if $-1 < E_{q,p} < 0$, elastic when $-\infty < E_{q,p} < -1$, and unitary elastic when $E_{q,p} = -1$.

Western gaze

The Western Gaze describes how privileged Westerners perceive non-Western people in a biased manner (e.g., through a lens of curiosity, misconceptions or stereotypes) (No! Wahala Magazine, 2020).

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Appendix A

Sustainable Livelihood Framework details

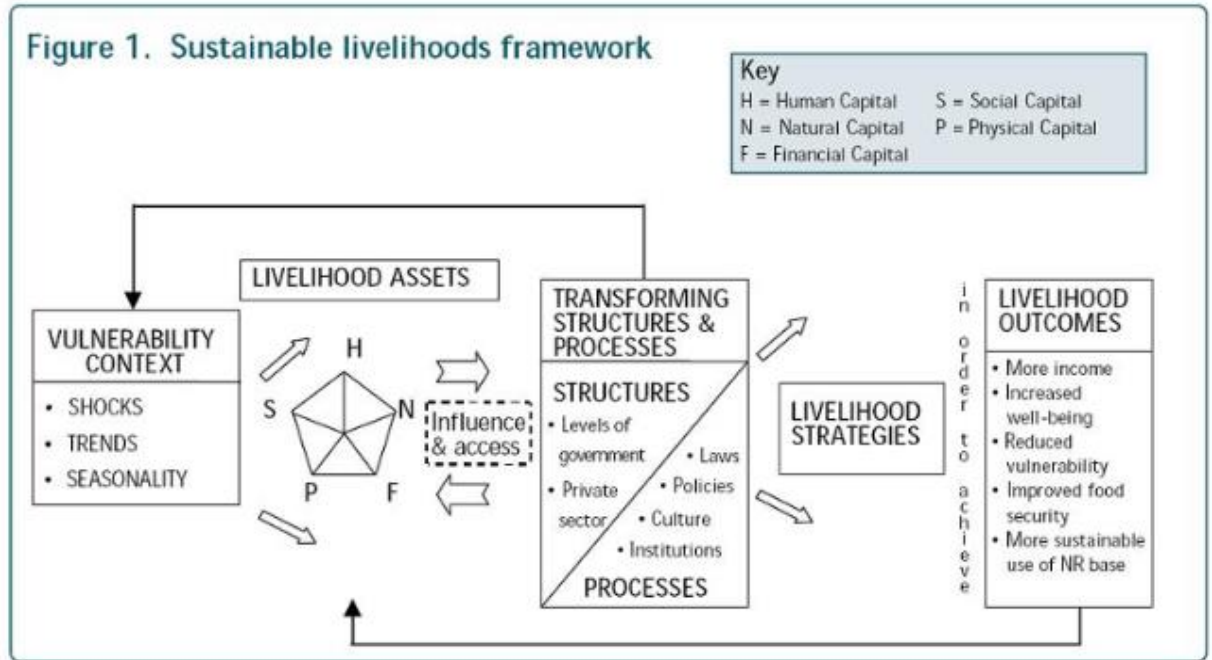


Figure 1 - Sustainable Livelihood Framework. Source: (Riveros, n.d.).



Figure 2 - Components and Flows in a Livelihood. Source: (Chambers, 1991).

Appendix B

Representation of price elasticity for agricultural commodities

Inelastic Demand: $\% \Delta P > \% \Delta Q$ and $\Delta TR < 0$

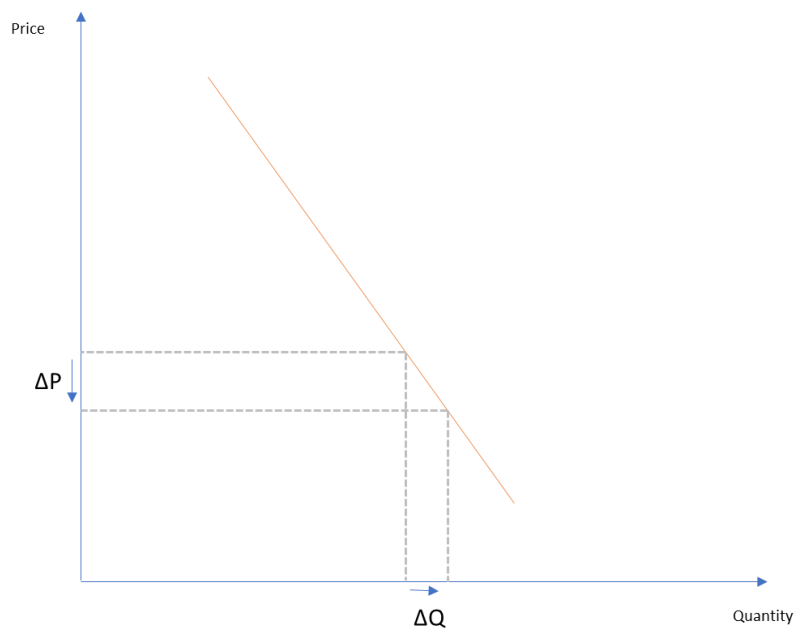


Figure 1 - price inelasticity of demand of agricultural commodities, and its consequences. Source: own production.

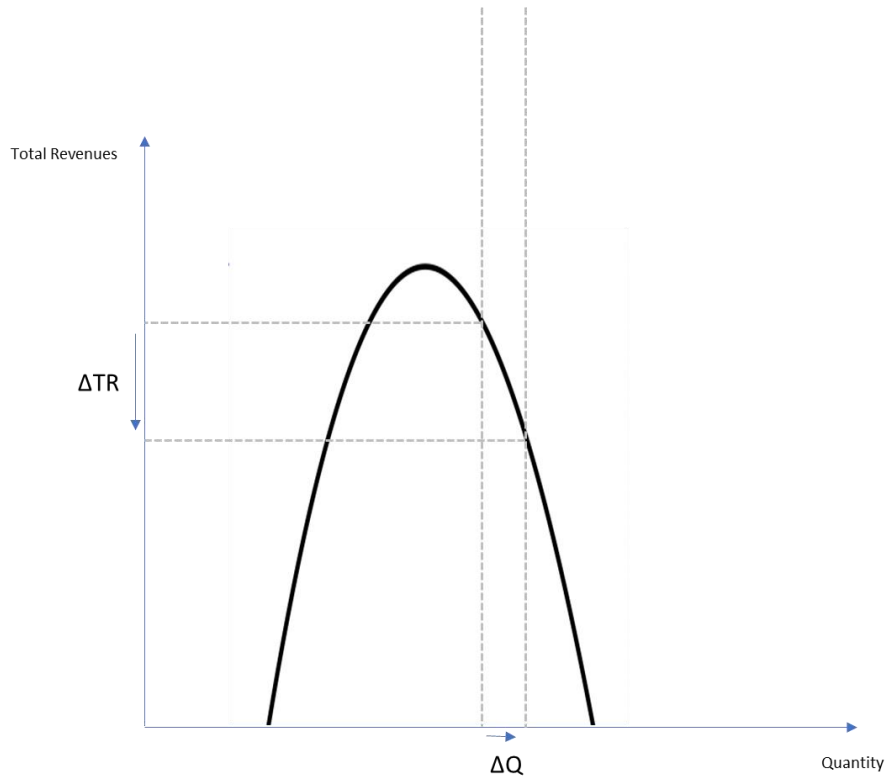


Figure 2 - price inelasticity of demand of agricultural commodities, and its consequences. *Source: own production.*

Appendix C

A model for iterative cycle of programme design

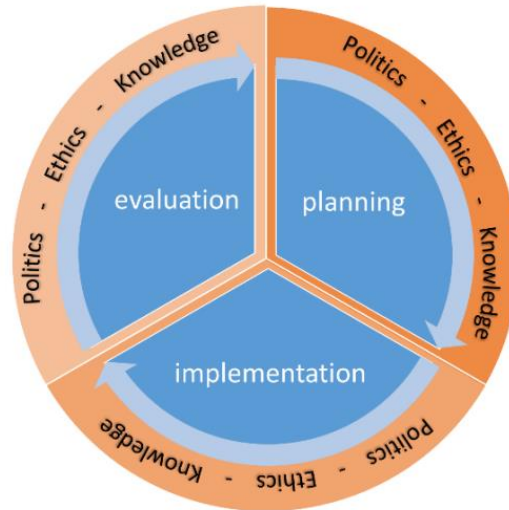


Figure 1 – Critical reflective iterative cycle. *Source: H. Maat (personal communication, February 14, 2022)*

Appendix D

Definition of PIP framework

Textbox 1: PIP - What is it? *Source: (WUR, n.d.)*

“PIP is an acronym for the French Plan Intégré du Paysan or Integrated Farm Plan. Envisioning a better future and planning how to get there are at the core of the PIP approach, and motivate people to act and transform their reality. PIP changes mindsets: from short- to long-term visions, from passive to engaged, from problems to opportunities.

PIP aims at building a foundation for sustainable change at different levels: within people, households, farms, communities, and institutions. As such, PIP works towards resilience-based stewardship: motivated stakeholders who feel responsible to be good stewards of the land and its natural resources, and invest in the resilience of their landscape.”

For more information, please visit <https://www.wur.nl/en/Research-Results/Research-Institutes/Environmental-Research/Programmes/Sustainable-Land-Use/Sustainable-agricultural-production-systems/The-PIP-approach-building-a-foundation-for-sustainable-change.htm>

Appendix E

Interview Transcript – Ken Giller

Interviewee: Ken Giller (K) - Professor of Plant Production Systems at Wageningen University

Interviewer: Frederique Bosveld (F)

Date: 07-06-2022 at 13.00 o'clock

F: Would you like to introduce yourself and also maybe the last, how would you describe your work and what motivates you to do it?

K: Yeah. Professor in plant sciences. In marketing, obviously. I've been involved in cocoa, I guess for about 10 years or so, but much longer with other crops in Africa and I got involved basically because of a request from various industry partners and different companies. So I try to put like a bit more science into some of the ideas around cocoa that are ongoing. We run this program, maybe you've come across it, named cocoa soils.

F: We had a meeting with Yuca Waarts and she mentioned this program.

K: So yeah. We work together around this whole idea of living incomes for farmers. I mean part of the problem of cocoa is its low yield.

K: I mean, we wrote quite a review on the mineral nutrition of the cocoa plant. We just published which basically shows that soils get exhausted and you need basically to replace nutrients in terms of getting better production.

K: But of course, if we think about the current situation in Africa, it's virtually impossible to get hold of any fertilizer because of the problems of the war in Ukraine. And there are problems of a temporary problem versus maybe the long term. That if you're gonna boost productivity in cocoa, you definitely need to think about a better use of nutrients. And that means what we call balance fertilization, current recommendations for fertilizer basically

don't really give the right balance of nutrients that you'd need.

K: So you need more potassium in relation to what's given now, and many of the recommendations don't include nitrogen and definitely cocoa trees need nitrogen as well.

K: Basically, we talk about intensification around good, good agricultural practices, being a sort of a stepwise intensification. So starting with the first step is making sure you got good crop sanitation, so making sure you're controlling residues of for black pod, particularly for persistent diseases. Next is good pruning. So to maintain a good canopy. Because if you have, if it's too leafy, basically it gets very humid and then you get more pest attacks, so there's a real fine balance between an open canopy with enough shade, but not too much in the way of insect attack. And once basically, if you've got the pruning and the sanitation right, then you can think about intensification with nutrients, yeah. So we think about this sort of idea of a stepwise intensification.

K: There are various manuals that have been produced around good agricultural practice that are available.

F: OK. Yeah, we're yeah, if you want, if you can. Yeah. I wanted to ask, what are the main issues in cocoa farming? Because in the literature we find that it's yeah, low inputs best and diseases they age of the trees, the density. But I think you covered that very nicely.

K: Yeah, I mean, in the literature it's often saying, you know, the trees are far too old. They're all 40 years in much of the work that we've been doing, we don't find actually the cocoa trees are necessarily that old, often 20 years or so. So maybe not as old as is often set. And but I think you know, maybe you could touch on this as well, is that a farming household has many different activities of which cocoa is one. And therefore, we always imagine you have to do this and you have to do it on time. You have to do that. But there are many other demands on people's time. So it means that often they're not prioritizing management of the cocoa often, they're prioritizing the need to work off farm to earn money, to pay the school fees or something. Yeah. So.

K: Then you have to take into account that people live there. You know they have complex

livelihoods through which cocoa is one of the activities. And other activities can have demands on your time, so the whole issue if you like of seasonality and seasonal demands on your household economics would also play a really big, big role.

F: OK. Because I was also wondering, maybe it's a bit not very intelligent, but there is such great demand for cocoa late in the end, why do the farmers in West Africa end up having such slow living incomes?

K: Yeah, good idea. Good question. I remember some statistics which would say and I think 15 to 18 years ago. Uh, it was something like 15% of the value of a chocolate bar went back to the farmer and now that's down to six or 8%.

K: But it's really hard and of course, chocolate hasn't gone down in terms of pricing the shots, but where the money's made is all in the processing chain, and particularly in the brands at the end and very, very little goes back to the primary producer. But this is true of many agricultural commodities, actually, and you know, foods, foods too cheap and the farmers don't get enough for what they do.

K: And everybody who tells this, that this is a problem of the food system, than I would say it's a problem of our general economic system. It's for a free market. Economy is all about. It's nailing people to the floor, yeah.

F: Through cheap labor, plus there is also the problem in agriculture that increasing yields wouldn't be a solution because then there will be too much supply and the price will go even lower.

K: So we think of these, what they call cobweb cycles. Yeah, which are the boom and bust. So what you see very much in cocoa, if production goes up, price goes down.

K: And then basically you start to get shortages and then prices go up and then there's a boost in production and prices go down. So you get these boom and bust cycles. All of the companies are telling us that in the long term, there's going to be a massive increase in demand. And that increase in demand is basically to the fact that India and China, you know, big

populations are gonna get wealthier. They're gonna want more luxury products. So the long term projection is needed potentially to double cocoa production.

K: Anything you do on the short term causes these boom and bust cycles, and that means then that if there's gonna be an improvement in production in the long term, there needs to be some form of price regulation and policy protection for the producers. Otherwise you can't stabilize production, yeah. And I think that everything we've learned recently and I don't know if you get a lot of background noise, but there's somebody using a machine just outside my window now, I can't do anything about that.

K: But, I think we've learned that the Washington consensus, you know, the free market economy, it doesn't really work around agriculture and we need more regulation and there's no way that we can get sensible policy into farming without more intervention. Big question is, how do you do that in a sensible way? You know, that that doesn't actually cause more.

F: Harm, yeah.

K: Market versions and things in between.

F: Nothing.

K: Yeah.

F: OK, so from your experience, what would you say that are the biggest challenges for cocoa farmers in West Africa with the goal to improve their living income?

K: I think that the situation is that there isn't just one little switch that you can flick on that's gonna make everything change, yeah. And we're dealing with situations where often the infrastructure is poor in the first place. You know, so basically, you know, roads, markets, things aren't functional because of poor infrastructure. We often have very poor input and output supply, so if people want inputs, they find it hard to get hold of them. So that's part of the story.

K: And there is a basic issue to do with education. So the education level of people, and therefore you know, everybody's these days talking about using digital technology and sending apps and things. But if people are basically not literate or not versatile in the languages that are being used, then is that gonna work? Yeah. And many farmers are organized into cooperatives and often this is done with the basis and the help of companies. So purchasing companies actually facilitate and support the development of cooperatives, which then act to consolidate, consolidate production and they also act to provide information, so they help with the provision of knowledge and information and training.

F: No.

K: Both in uh technical aspects, but all in financial management, yeah. So that idea of organizing farmers is really important as well, yeah.

K: You can't just stick off, OK? We just do one, because basically you need to really put all of it together at the same time. And I think if we're talking about prices, I think stable prices.

F: Yeah.

K: They're incredibly important so that when farmers are making an investment in a perennial crop, which is gonna go for years, that they know. They've got a pretty good idea what the prices are going to be, not just in the months time, but in a year's time, and that if they make an investment now that that investment will continue to pay them a return cause. Otherwise how can they know whether it's worth investing in good agricultural practice? Yeah.

F: Yeah, of course. OK.

K: So the technical thing is, is definitely part of the puzzle and getting good technical advice and good management advice, but it has to be built into a system that works. Yeah. And currently very little if the system works.

F: I would like to. Yeah, I wanted to just tell in fact the problem that the commissioner gave

us is pretty broad. It's pretty also oversimplified, maybe because they said, like, just tell us how to do training on GAPs, what we would like to do is to provide them with a sort of menu of different options of things that have to pay attention to when designing a training. And so we want to take a broader approach and not focusing on your GAPs technical but also including negotiation skills and other aspects of the life of cocoa farmers in order to have a broader approach. Anymore complete. Yeah, and.

K: Sure. I think I think that makes a lot of sense, yeah.

F: Yeah. And I think it's pretty clear in the discussion so far with you and with other experts that, yeah, training will not be enough to improve their living income. I think this is pretty evident. Training also is an important part of our project, so I would also like to ask you some stuff about that.

K: Can I just show you this slide?

F: Nice, yeah.

K: OK. This is an idea in a sense of what we're working around this idea that you go from step one to step two to step three, yeah.

F: That's very useful for us, yeah.

K: That might be useful. This is basically then some results of trials that we've got coming out of our cocoa soils work. So this is an analysis of about 100 trials in four countries which is showing that and this is the difference between just good agricultural practice.

F: Could you share that with us maybe?

K: Sure, I can send you this, yeah.

F: Thank you. That's very helpful.

K: Anyway, maybe you can ask some questions afterwards if you want to in terms of what it all means. Yeah, but I gave a presentation at around table in Hamburg last week and this is basically from that from that presentation.

F: OK, so another question I had regarding training was like, it seems that you have plenty experience in training farmers. So what are some common mistakes that people make when they try to train farmers?

K: Yeah, most of my training is actually with university students and PhD's and are like not with their farmers directly.

K: I think one of the greatest mistakes is not having a good enough understanding of what the farmers' wishes and needs are. And I remember there was a very good piece from Catholic Relief services not long ago, where basically they were saying, you know, just training on the technical side is one of five different skill sets you need. So you need, but you need basically financial skills training. You need technical skills training, you need, you need training in governance as well. How do you actually manage if you like, in a cooperative?

K: And I can and there are a couple more and and training just on the technical side doesn't necessarily address all of the needs of the farmers and the farmer group. Yeah. So, I mean, it's also how do you work together? How do you make this happen in a cooperative way? Because an individual farmer on their own is probably not. If they can, they try to boost their yield. But if they can't, then get that to the market and they need collaboration to do that, then that's not gonna work either. Yeah.

K: So I think the idea of understanding the context properly is absolutely key to training.

F: Nice. And would you say there is specific indicators that are paramount in trying to understand the concepts over other or it really depends on the context and the kind of training that once wants to apply because that's also like we kind of arrive to the same conclusion, but we also were trying to find if there are specific indicators that are used to investigate the context.

K: Yeah. I mean, I think understanding the basic education level of the people you're working with. You know, we know if I walk in, I can go in with the same set of slides, same set of slides, and I'm talking to 1st year undergraduates or masters students or PhD students or a company. I'll explain it in a completely different way. The same set of information you know. And it's all dependent on, obviously, what's the starting point of the individual in terms of how you can work around communication.

K: Of course, that practical training, so being out in the field and doing practical training, if you're talking with cocoa, with things like pruning is really key because, you know, pruning is a science, but it's also an art. Yeah. I don't know if any of you've ever tried to prune an apple tree or a fruit bush or an olive tree.

F: No, I didn't.

K: But it's incredibly difficult. You stand there and you look at it and you think you know all the rules say, you know, you have to go for a second branching and an open canopy and you think, yeah, but this tree looked like, looks like that. Where do I start? Yeah.

K: So that there's an element there of artistry and skill which goes beyond, you know, something that you can write down and put in a book in terms of a set of rules.

F: But what do you find about the farmers' motivations to take part in search, providing trainings, for example, and on what does that depend on timing or how often or which season in the year?

K: OK, I will tell you a story. We were in Cote d'Ivoire, in Gagnoa. It's down in the southwest of Cote d'Ivoire. And we're talking to farmers about, you know, their most important crops. And for some of them, it's rice. Yeah. And then you say, but do you have other crops? Ohh yeah. We have cocoa as well. But then depending on the calendar of some crops, the focus will be focused there and not on the cocoa.

K: Yeah, so you can go in and say, we've got a cocoa project, but if a farmer is dealing with

rubber, rice, cassava. Yeah. Then their time depends on the market and what's available, you know, in terms of where they can sell stuff, obviously their priority will depend on feeding the family, providing the school fees. Cocoa has to fit into that calendar, so understanding more about the broader packet of activities that farmers have is really important.

K: Trying to make sure that farmers are trained around the times that the farmer would need that knowledge, so not training at a time which is completely well, everything will have been forgotten by the time the season comes round, yeah.

F: Yeah, another question I had was if we could only convey two main messages within those trainings, what would those be? But I think if I go through the lecture stepwise, then it would be clear what?

K: Well, I think that it would be to get your sanitation and pruning right first. Therefore, you invest in extra inputs like nutrients. A good analogy is that there's no point in giving a good healthy diet to a sick person. Yeah. You gotta cure. You know, we have this in nutrition. If the kids got an infections and diarrhea then feeding them better is not gonna help them. First of all you have to solve the medical problems. Yeah. So get the treat into healthy shape before you try to invest, yeah.

F: So if I mean this will be like a prioritization of the technical aspects, but we had to reason in terms of priorities among technical and nontechnical. Do you feel like GAPs still have a such a relevant role in a more comprehensive training or negotiation skills, comparative formation and other forms of input for example should be prioritized over GAPs?

K: Yeah, I mean again. You can have fantastic negotiation skills, but if you don't have anything to sell. You know, I mean, I think it's really hard to say this is more important than that, yeah.

F: Yeah, yeah, yeah, obviously. OK.

K: You you need to have. Uh, yeah, to make it economic, you gotta boost productivity. Then

you've got more to sell and you need to get a good price for it, yeah.

K: And then I think it's really hard to say do this before that. The only thing I would say on the technical side is that I think the investment in sanitation, crop, sanitation, so getting rid of disease material, getting your pruning right is really going to be a basis for building productivity. There's no sense in going on and saying, all right, let's use these inputs. If your trees aren't in good shape to begin with, yeah.

F: Yeah. Makes sense. Yeah, but with the sanitation, she'll, she'll then also refer to wash programs, for example, or?

K: No, I'm not. I'm not talking about human sanitation here. Actually, I'm talking about the crop sanitation, so making sure that your disease pods are buried or wherever that you're trying to prevent disease spread in the tree. Yeah, in the trees.

F: OK. Yeah. So if I may, I have a bit of a longer run question. So in the beginning of the project as I was reading it, I was thinking, let's find something that will be very cheap to implement and will produce a great positive impact. But after some discussions with experts, I started realizing that yeah, all the ideas I had pretty much collapsed. So. So I was thinking of ways to enrich the soil by maybe adding nitrogen fixing trees. But we found out that this is already being done. Then I thought maybe if they have animals to simply use the manure, but we found out that the plantations are very far away from the houses, so there's difficulty in transporting and there are also labor demands which are not there. And then I thought of using the remainder of the husks after they removed the beans to enrich the soil. But we found out that the literature is not very clear on that since using them might increase the disease risk.

F: So I was wondering if from your experience you have found something that could be something like that, the practice that can be cheaply and easily applied and have an impact?

K: Yeah, a good question. So under nitrogen fixing trees, I mean certainly there are a nitrogen fixing trees that can be used. I don't know if you heard about gliricidia? In Spanish it's called madre de cacao. Yeah, mother of cocoa. So gliricidia, this is used particularly in establishments. It's a very light open canopy. It is used in in West Africa as well, but not

that much. I mean it, it could be used much more. So people say, Oh yeah, that's done. But it's not done by everybody. So I think including gliricidia sepium could be very useful.

K: And it's a good one for mixing because it has this open canopy. Yeah, it doesn't cast the dense shade. And when you're talking about recycling pods, I think that's very important, particularly cause a lot of potassium is removed in pods, but it means either they've gotta be covered and buried or composted before they're recycled. Yeah. But I do think recycling is really sensible that you try and keep as much of the nutrients going back into the system as possible.

K: And if we talk generally people talk about using compost, but then the big question is where does the organic matter comes from? Yeah, because recycling is really good. But the bottom line is if you're taking out nutrients, you also need to add in nutrients. So we do need some fertilizer here.

K: In most of these cocoa systems there aren't huge numbers of livestock, so if you're close to a poultry farm, you can use chicken manure. But that's only really in a very small area. So yeah.

F: OK, cool. Could there be many? Maybe according calls concerns the bringing to West Africa a plants like a mother of cocoa, that is, you said from Spain.

K: No. It's everywhere in the world. It was spread in the time of the Spanish galleons, it was moved across to the Philippines and then into Africa. So you find it in every country in Africa.

F: OK, yeah, because now we will make some research about that, but it was just to be sure that then we don't suggest something that can be dangerous.

K: No, no, I mean it's if you do a search on it, it'll be definitely fine yeah.

F: OK. Yes, I also have a very open question. So there has been a lot of research on the topic by agronomy social scientists. There have also been projects with the major parties

involved, from the whole sector companies. But the problem still remains. Why do you think that is?

K: Yeah, the world is complex now. And yeah, I mean it's uh, you know, why does the problem persist? I mean, these are difficult, intractable problems that involve millions of people. So it's not going to be solved overnight, is it?

F: Can I ask one more quick question? Did you do you have any experience with the trainings being very contrasting to particular beliefs farmers have themselves?

K: You know, so that's the question you should talk to Lady Faustina, who's just finishing a PhD. Now I'll send you an email, but she's just been she just did a study of training on pruning in Ghana.

F: Nice.

K: I think basically what she found at the end of the day, we're farmers were pretty sick of being trained. That, you know, they were really it was, you know, they participate because they're expecting something back and they want something more than just another training, you know? So. But I mean this will differ depending on where you are and whether these people are well connected with the market..

F: Yeah, I can imagine it's tiring when you have some knowledge already or some practices that are working on people come up, you know.

K: Yes, people come in and they don't recognize you. You're already skilled. Yeah. Then you know you think? Yeah, but I've heard this all before.

F: Yeah. Yeah. But yeah, also other people told us that it might be reasonable to make the trainings optional.

K: Sure. I'll send you some, uh, some slides. I'll put you in touch with Faustina. Anything else?

F: No, unless you have any other final remarks or something that we maybe missing in our approach.

K: I just say if you come up and you've got something short, you wanted me to read or comment on, I'd be happy to do that, yeah.

F: Thank you. OK. Thank you very much.

K: Preferably not 50 pages. Yeah, but if it's a short summary, 2 pages or so, they do that, yeah.

F: And we would also like to serve our rent product with you if you want after the project is done. So yeah.

K: Yeah, please. That would be good. Yeah, I'd like that very much, yeah.

F: I'm sure parts where you are mentioned maybe so you can read through it before we...

K: To be sure you don't misquote me completely, absolutely.

F: Alright. Well thank you very much for joining us. Thank you for your time. It was very helpful for us.

K: Great. Go well yeah. Bye.

F: Have a nice day. Cheers. Thank you. Bye bye.

Appendix F

Interview Transcript - Yuca Waarts

Interviewee: Yuca Waarts (Y) - Senior Researcher and Project Manager for sustainable value chain development

Interviewer: Pietro Sala (P)

Date: 03-06-2022 at 15.00 o'clock

Y: Only for internal purposes.. Yeah. And if you mention my name somewhere that I sent something, it would be good to check whether I agree. Of course. Not sure whether that is probably all standard. But I always need to say that. Yeah, we've had some surprises in the past.

P: And so as we said, we will use it to analyze the content and it will be handled discreetly. We will ask for your consent to use the quote here, let's say. So if there is any question you don't feel comfortable with, please don't feel obliged to answer and you can also always decide not to answer to it and you don't have to if you don't want. Also you don't have to motivate your answer. So we hope that we put you in a comfortable condition and we have a nice chat. The interview, as we said, takes approximately one hour and I just scheduled it for couple hours to be sure that it doesn't close under us because using different platforms.

Y: Some of them it does, sometimes you just kicked out, right?

P: Yeah, right.

Y: Spent two minutes more. Yeah. No, that's a good one. Yeah. Zoom I think does that. Or I'm not sure.

P: Yeah. I think also meets.

Y: OK, it's very inconvenient. If you haven't finalized the final sentence.

P: Yeah, it is. It is.

P: So I don't know, if you're familiar with the project, we're basically doing an ACT. I will briefly introduce ourselves in the, you know in a little bit. The project is with 100 weeks, our commissioner is directly the Science Shop in Wageningen. 100WEEKS is currently doing financial training and providing financial support during 100WEEKS with eight euros provided to women in households and what they want to do now is to maybe move to try to train the good agricultural practices they will be focusing mainly in the staffing, obviously for obvious reasons. Have a share of production worldwide. The thing is that now they have Unilever, the possibility of Unilever backing them up financially. So instead of relying on private finances, they can now rely on the big corporations and get access to their network, maybe. And so really trying to scale up there and they asked us: big problem. So how do we do so? We tried to scope it further. So far the solution, not the solution, but the goal we came up with is to try and design the framework of focus point. Also the word menu came up. Of options and the literature through academic investigations.

Providing them what to concentrate on when they have to design the training, cause also we are strong believers of the fact that there is no one size fits all. So yeah, Ivory Coast and Ghana are still pretty different contexts and so yeah we don't want to give a general.

P: So now we will briefly introduce ourselves and then we will ask you if you're comfortable to briefly introduce yourself as well.

P I'm Pietro. I'm the manager of the team. I have an economic background on doing the master MME which is on economics specialization in economics and governance. If Free wants to introduce herself.

F: So I'm a Frederique. I study International Development and I do inclusive innovation and communication.

A: Thank you. Yeah, I mean, I saw you during the Advisory Board meeting. Yeah. Yeah, first. Ohh, I'd shortly introduce myself again. I am doing the International Development, master and the politics and governance track. Uh, and also did my bachelor in anthropology, which is really strong I feel during this project for a localized view on the training.

K: Yes, and I am Kostas. I'm studying organic agriculture slash agriculture, so more, more technical stuff. Yeah. And there are also 2 girls who study social sciences with different specializations, and they could not be here now. So that's us.

Y: So you're the plant production system person. Yes. Good. Yeah. That's a nice combination. Always important to have it.

Y: So should I share two sentences. I am a senior researcher at Economic Research. My background is agriculture and environment economics. So big focus on sort of, yeah, farming systems, but also how it works in terms of earning an income. I've done a lot of work in sort of Northwest Europe, smaller agriculture after I studied. Biodiversity, conservation of farming. And how we can make them work in Europe? It's also difficult in Europe. And then I moved to Wageningen again because I wanted to do more research and tell about results instead of doing a lot of implementation projects running around doing management. And since 2008, I've worked at Economic Research, mainly focusing on commodity sector palm oil, tea, coffee and cocoa, and a bit of sugar, here and there sugar cane. And since I always focused on sort of livelihoods and income measurements, because that was basically sort of a lot of requests, right? And evaluating programs around certification, training, service delivery and small development level. And since 2018 or 17, the living income concept was developed or introduced around smallholder farming. It was developed from living wage concepts basically and we became very passionate about sort of having a benchmark for decency where we sort of compare the results against, because we had the World Bank poverty line, but that was basically very, I mean we didn't feel any connection with the World Bank Poverty line. It was just simply to minimum. So that's sort of the passionate passion in the work. And I work with a quite a large team at Economic Research in International Development, from people doing a lot of micro level analysis, econometrics, etcetera, to more social science anthropologists, business, sort of management to global modeling. Maybe I'm not sure where to see sort of if all the African countries would do what would happen with global food supply, right. So everything from micro to macro. And which I didn't know about when I was studying, but it's pretty cool. So different teams doing different things and we try to make the connections between the fields, yeah.

K: That's really interesting, yes.

Y: So, a bit of promotion of our...

P: OK, you know you if if, if. If I can, I will probably bother you even after the interview for insights. Cause. Yeah, shortly there is the big decisions to be made after the master is done.

P: So the next section was a little bit off about yourself, but I think you kind of covered it already because the two questions were all, you know, describe your job and how long \ have you been doing that and what motivates you? But if you feel like adding something to that or I feel that was pretty...

Y: I would say, but that's sort of we have passion for our team, but myself as well, for those in poverty specifically and obviously not bothering the environment. So we do really are in the social science side of things, but we really try to find those ways how to get how we can reinforce sort of income and environmental conservation rights. Ehm and all our work is about evidence based. Obviously, we're at the university and we see a lot of things and that's where we did some nice bridge to the topic. A lot of assumptions behind what works and what would work or what could work and where. We really like to show sort of what evidence there is. Sometimes we don't know. To be honest, you had some questions where I really don't know so. As sometimes people feel it's a bit of pain, because the have this assumptions and beliefs, really belief systems are really strong in this area, right? So we know our system works because we simply know, right and we are. So we're trying to be gentle and in that sense, but to be evidence based and we hope our sort of our work actually contributes to policy design. And what sort of our 20 years of research actually shows is that now there's no quick fix whatsoever. So also in terms of training, I mean, Unilever and other parties asked us 20 years ago, how do we can we do impact measurements with the mobile phone? With two questions. Well, basically, you can't. I mean, there's just, I mean. The same is with training. So if they want sort of cost effective training and uh, there's this whole discussion on do it, do you do it digitally? Do you use an app? You need people and invest a lot of money to make it work. I think that's sort of the key lesson from sort of the past 20 years. If you're trying to do it on the cheap, you actually waste a lot of money. So maybe that's the first.

P: It makes sense. It makes sense.

Y: Yeah, it makes sense. But a lot of people still think that if you have you mentioned something about a manual or you have an app and there's information available that people would actually use the information, change the behavior and become rich. And that's just unfortunately, actually that doesn't work with consumers. What we see, right, we do a lot of consumer research in our organization, but it also doesn't work with people. So do you have to be having sort of intense discussion collaboration on farm management and make the create an enabling environment that people can actually make the choice to change their behavior and they can actually do so, right? So it's two things and that's where it's missing a lot.

Y: Yeah, I don't think information is the challenge in that sense.

P: Yeah, no more.

A: If I can hop in already maybe?

Y: Sorry for the quick nutshell, but...

A: Can I ask a quick quick question? Do you think that Unilever for example has changed its perspective slightly on the idea that a quick quick fix is manageable because...

Y: I'm not sure how they decide to do the program and how to invest, but what they have definitely changed up their game in terms of attention, so they're really the policy on living income and living wage is really cool. I mean, that's what I can say. But it's one thing to send a target and probably a lot of people are running around thinking how are we going to meet this target, right? And other organization companies we see, they're not making a target. They're thinking a lot internally without sort of communicating about it. So it's really interesting different strategies. I do think everyone, even us, underestimate sort of the cost of real driving change. In sort of, even through trainings, right and and sort of farm management practices improvements? And that's one thing and the other is we underestimate the fact that you need sort of five different things at the same time. So training plus plus plus plus, right. So with and that's where I like the

100 weeks approach, the cash transfer plus training. Because they addressed one of the key, well barriers, to have improvement, which is inability to invest, which we find everywhere across the board and people just always assumed if you do training people change, they will sort of iteratively improve their incomes et cetera. And then the ball goes rolling basically 2/3 doesn't invest, right. So if you can't invest, you can't really improve a little bit only. So that's it. So you need sort of we need sometimes say 5, but at least 2/3 different measures from different angles to create a situation where a farmer or household actually can improve. Yep, significantly right, not \$10 per year, but what rather 100 or maybe 1000? Yeah.

A: Thank you, sorry for going into depth of my question so quickly.

Y: Flexible, that's I hope I'm not disturbing your list with questions.

P: No, don't worry. We have a lot of them. So we try to focus but there will be some digressions. Plus it's a semi structured ideally interview. So if there is something you feel relevant to add feel free and we were really happy and everything is working. So now we move a little bit more toward the topic of cocoa of farming precisely. So what we want to ask you is if the reason what are biggest challenges for farmers in West Africa. With the goal, obviously of improving their living income or reaching living income.

Y: Well, the first is money. If you have a system without money, you can't sort of create new money just to be very easy language. So what we see is in the latest analysis, they're not sort of out yet. It's really the estimator right where quantity we do some quantitative analysis. And if you was, if you were having quite a significant income last year, you will have so now, right. So the money you had last year is very good proxy for the money you have this week here basically and investments matter. So if you invest more money and time basically you earn more and what we see just 2/3 of the farmers hardly invests and they spend some time here or there. So that's definitely one of the barriers. And then there, the other thing is that a lot of the households make conscious decisions or want to do, even though after my western point of view we may think differently, right? We would do things differently. And so there's a lot of opportunities being envisaged with them or discussed with them, but they don't see the opportunities as we do, right. So they make a different type of choice and what they do is generally what we see and how we

discuss things, the best option for what they could be doing. So there's also talks about diversification. There are very good reasons why diversifying for really earning of a lot more money. It's just not happening.

Y: I'm thinking about the question. There's the, how do you say that, the Nexus? Almost? That's strange words sometimes between sort of firm size, available availability of firm lands, right to increase your income. If you have two hectares, there's a limit to what you could do. And then labor. So even if you have three hectares, but you have two people and you can't hire labor, you can't also create a productive fields, right, and laborers often forgotten. It's still sort of a black box in a lot of studies. While we in a lot of other studies, we in other sectors we see it's hugely important, especially if you can't hire labor, right? If there's either a shortage or it's too expensive. And then we assume that they could be working or would be working 8 to 10 hours and there are a lot of good reasons why they're not working 8 to 10 hours per day per adults, right? And so there's a lot of assumptions still about, uh, sort of viable farm professionalism and how that would work. Without sort of thinking about all the household or, for instance, the women should be doing, uh, whether there's actually a benefit you you increase the hassle on the farm if you don't do diversification because you have different products, there's seasonality where sort of when you harvest the cocoa, you also need to harvest the fruit or you need to take care of your chicken. So there's a lot of easy assumptions. That diversification generally easily works for improvements of incomes, but actually very sometimes really making their lives more complicated. And a lot of people also therefore do not participate. Right. So we have discussions where they say, well, it's too difficult, it's too hard. We only have a small patch of vegetables. Well, that's nice. But that won't earn sort of a lot of income. So I just don't want to do it. It's not worth my while.

K: Sorry if my questions are a bit not so intelligent, but I was wondering if you mentioned the difference in the way of thinking. Could you maybe give an example of that? Or is it that doesn't have to do only with the diversification?

Y: Well, one of the things for instance in cocoa, so if you know cocoa maybe more, are you focusing on training for cocoa or more broadly? Because I think that would be one suggestion really discussed with the people, what kind of trainings they need and don't focus, don't limit the choice to cocoa. I mean that's the first thing. Where it goes wrong basically, and what we've

learned from Farmer Field school approaches that you can do some cocoa, right? I mean, you can always, but training works best if people actually choose to participate and they see the value. So you can do all that. I mean, we've seen in the certification you can do all the trainings you like, but if you really want a high uptake of the practices, first people need to understand why they're doing this and what the value is for them. Besides all the sort of whether they have enough money. So if they feel there's a training on for instance pruning which really doesn't fit with their reality, there may be the training, but they will be doing nothing with the information gained, right. So the key lesson learned is really to tailor the training towards the needs of the people, even though obviously you may add things where you know, which may really help them even if they don't know it themselves. But there should be choice somehow.

P: I think to answer your question, I think we might be focusing on cocoa farmers cause the project from 100 weeks. That's the focus they had. But then in order to develop the training, we want to find the science to motivate that or where we're trying to understand if that makes sense is that the content of the training shouldn't focus only on cocoa. Yes, cocoa farm because yeah. So the target will be cocoa farmers but not focusing all your cocoa farming that's second.

Y: And you mentioned an example, Kostas. I think if you look at cocoa farming, there's a big sort of discussion on pruning, right. And I what we see in the days pruning is indeed one of the sort of four key things that explain higher yields and it makes sense, right? So if you have a better prune tree, I mean, we do this in Holland lot with our sort of apple trees and fruit trees. So why not the cocoa? So it makes sense from a technological perspective. But what we see in reality is shortage of Labor. So you can only spend days. So X days in the field, it's hard work and you work with sharp or whatever pruning material you have to climb a tree if you're unlocking age of the farmers is old, and then they just decide not to prune even though they know how it could be done. Because of sort of all kinds of factors where they say, well, I'll just harvest the pods which are there. And I want, yeah, I may be harvesting a bit more if I prove better. But whatever.

K: More like a lack of resources I would understand and my other question was you mentioned that they work 8 hours or so. Did I get this right? And why? I would assume also that they work about 8 hours.

Y: Yeah, it's just our Western thinking about work or which is different and also they do a lot

of other things besides sort of going to the office as I'm doing right, easy job for you, go to the office, you bike back and then you you teach your family, they sort of to maintain the family and they do a lot of things which we I mean we have water from attempt they may need to fetch water, right. So there's a lot of things we're not used to here which is very easy for us to assume their life is as easy as ours, but it isn't generally. And then there's probably, you're doing the anthropology, right? Anouschka. There's probably all kinds of reasons why people value sort of sitting under a tree discussing with their community members and do that and decide to do that right. It's an implicit choice and not work on the cocoa fields. Or if they think it's not necessary. While we would think as agronomist or economist, that would be really helpful if you spend your time and waiting. Right. So they make different choices than what we often think as sort of being rational. And again, the same consumers in the Netherlands versus sort of the real science behind what we should do as consumers. I'm also making a lot of mistakes every, every day. Mistakes according to the what would be the best option for me. And that's one way another. It's fundamental to a lot. He possesses a receptions under all kinds of programs, especially around labor, that they say well, but then they should work more, right? Yeah, but where? I mean, there are now deciding how much they work that women are doing 20 things having the children they're not allowed to take the children to the field, but there's no daycare, right. So how do you manage your life? And I think that's sort of a precondition to understand really why people do what they do before you have a judgment of what they should be.

P: Yeah, that's very clear. Thank you. The next question would be in what ways do cocoa farmers West Africa receive support and what is kind of the role of the government if there is public institutions and governmental institutions. I think we kind of have some insights reviewing your literature before this interview, but we haven't had the chance probably to review it all because it came the short notice. But yeah, I have some somehow of an idea of this answer, but also access it directly to you. It's different.

Y: Yes, so. What we see in terms of I like the question of having government involved, right. Because that's one of the sort of the pillars you should order stakeholders that should be involved. One may another in creating the environment for farmers to earn more and to do better with basically what you see in extension systems. The government is rather absent. They have. They won't say that probably. So we should be a bit political. A lot of the programs on training and

implementation is related to certification is implemented by all kinds of NGOs and the companies themselves. So what we see in the landscape, I haven't met any extension agents from the government or heard from such people being hired by the companies, right. There are government organizations active in seedling institution process right, so nurseries, etcetera, but also there's a lot of private sector, seedling nursery developments and sort of spraying gangs. If you came across the word. I think some people moving around the landscape sort of treating this in the seas, which are can be government related or private. And what is being done is sort of research and research stations. I'm not sure whether you came across that word. Cocoa Research Institute of Ghana for example has these research stations where they really test out sort of different clones. So now they work and sort of management practices. So that's what they do. The question always is, is that knowledge sort of written down transferred? And we've been as part of our cocoa soils program where we actually created manual, which I could find the share if you like. Which was obviously developed with these research institutes. But because of this program, it was actually developed, right? It's the yeah, it helped. They could have a bigger role if they'd like, but obviously there's budgets, things and and and choices they make is spending. And especially the government has been active around price setting. If you've read about this living income differential, it didn't totally work because it was too not restrictive enough. So the actually the world market price plummeted and then the whole sort of benefit was sort of evaporated, which is a bit of pity. And they're thinking about adding sort of more restrictions to it, right, so that you can only sell that. There's a minimum floor price for cocoa 2600 or something. And a dollar per ton. And so in that sense, I think the government can be much more supportive for my income than also doing more for round extension and the farmer services.

P: So I think you already answer it as part of the next couple question, which was how do Governments because maybe there is such lack of presence and there is probably not much interaction. And as you said. Probably interact with it more as a researcher than the actual farmer. Uh, yeah. On the field.

Y: Yeah, I think that's it's there's also a limit to the. Yeah, the number of people hired, etcetera, right capacity from the government. So it's also logical thing they're not. It's not a very rich country. So you make choices for you spend your money. Interestingly, they're becoming more active and less especially in uh in cocoa in Côte d'Ivoire and Ghana where you

do, you do see there's an urgency also because of the urgency coming from the European regulations. I'm not sure how much you follow, but there's huge discussion sort of going on in sort of how the government can become more active and how there could be an economic pact between the EU and West Africa to really support. Uh, the farmers so actually, compared to five years ago, engagement with governments have increased sort of 10-50 fold between the companies, governments research. Uh governments also in the EU, because everyone sees the urgency for more collaboration, basically.

A: May I jump in quickly? Do you see any difference in how the government interacts with farmers like today have a preference for bigger farms or? Do they look at focus more on the poorest farmer families, for example.

Y: I wouldn't know exactly what I know from all the programs I've been in. Is that because of the assumptions there, there's two things happening, so either it's a one size fits all approach, which is rather focused at all the farmers basically in a community or in a firm organization, right, Ghana and Cote d'Ivoire have different sort of structures in terms of how you reach people. That wasn't entirely successful as you probably have become aware already and then sort of the more intensive training programs came in or support programs came in. And one way or another we see a sort of implicit targeting or have already better off farmers because the selection criteria for actually involved with these people were such that the poorest that basically can't participate or choose not to participate like credit programs if there's an interest rate of 60%, you don't have money, you're not borrowing money, right? I mean, it's very unwise. People are money. If you can't pay back the interest rate. The same for in code differences, there were programs targeting farmers through the cooperatives. And one of the criteria was where we need to know that this person can pay back the loans, which is why we're not borrowing some of the people because we know that they cannot pay back, right. So there's a lot of farm development plans which were there, was this cut off point of certain number of hectares where it makes sense, which does right from an effectiveness point of view, it makes sense to work with the richer. And farmers with generally larger firm sizes, but implicitly you remove sort of the most vulnerable 2/3 I would say of the population, right, so. Generally that's I always say 2/3, it could be half, but it's definitely more than half. And it makes perfect sense, right? Also from the company perspective because they want to have effective program. So you target the farmers, where you can actually create change. And what has changed in the landscape also where 100 weeks come in is really

to think also. But how can we address the barriers of the poorest? Uh households, which is basically generally it's money, it sounds very dreary, but basically they don't have money. So they make very sub-optimal decisions according to our view, right where they spend it on because it's all food, they're not investing in their farms because they decided to spend it on food or school fees. Or funerals, which we wouldn't do. But they do, right. Yeah.

P: We also have heard about this.

K: And so the fact that 100 weeks give some money unconditionally, I believe this is a very helpful addition.

Y: Definitely because they addressed just like the necessary cash transfer program, which actually builds up. It's sort of similar also in terms of amount I think because it's €480 year. Yeah. So that's it doesn't add up to the same. Yeah, I think it's based on the 100 weeks criteria, OK. It makes a lot of sense and we really look forward and then they tie some more conditions to it, right. So the sort of academics are getting a bit nervous if people need to do all kinds of stuff to get this money. But it really addresses sort of the poorest households and also it moves away from the volume premiums because we see that 2/3 of the households actually sell 1/3 of the volume, right. So most of them still very small volume. So if you add sort of increase the price premium for 5% it's it's literally \$13.00 we calculated once \$13.00 per year per family member which is still important. But if you need 1000 more per year than yeah.

Y: No, no. So this because it's untied of the volumes is really something new and that's also what I like from the 100 weeks program.

P: Nice. OK. So they're moving a little bit more into trainings, even if we already kind of touched the matter. We want to ask you what kind of trainings have you observed and what did they look like? So content frequency who's been trained, so if there is some record characteristics and some specific characteristics, yeah.

Y: They're different concepts, so generally you have certification training and I'm bit black

and white here. It's not always the same, right. But generally you see certification trainings or very sort of general trainings which are targeted at the whole population. Often certification uses uh where you can have either sort of field days or group sessions with 20 people right? And then it depends a bit. I mean this field days are done once a year, twice a year, group sessions, once a month, maybe once every two months. And so that's sort of. One of the basis sort of training or information sharing mechanisms, then there's farmer field schools, which is more intensive where people are generally for two years part of the farm field school program with about 20 people and where you meet every two weeks, which is much more intensive and you're generally have a field trial. Uh, I've already discussed with your peers your sort of experiments and you evaluate together for two years, which is two seasons or four seasons, depending on how you look at this. Yeah, what works with us work and and the idea and that generally works pretty well if it if done

correctly, right. So that's the precondition and now the last few years there's this coaching. You probably came across, which is really one to one discussions with the farmer household. With a technical assistant or support person. This is so far looks at the status of the farm and does observations. I'm not sure already heard that, but really, look, it's the pruning done well, what about the soil? Wheat, light disease, pressure. Right. So there's this sort of list with criteria. And then there's a multi year plan created where the farmer is supported with creating the right input or accessing the right inputs. The farmer choosing what he or she wants to do. Uh and create this sort of plan and follow up, which is also quite an intensive process and rather more individual. There are all kinds of apps developed for actually assessing what would be the needs of this farm, etcetera. And interestingly, what we see is that the sort of generic training is not tailor made at all. They help a little if I follow the reasoning of my pleasure, they help a bit, they help a little. The farmer field schools have been pretty effective but the whole thing is the implementation which sometimes has challenges and actually the same for the farmer family plan and the coaching. So we always discussed theory or failure. So we do a lot of evaluations but unfortunately mostly the implementation went wrong. So we can't really test whether the theory is actually wrong or whether the implementation just created sort of didn't create effectiveness.

K: How can we do something about the implementation if we can?

Y: Well, there's a few lessons learned to take your time starting because they sometimes want to start a training program within a month, right, without having to talk to the people.

So prepare well. Just it's just like in your research. Sometimes it really helps standing still. You think that you waste time. But actually win time because later you're advancing. I'm not sure where they recognize it. It's the same in these programs. So. So most of the programs I've been involved in are too ambitious in terms of times for startup and implementation, so you want to do something in two years. You think you start in year one, month one, but then in reality actually you started month 6 because you really need minimally half a year to prepare, right? You need to talk to the people you need to. I mean, there's a whole process. Listen and also coordinate with other people working with the same farmers. I mean it takes time. Then you need to sort of assess their interest. So basically spending more time at the start to really think things through. Well, it's sort of the key measure for success. And then the second is really invest enough in the capacity of the technical support of people. And the number of people, because we generally see: either people are not very experienced. They're young and would like to learn about their experience that you work with people, right? You do professional, you do adults, education and so you can make really well in the technical field or an agronomist, but not necessarily. Yeah, this sort of skill you have. And then the number of people is generally lack of capacity and all the countries who work in, right. So we have all these programs and that they're seeing sort of stuff away from each other, all these we see lot of people moving right. And because there's people. So unless you solve that there are these three things. You can have all the manuals in the world basically, which are really perfectly scientifically based cetera rather than you're not. This sounds very negative, but I hope it's uh, it helps.

K: It does. It's. I would say that from other experts on the training aspects, some key points that they made was to make them optional. So make them optional, not obligatory and that it should not be done in a lecture room, but instead it should be done on the field and based on the cropping calendar. So when it's time to prune so then. Pruning practices and stuff. Yeah. Accordingly. Do you agree with those or?

Y: Yeah. And also no training in the harvest season. I mean, yeah, but you know, the very basic things and sort of take into account sort of gender aspects. It's raining. So if you if you visit a woman, generally woman, right? I mean, it could also be that men actually don't accept any advice from a woman. Right. So this whole cultural norm should be addressed. Especially also what we've seen is if you want to have women travel to certain location. You need to account for the safety. You need to seek about money, right? So there's much more to sort of organizing

and training. Then what we might think I mean here we're used to sort of we can travel everywhere and basically. And so there are lots of programs already doing that, right? So I can tell you that's especially coffee and also some examples where there's really people they go to the women instead of sort of having women travel to search locations, right. So you can take that into account and then they provide for daycare, which is right, which is acceptable from the local point of view so that women can actually participate in the training. I mean, I have children. So if my children are around me, I'm not, I wouldn't be having a very nice discussion with you here. Right. So the same for those women or any parents, I would say.

P: Yeah. And uh last thing I want to turn on this point is we've also heard of the effectiveness of extension agents. So in general, the office set of being from an ivory tower in the Netherlands, springing people with the knowledge and telling them just giving an empowering the community. Do you think that the concept is equally applicable to all the three stuff? Freestyles of training you described and people you effective or?

Y: What do we compare with what's in that sense?

P: So if you agree that extension agents should be all the indeed implemented in all three kind of training that you mentioned and if it worked.

Y: Ohh definitely yeah, I think the question is how do you translate certain knowledge from the evidence right from the literature and from the sort of academic point of view into sort of uh accessible information if that's already only about the information right and accessible information which can be translated also by the technology, the technical assistance, the Technical Support staff. But even there it's very easy for us to say, well, you should be pruning it this way and probably heard this already. There's an article on pruning specifically in cocoa. Uh, if you're sort of field looks totally different, then sort of the pictures in the manual. It's all very nice. And then there's a coach saying what you should do. But even the coach should also translate sort of the manual to the local context, because trees are never sort of. Some have intense agroforestry system. Then you need to maybe remove more. I don't, I don't know. I have another technical person, so there's no one field like basically just like people can be compared. Also fields cannot be compared. So that the true skill lies in sort of translating what's in the methodology or in the? Uh, how did instructions or how you do things to sort of the local context that the farmer also

accepts? The fact that you're, you know, what you're talking about and there is, there's just I think still sort of 20 year capacity gap in these African countries where really a lot of young people are new and what we see right and moving around and learning a lot. Umm, since it's sort of availability, so the skill in adult education but also translating the knowledge and specifying it for in the local situation.

F: Are young people also losing the interest in farming or motivation to farm?

Y: Ohh yes. Yeah, yeah, yeah. So what we've done from our last research, we asked a lot of questions for future outlook and we asked the respondent's parents. So we didn't talk to the children. But parents are already said generally well, cocoa is our pride, right? So we are very proud to be cocoa farmers. In a nutshell. We would like our kids to be more educated and have a white collar job or some something in the city away from this area. Very hard work and hard existence, being a cocoa farmer. So even though they're very proud of being a cocoa farmer, right. So that's in their code. They say it's in our culture and it's in our blood. And then the next one is that there are very few alternative income opportunities. So that's why we expect them to be a farmer because they can't go anywhere else. But if they would have a choice, they will probably do something else and it depends a bit how many children they are have. So if they have more children, obviously the perspective of more children becoming cocoa farmers is logical in that sense. And then there's this perspective. But there's very little land, and that's one of the things we come across. I mean, if all the land is divided. Uh, what do you do as a child? So the only option is actually to live with your family on the same land? Getting smaller, right all the time, or move somewhere else? But it's a yeah, pretty dreary, I must say. It's not very nice to say it's, but they're still very proud to be. Cocoa farmers and also the technical staff, often has ambitions to really support the farmers in a good way, right? So they're really passionate. But if there would be job city job paying more. I would know where they would go. Yeah. So yeah.

P: Yeah, of course. Yeah. Yeah. Then moving a little bit more into the training development. The question was, how do these training have been developed, if there is a standard process? Because I remember I saw in your literature away kind of a framework to assess the impact, the interventions, but if there is some sort of guidelines or or yeah, menu to develop trainings. And how different context so social, economic, environmental, political, really are taken into account or should be taken into account into this?

Y: These are two questions, right? Can you start with the first one again?

P: Yeah, yeah. How do trainings should be developed? So you have any like suggestion or experience like from experience. I don't know points to really focus on.

Y: But I think I mentioned most of the things already. No, but please ask.. There's still the question is it training what the farmer needs, right? So sometimes we we've been in a tea program, but that's still 10 years ago. It was. It's funny actually, because we were evaluating the tea program effectiveness in I think it was Malawi or Tanzania, one of those questions was so how did people value the training? Was it sort of? Did it match the needs of the people right? Or how could we improve these trainings? But we have this whole discussion and focus groups where actually there was a discussion. So what are your needs exactly? What were they if you years ago, what are they now and actually training was placed #6 or 7 right? So I do think that in a lot of when we now say and we know we can sort of change some of the program, we say talk to the farmers first, you have a lot of data. So what we say you have a lot of data, so you know who they are. Of the you know, the number of children, their farm size, how much volume they sold you last year, uh, gender of them right. And so you can already get a pretty good picture of how rich they are. What their challenges are and then talk to the people, but obviously that. So there's this group sessions on sort of needs, but generally farmers don't say training right, they say employment or labor, right? Labor shortage. We need labor and a lot of programs are actually listening to that. So organizing pruning gangs or actually having paying pruning gangs to go around, just like spraying gangs go around that subsidizing their work to facilitate the pruning. Actually, to get the pruning done, the question then always is sort of who bears the risk of bad pruning, right? Because you're tree can be pretty sort of mutilated. If someone puts your tree in a bad way. So I the question. First I would say is well, do you, I mean we've been doing all these programs at the so that's how I would frame it. We've been doing all this programs. You have had a little training, you're certified for six years. And what is the potential for you to improve sort of in terms of farming and income and what would you need? And then you get you get a different answer than well, we need more GAP training basically. Yeah, so. I think that's where a good training actually starts. With what do we really, even if you focus on training, but I will done one step earlier, really identify whether the person's really think they're the training is necessary because you see a lot, but then I'll stop again a lot of

sort of trainings becoming implicitly compulsory that people because Kostas you said something cost us about compulsory or not. And where people don't feel the room not to be part of the training, right, because it's sort of part of your. I mean, you're shelling to this, this party and your dependence, right. And you are this certification and there will be hassle that you pick up desert files for instance, et cetera. So they are participating trainings. The question is whether they're really voluntarily do so if you really ask them sort of off record and there's a big doubt there. So it's there's just they don't necessarily have free choice or they feel they don't have free choice.

P: So yeah, we have got 10 minutes, so feel free to stop, but I'll try to squeeze as much. No, we can also stay bit longer, but OK, OK. Well, I'll try to pick the most significant questions to prioritize. So do the trainings include cultural practices. I think we can kind of theme that from some literature. But if you have any specific hints, feel free to mention those. And things that how are different contexts taking into account when it comes to developing training. So I will social, economic, environmental and political context can affect differences within trainings. If you do have some specific points, remarks on that that I think.

Y: Well, yeah, I think I'll summarize what I probably also mentioned sort of here there the often the counter does the training is not necessarily the. I mean, there's still a lot of debates how to do specific pruning etcetera, but I don't think the content rather. It's not sort of 90% of a training, right, so. The what we see is that parties actually do take into account the context and whether there's you work with women or with men or with combinations tailoring to the situations, and that's really necessary right for the, for the, for the training to be effective. And so that's what we see happening. Uh, I'm not sure if you see sort of training specifically focused at women, but also sometimes it's very important to include the men to ensure they are also inclusive, sort of in a development process, right. So that's one of the questions I have for all thesethings about women. And where we've seen in the past and experience where the man actually got really frustrated in communities because they were basically left out, right and that doesn't help in terms of. I sort of the social results. Yeah, the social feelings of people in the community to risk this change process, right? Yeah. And so we see that happening a lot. What we do see is that generally the trainers are men. More women coming up with the situation is 20 years behind in that sense, probably. Uh, which end training is focus is generally geared, but that's changing also towards the person registered as a

producer group member. Our firm organization Method member, which is in 90% of the cases in men. Well, the men aren't necessarily doing all the work, right? So in your whole sort of, if you really want, you need to zoom out again. So effective training targets the people actually doing the work. So how do we get these people who are actually making the change in the fields, in the training and what does that entail in terms of treating men and men and women are doing things with men and women maybe separately or maybe together. But that's not an easy route because you can't find them. You first need to talk through the husbands, right? So there's the whole sort of political-cultural sort of discussion where you need to account for that and that takes time. And that's. Yeah, I mean, I don't want to make it too difficult, but I've seen sort of in the literature in 20 years that's sort of the effectiveness was shown minimal because people didn't take that into account. That's just pity for the waste of money. Yeah. So I prefer to be a bit negative from how it should be. And then it's pretty difficult rather than to do the same again.

P: Then I'll probably merge the next question in the guideline to one that I have regarding what you just said. To what extent is this possible to do ex ante considerations of the importance of certain values. So for example, 100 weeks told us we would like to target men but still be focused on women, while from our conversation it seems to me that really it has to be considered from context to context so it can become dangerous to ex ante this kind of considerations and say OK, we want to focus on this target group because maybe that's not target group should focus on and kind of the same reasoning with environmental concerns like we spoke with an expert yesterday and he told us many organizations don't want to include fertilizing or pesticides in their trainings. But cocoa is really susceptible to that and it has been proven that it's one of the main ways to to improve yields and improve their livelihood. In the end, it's actually applying fertilizers and pesticides. So it could be dangerous as well to to ex ante declare my trainings will not include those aspects or?

Y: Ohh yes, I would definitely not. I mean if you there have been discussions, maybe the environmental,environmental science it's farmer should also contribute to climate change mitigation and therefore have less emissions per unit of projects or parallel per land area which is I mean if you look at the property challenge, I prefer working on poverty less than sort of the greenhouse gas emissions. Yeah. And that we drive less cars basically, right. So you should look at it in perspective. I think the social situation is muchmore demanding in that sense. Obviously, cutting down the rainforest is another matter, right. So I would

say so there's limits to that. And and sort of organic is very nice if people actually compose and do soil fertility management well, but which they don't in sort of 95% of the cases. Right. So because it's a lot of hassle, it needs a lot of time and there's no knowledge and there's so it's, I mean, they're funny. These programs for 10 years. Or 50 years trying to do that. But uh, so that I would say still the most uh also for the environment, the most pressing issues for 40 and you actually help children and the environment by making people richer. Basically that's just a one of the things. I would not sort of from here, decide who is the target group per se and for all for global right? I mean it's just, yeah. Doesn't work. I don't think that works. But what I earlier said is sort of the idea to focus on women makes a lot of sense from the literature because they spend money differently. They take care of the household safety, etcetera. But still the suit fits in the cultural context if, because it could actually mean that there's you have social unrest in the community. It doesn't happen that much, but we've seen examples. And definitely not exclude the men, right? Because they, I mean, how would you feel if you would be excluded from something? Yeah. And the question is how to go about that because there is a lot of value because we've been forgetting the women. Because they are not registered, they're generally they don't own the land. Formerly if there's no chip, they don't own the trees, right? So the whole system is is tailored to men. And so then the question is how to. Uh equally included with it. In a way that doesn't sort of provide unrest or sort of strife within that households or within the communities and you need to think carefully but excluding men or women. Apriori or ex ante? I wouldn't do this if it was a.

K: Yeah, yeah, it's clear. I I'm sorry to intervene a bit, but yeah, what about the deforestation? Because if we see this completely from reducing poverty, cutting down the forest and starting landing, there is the cheapest way to go about.

Y: Yeah, it is the best way. Yeah.

K: In the first years, it's super fertile. And then you move on to the next and next. Yeah. But I don't know if it doesn't feel right that they can't cover. It's no that. But I'm I.

Y: Totally it's really difficult to sort of trade off. So what I mean, if we? It's again sort of north South thinking, right? If we value this rainforest, we should do something about it. I mean they don't have the situation. And the best option for them to feed their family and to have a sort of

income is to cut down the forest. The first now I must say in cocoa areas, especially Côte d'Ivoire, there's very little left, but the government, for instance, there's still this forest and they're doing huge efforts to actually not have the same as in Côte d'Ivoire and Ghana, because you will lose the forest, which is still quite prevalent in the Ivory coast. So there should be some transfer of money for them to incentivize, not cutting down. Right, because or there should be some kind of enforcement of the government that they're actually protecting and actual first. But what we've seen in reality is that. If people are seen producing cocoa in a protected area, there are two options for super supply chains. So they actually worse off, and then they even got that more trees, or they need to find more hassle to sell their cocoa to India or whatever China. And so the best way I think all economists agree, is to actually incentivize them protecting the forest, which is not necessarily right, increasing the price of cocoa because that's may actually be exacerbated problem, because then I think, uh, we're planting workout countries. Yeah, right. So you have to do land based incentive station and also you based.

K: So as long as the demand for chocolate is high and there are no measures, it will continue happening.

y: Exactly, because there's no alternative, right? So this is cocoa. Still the best option to have income and any farmer, even if you're relatively richer, would stink out. It's helpful. I will cut that trees and plant more. Right. So if the price increases, then do that. And if the price increases, they do that. Then that's sort of happening with farming throughout globally and dairy in Canada and the Netherlands and Europe. This also happens, right. If you not doing any regulation or incentive station in the right way.

P: Yeah, makes sense. Then moving on to the effectiveness of training, and as I said, if you if you need to go just please. Yeah, yeah, so we can And so the first question was how to evaluate trainings. But I actually found in your literature it kind of manual. I think it was developed with Wageningen University that kinds of deals with evaluation of trainings. If I'm not wrong.

Y: Not sure which one.

P: So if you just have anything to add on that, what we read is that it's, we're always remark at how important this to insert an assessment phase at the end of an intervention. But if you want

to, I'll operate on that and then feel free. And what do you consider crucial, crucial aspects in agricultural training? I think you kind of mentioned that already as well. And what makes an impact tool training impactful according to you. Also I think you kind of mention it and dealt with it. We have another one that had which was do you have examples of trainings that were not as impactful as hoped? If you go every any anyone, that just really pops to mind? I think you made some general examples that. Otherwise, we might have actually tried to find it from the literature, but if you have finished the whole literature on the impacts of certification and standards, it really helps a little.

Y: So that's expression. It didn't lead to the expected benefits, basically. Yeah. And now I forgot to touch expression but and that's basically because it was a tailor made generally was a very. Uh, well, low intensity, large groups generally. Uh, I think that's the key.

P: The last two questions were basically how does the local community respond to this training set? And if they do provide easily any feedback?

Y: And participants themselves? Uh, yeah, it depends if who's asking, right? So I think that's part of sort of independent, uh, the independent party asking questions specifically. Also people from the local university or local partner, not as being white because then that's. No, they're still very critical, right? I mean, they're pretty honest. And also there's this all discussion on farmers well-being. Farmers being honest certain answers on child labour. We see people being very honest about it. Probably it's bit worse, right? So what they what they described that people who know about child labor actually say well, no, no, no. Our children are sort of cutting out the pols with my chances, right, because today we need to. They need to learn. We need to. Yeah. That's just part of how it works. Even though they're certified and they know they shouldn't say this. So I would say in the partner party speaks the local language. Why is it knows all the sort of customers to discuss without the presence of someone from the company or the program stuff and then you get really useful feedback on what they say.

P: And if there's any suggestion or idea that pops mind regarding after the training. So

how to provide local community with other resources support and to establish some long term change and not that after the 100 weeks let's say everything goes back to normal goes still yeah 100 weeks is a long period but yeah.

Y: I would say, maybe zooming out too much that this should be embedded in a long, long term strategy but different access to the challenge. Bit fake. Uh, but what we see is expecting these two year programs zones. They help, right? I'm quite happy with the 100 weeks because they really address this sort of inability to invest or the investment gap. Umm, but if you stop after two years and you actually go back to normal in terms of the price they get paid or the other services, etcetera, it will help a little and it may generate some sort of you said it's been off effects within the economy, right? Whatever. That's what we everyone hopes, right you have to. But still after two years of how much would they get \$1000 per family sort of right. While the income gap is 5000 right for the poorest, just so you know the sort of per year, so the still it should be embedded if nothing else happens in terms of the enabling environment, the price they get paid. So Unilever

it's very nice that they do this for two years, but actually they should increase the price, right? Yeah. Also not only because then it doesn't help for the first, but also they should have long term contracts with the farmer groups. Right. So that the farmer groups can actually they know that they can sell all their products and they can actually hedge if someone else comes by, they can sell to someone else, right? They should be allowed to sell to someone else and be more flexible and where they go and you need the government to do things differently, right. So if you really want this sort of significant change sort of in a long term, you should stop after two years. So it's there should be alignment between organizations in this. I'm not sure how big the pilot is for Unilever in this landscape to really do things properly. You should definitely including social protection, forest protection. Payment for ecosystem services, but it should add up. So I think this may really help, right? It's cash transfer program, but if it really stops after two years and nothing else happening, it will crumble cause like it will help sort of 20% of the population somewhat right in the end. But then it will crumble. Yes, of course. That's what I feel. I don't have any evidence, but for this, considering 20 years of research in this space and yeah, that's how it feels.

K: So we cannot do like one training and fix the whole problem not I wish. I wish. I wish.

P: OK, so the guideline is actually done. There is only the rounding off. I do have some points

that I put on the side, but as I said, if you want I can try to touch him really quickly or yeah, let's do. The first one was in the first one was really if there is really a difference in the context of Ghana and Ivory

Coast because many times in the articles they're mentioned as it was one. But then since we're talking about. A specialized training school or interventions to specific contexts, then rest is kind of doubt.

Y: Hugely different. Yeah. So also the sort of the whole in Ghana does population is much more stable in terms of historical background. And Cameroon, you have all these migrants having come in from Burkina Bay, Burkina Faso, right. So and you need to work differently with these different populate. We see the same in coffee Vietnam, right? So the smart ethnic minorities you need a totally different approach. In Holland same I could say, but the so that's one, but also the way the farmers are organized is hugely different and also the way the markets is regulated by the government is different. So there's that really matters in terms of and also the way Ivory Coast limits sort of certain clothes to become available, right? For you probably heard about this one. So far, actually they put a ban on certain normative clouds to catch the yield improvements where you think, well, there was something about the yield improvements which people wanted to do, but now they stopped. Allowing certain clones to be sold to the partners or given or whatever. Right. So there's huge. So even though they work together these countries and we see the same or seamless means not always similar trends between the farmers in terms of poverty, let's use et cetera. Umm, the context is sort of vastly different in Ghana, we see much more women being a farmer registered with sort of the licensed buying company, which is sort of the buying power or whatever. Well, in Côte d'Ivoire the members of the farmer organisations are generally met, right? So the roots are different. So even though the sort of the contents of the training could be, I mean shade is shade, right. There's this sort of very generic things about shade or the number of branches on the tree for good, for good lighting to create these spots, you probably know. Kostas knows all the details of the technical side. And actually the roots of getting people to getting the right people to do things differently, it's vastly different. Yeah, of course.

P: Of course. And then kind of a follow up to this was our idea as said in the beginning was to kind of provide menu of things to focus on when trying to develop a specific contextualized

training. Do you think that's somehow a good solution, a good idea or like given that there is all of this variability of problematics then? Should be stepping focus on one aspect of an intervention.

Y: Instead of technical training manual, you mean?

P: Yeah, instead of. So our idea, as I said, was to try and provide some kind of menu saying, OK, when you design a training, for example, don't only focus on GAP practices, but also consider the context provide get the social economical data and implement them, try to consider what you train based on different things. There is the empowerment topic there is so touching many different topics do you think cause in some papers also they say OK. The direct technical training, it's not enough to lift them from livelihood, but it's the first step and then you wait from someone else to do some something complementary. So do you think that a more broad approach since also it's the incipient of this project for 100 weeks, do you think this kind of broad approach would be valuable and useful for 100 weeks or shall we be really specific?

Y: Yeah. I'm not sure about the request. What I understood always is really their focus on the technical cocoa. It's practices, So what should farmers do differently? And where we have a sort of a manual by Wageningen at the Cocosoa program. There's a technical manual practices from the cocosoa program I should be able to find it if you okay somewhere where fertilization isn't included yet because it wasn't finished. So that's funny because I wanted to know how which type of fertilizer should we be willing to put on the how many hectares, right? So I'm also a bit technical in that sense because there's a lot of sort of fake fertilizers on the market or fertilizer for rise used in cocoa. Which is really up to the yield with what type of fertilizer and epic game all these sort of components that wasn't included yet because so I do think a lot of technical information already exists, maybe not accessible enough, right? OK. I would say rather the approach, that would be but, but I'm not sure supervisor in that's yeah, yeah. It could be that they're really looking for sort of how do we do the technical guidance and then yeah I. That would be. Helpful. I think I have it already, but then probably Maya Slingerland have send it to everyone. I'm not sure. I think I wanna go with this question.

P: My goal with this question was to kind of have a first impression from someone that had been on the field and working with this matters for longer. Because then even I think 100 weeks has a lot of internal things that still have to be answered. So yeah, basically the question they

gave us is really, really broad. So we're answering with a broad answer, but then we were like, OK, maybe it could also be useful to just focus, but. I have a pretty convinced over, so I I'm going with you

Y: If you want to have some broader context then probably they want to know sort of how are we going to do this? Right. So if you come to an area you would like to address gender inclusiveness, right? You do that. So then it's not helpful enough to say you should be doing it, but then also provide sort of information on how what will be the tools or approaches to actually do this.

P: Yeah. Our goal in relation to that would be to try to collect as much. Uh data as possible to yeah. Tell them these are ways in which you can do it, but then the implementation phase is not to us because we are academics ideally, yeah.

Y: Yeah. I I'm always impressed about sort of the old dynamics around ACT

P: The question was regarding a Unilever cause we might be able to talk to someone from them as well from Unilever as well. But in one of your most recent article I saw there was a graph showing corporations and NGOs operating in trying to improve the livelihood income and I didn't find Unilever So my idea of my question was so.

Y: Well, it's relatively small and their whole portfolio. So there have been big in tea and now they sold seed I would, I would say much more. Vocal. I'm not sure what I want to expand, but there are, in any case, vocal about what they're doing and making really plans as they say so. Two years ago, I didn't hear anything about Unilever doing something. I mean, they were. I knew they were excited. I think they said Ben and Jerry's or Magnum. I don't know. There's these brands, they have. Magnum, right? Is that you deliver. I can forget they might. They might start. Yeah, but study they have pretty small volume of cocoa. Generally speaking, if you compared to Nestlé or Cargill, yeah, so. So you we knew they were sort of saying. And it was sort of certified, uh, right? Uh, but they have upped their strategy also in terms of splitting application they realized sort of cocoa is one where they should improve or they make sense too. So that's why only relatively recently they became part of the discussion and where I met them basically. OK.

P: Yeah, because I didn't find them in the graph in the article I was like well that's that's interesting that that's not there. Yeah. Then I had a question on extension agents but you already answered that.

P: And then, yeah, another thing was 100 weeks wants to do something that we basically researching the context of Ghana and Cote d'Ivoire, we found some other NGOs are already doing in almost the same fashion. So the kind of sudden hard to have like weird to us to see that there is well it's always in the end. But there is competition in NGOs like there is in actually like private sectors there is. So what do you think about that but

Y: Who is doing cash transfers?

P: There is some that are doing cash transfers and trainings, I think, but not. Rainforest alliance?

Y: That's interesting. It's not. It's not. It's rather recent cash transfer phenomenon. So I'm I know that a lot of people are actually jumping into the, especially Nestlé, I'd forget that there are sort of income accelerated program. Everyone wants to do cash transfers. So it's a saying it's about a recent. So yeah, and NGO's do compete. I mean, yeah, that's what they have been doing. So he has a recall solidaritas you have the sort of implementation batches of frame first liens and fair trades because they don't do only standards but also implementation programs. And yeah, they compete. Yeah. And then the companies themselves doing programs. Uh, so that's a pretty interesting environment, yeah.

A: Because if I can jump in here and then I actually had a question because for example, like if you want to for the pharmacy diversify their income, they could for example take upon like some of the processing of the cocoa themselves. So instead of, well, that could be an idea. I just sort of like thought about myself and. So Cargills actually doing that right cargills one of the active that processes cocoa. But then if that would be transferred to the farmers? Would that be an idea and would cargo extreme like helping in training or supporting farmers for and doing the processing themselves or?

Y: It's an interesting question, but we say is uh generally sort of more value needs to go to the households, right? I mean there's very large inequality also between north, South and also in this blend chains and then. The question is, if you do in country processing, I mean they do part of the processing already. So they do drying and fermentation and then they sell the beans to where a processing factory that makes powder and butter, et cetera, right? Yeah. And more and more. You see those factories in origin, but then they're generally owned by multinationals. Uh, so more money actually ends up in a region which is sort of good thing. The question is how much it's rather drilled and employment creation. I would say that there's extra money. Additionally go into the households, I don't think. So there could be if there would be local factories that are owned by local people who actually transfer more of the value right of the processing to households. I but there I mean, there's a lot of sort of the laws of economics or business where people want to increase margins as much as possible everywhere throughout the chain. And that's sort of focus points. Uh, and there's definitely the sort of. There's also discussions on how can we make this work. We're also the current people having a stake would benefit one way another right, even though it would, they would lose part of the control of the supply chain. That's very interesting. Yeah. We don't. We don't know there's any question is also whether they would sort of. Uh, we remove part of their role because that's what they do.

P: Yeah. Thank you for your time and for your availability and we appreciate it. It was really insightful, I would say, and sorry for going a little bit overtime. No. Yeah, that's fine. Yeah, there was really, really nice talking to you. If you have any final remarks, if you have something else to say or if you wish to contact us in the future, I'll leave you our contacts. Yeah, actually I've maybe we could share with you our final product.

Y: It would be really nice. Yeah. And I will share. I will try to find this. I I'm sure I should be able to find this manual for this technical cocoa manual from the book source program because that's rather good input. much. I hope at least. Yeah. So you know what's happening. OK, and good luck, I would say. And I would look forward to see the results and to learn. You're always learning every day, so.

Appendix G

Interview Transcript - Faustina Obeng Adomaa

Interviewee: Faustina Obeng Adomaa (F) - PhD candidate working on the CoClfaM Project – "Cocoa crop improvement, farms and markets: a science based approach to sustainably improving farmer food security in Ghana and Ivory Coast"

Interviewer: Laura Trommel (L)

Date: 10-06-2022 at 11.00 o'clock

L: And can I ask what your PhD is on exactly?

F: Yeah. OK, so I'm trying to model service delivery initiatives from private companies, mainly multinational companies, to smallholders within Ghana and Cote d'Ivoire. So trying to see how the services fix the complexity of the cocoa sector within West Africa.

L: Wow, OK.

L: So my elder through my tool bit already bit, but we're doing a nice 16 project on cacao and GAP, so good agricultural practices.

L: And how to uh yeah, implement that in a training. So we aim at talking to a lot of experts from University, but also some local farmers in Ghana and maybe go to fly. I think I remember again saying that you found out that farmers are sick of training and they don't. They don't feel like doing that anymore. Is it something?

F: Yes, I think there's a certain fatigue at least in the last five to seven years. The idea within the circles of science and within the circles of sustainability is there is a knowledge gap between what good agricultural practices is and what farmers actually do. And then that knowledge gap has been fixed with constant Trainings. But if you meet the farmers, they've gotten to a level where they think they have had a lot of trainings, but actually implementing the good agricultural practices requires training as much as the actual inputs. You need to be able to implement those good agricultural practices. And so long as those inputs are not coming, trainings alone could make only a little difference. And that is where the fatigue sort of comes from, so it's constantly

training, training, training. So what? What are the sources of the additional inputs that are needed and I sense that is where a lot of the fatigue is coming from.

L: Umm. So where would you say what is? What are the needs of the farmers then? If it's not the training?

F: Yeah. OK, so training definitely is needed and I think even for the training that type of knowledge that arrives in the farming certain and how that knowledge actually becomes meaningful for the specific context that the farmers are in a still a challenge because for many of the good agricultural practices as much as there is some generic understanding about it like you take pruning like you take fertilizer application like you take pesticides application.

F: There are some generic knowledge about what is good, what is required, what is efficient. But this generic knowledge only makes sense if it is considered within the specific context that the farmer is working in, because even if you talk about fertilizer application, you can't do blanket application of fertilizer. Fertilizers only makes sense when it is applied in the specific context of the soil conditions of the decomposition, requirements of the microclimate within where the farmer is working, and so even for the knowledge itself.

F: Trying to break down the knowledge to be meaningful in their specific context of the farmer. There's still a bit of a gap there then beyond that, if it's fertilizer application, the farmer would need to assess the fertilizer itself. The farmer should be able to access all the protective equipments that allow the him or her to apply the fertilizer. And so the knowledge together with access to their input.

F: It's very important, and if you're even talking about a practice like pruning, that doesn't necessarily need an actual input. It is also labor intensive, and for many farmers, pruning is not something that they can easily get up and pick a catalyst and do it. And so for pruning to aside and making the knowledge very practical and very fitting for the specific context that the farmer is in the labor requirements to be able to prune.

F: At the time that is needed, at a frequency that is needed to make it good, agricultural practice is still a challenge among farmers.

L: Thank you. That's a very clear answer. I think again, where do you think exactly the knowledge gap comes from? Is that a lack of time or lack of money from experts to actually do research amongst the local farmers temple to do in depth interviews before they actually design searching intervention?

F: I think it comes from two main dimensions, one the scientific knowledge on good agricultural practice in cocoa surface still not very well developed. The cocoa tree is quite complex to understand it, to know exactly what difference a single practice makes to the cocoa tree. Then beyond understanding what a single practice means, it is also quite complex to know what combination of practices, at what optimum level, is required to make the cocoa tree take up whatever. That additional practice is supposed to add to the tree, so in terms of research around hot release, their recommended fertilizer for cocoa, for instance, research is still ongoing and we are finding new things in terms of what really is the optimum pruning for your cocoa tree. Research is still ongoing in terms of what is the actual time of the year to even prune the tree such that the tree does not suffer, but is rather able to recoup its energy. And sort of distribute the new trends to their ports where it's needed most researchers to develop. So when there's a challenge with the kinds of understanding we need to be able to be firm on the practice itself. then beyond that you know when you are talking about the commodity teaching like Cocoa where sustainability is also tied to firms having to claim that we are delivering the services and this trainings to farmers and their outcomes are like this. Then the knowledge is sort of standardized in such a way that the firms would be able to sort of tick boxes that we are doing trainings right. So it's more about the quantity of trainings that the firms are delivering to farmers instead of actually making sure that the content and the quality of training is making a difference. And I wouldn't say it's an easy thing because if you are even talking about Ghana alone, you are talking about 1,000,000 smallholders. If you are adding Ghana and Cote d'ivoire you are talking about 2.4 smallholders in West Africa alone, and if you are, you're talking Ghana, cote d'ivoire, Cameroon, you are talking about close to 4,000,000 smallholders that you're dealing with and the kind of contextualization that is needed to make training of gaps meaningful for farmers would require that there would be an extension officer or there will be a trainer that has time to go to the farm and discuss the farm conditions with the farmer to be able to target the good agricultural practice to their specific farm

conditions. And if you look at the numbers of people that would be required to do that, the resources that would be required to do that is just enormous. I don't see how those who are delivering the trainings can do that in a most cost efficient way.

L: Yeah. And also from your post, our saw that for example like the one to one coaching don't seem to work that well, right? Because it's just still too top down and maybe too dominant.

F: Yes, and yeah, even for the coaching, it still top down and it's because there are these rules and guidelines and manuals and things that are already developed. And for any officer that is going to work with the farmer, his source book is that manual that he is going to work with. And I think in the trainings of extension officers or in the delivery of these trainings a lot of effort has not been put into what coaching actually means.

F: That the farmers in the office are supposed to develop the solutions together and so even when firms think that they are doing coaching is still more like an expert telling the farmer exactly what you do. And it's also because even for coaching there's they still don't have a lot of time to go through the full length of what coaching really is. If one extension officer has to reach even just 10 farmers in a day, you can't do meaningful coaching in a day with 10 farmers. But the numbers are huge, so even the coaching still looks a bit top down.

L: Yeah and another thing I saw here poster which you discussed early, already a bit, I think, is that they don't consider the local farm and field conditions. So this is not really my field, but what kind of field conditions. For example, do they not take into account?

F: OK, OK. So there are a lot of field conditions that that really are very critical for how any good agricultural practice would even be efficient for a small farm. So one, the cocoa tree, the root of the cocoa tree is depending on the slope of the land and where the taproots and the lateral roots are picking their nutrients from, then whatever practice that you do, even including fertilizer application, means different things for different farms. So if you're working with a farmer that has a gentle slope, then fertilizer application could go just few meters around the tree even if you are just doing a ring application and the tree roots will be able to absorb it. And if you are working with

a farmer that has quite a steep slope it means that it is quite critical to know how quickly the fertilizing nutrients would move on that slope.

F: Either than that, even if you apply the fertilizer where you think that the lateral roots would pick the fertilizer is not where the lateral roots will pick the fertilizer. Then if you are looking even at pruning and the slope is very steep. It means that topsoil is very light. Where the new trends are is very light, and so if you prune beyond say, if you remove more than 20% of the biomass of the tree. It means that you would need more time to regenerate itself to be able to flourish compared to a tree that is standing on a gentle slope where the topsoil is relatively deeper. Then if you even remove up to 25 or 30% within a couple of months or three months, the tree would regenerate itself, and if you're even looking at the number of shade trees, what we call the economic trees or the timber trees on the cocoa farm, it influences how much sunlight penetrates into the farm. It influences hot moisture conditions already exist in the farm and depending on the sunlight penetration and moisture condition, fertilizer application should be done differently, pruning should be done differently. and this is just physical conditions. and if you are also talking about cultural practices that a farmer is already doing on the field that also influences a practice like pruning, for instance. Because if you prune a tree in the first two months after pruning, the tree needs quite a lot of nutrients to regenerate itself. So if there is a farmer that is just relying on the soil nutrients alone, then you want to be careful how much biomass you remove from the tree. But if the farmer is applying fertilizer on the farm, then already there is some additional nutrients that are coming into the soil, so the regeneration of the tree becomes different. So these are very tiny and specific details that if you don't get these things right, a small mistake could mean that the trees die or the entire farm is dying. And this kind of contextualization is very critical because farmers talk among themselves and as much as we would wish that the good information would spread quickly, It doesn't. But one farmer just prunes the tree and one tree dies out within a week. Everybody within a neighborhood is talking about how the farmer prune their tree, and the tree died. And that becomes the viral information.

L: Yeah, yeah, but is it common to have a plantations on slopes? I don't know why, but I always imagined that it's on flat.

F: No. Not very steep. You can find some plantations on steep slopes, but the cocoa

landscape, at least in Ghana and Cote d'Ivoire, are within... The landscape is not flat, so there is some gentle slope. You're likely to find a few flat lands, but many of them would have some gentle slopes and things in there.

L: Until now, we spoke with experts and it was the tendency of staying old on often to a more general level, while all these like practical examples are really great for us to contextualize actually. Yeah, I wanted to ask, we spoke with someone that. The fact that diversifying obviously the crops was always a point, it's also pointing to the GDP per say. And also cocoa, it's pretty prone to that, but it needs shade and because it's not something you can live off like for nutrients, let's say. I wanted to ask you, maybe you have an answer, in a more clear one. Would you suggest diversification subgroups within the season or across seasons? So like in crop and then changing it with something else or is it possible to plant different crops together? because that I suppose will require a lot more work force labor obviously.

F: OK. So in terms of diversification. When you are starting a new cocoa farm, then you may have that luxury of saying maybe even intercropping your cocoa with other things, and many farmers do it at the initial stages of establishing a farm, and now it's being encouraged that if you get your planting distance between the trees right then you could have at least some food club crops, especially plantain or what do you call banana in between your cocoa trees. And then there right from when the cocoa trees are growing up the banana sort of create a different microclimate for the cocoa and then the banana itself also become another source of income, because of course Cocoa incomes had not. I mean, cocoa incomes alone are not sufficient for many of the farms, so part of the good agricultural practice is to encourage farmers to at least diversify. And all intercrop with some other things. But when you're dealing with mature cocoa farms, which unfortunately is the dominant thing in West Africa, farms have already matured and cocoa trees. But for recently diseases are sort of rampant and many trees are dying young. In the past, you would have Cocoa tree staying for 40 to 50 years. So for such a farmer is difficult to talk diversification if his entire land it's already occupied with cocoa. And for the West African sub region, Cocoa is like the ultimate crop you want to get. So any other thing becomes the additional livelihood. So it's difficult for a farmer to envision diversifying entirely from Cocoa to another crop. Maybe if they have another piece of land, then they can consider doing something in addition to cocoa. But to diversify entirely from cocoa to another crop is still a challenge, unless the crop has the potential to be a king, which currently cocoa is and it's also because there is a lot of regulation

and price stability around cocoa within the West African sub region such that as bad as it is, there is a bit of price hedging for farmers within the area, especially in Ghana. So they don't feel the hardship of the global price issues when commodities are affected, which they don't have for many other crops. So that kind of stability is what makes cocoa such a crucial crop for farmers, even when cocoa doesn't seem to be doing well.

L: And can I also ask you, what's your opinion on this kind of run on fertilizers and pesticides? because cocoa is pretty prone to diseases and. You know, there is this tendency maybe from Western intervention, especially in to be like, especially if there is like a corporation behind it, maybe they want to just greet one client. So it just say no, this is something we will not consider even. But we want to try and produce, it's like realistic suggestions. So we really want to explore all possibilities and be aware of possible threats to the to the environment, but still to consider realistic solutions.

F: OK. So for fertilizers and pesticides, I think. Well, let me use the Ghanese Cocoa sector, which I have done a bit of historical analysis on. So generally pesticides and fertilizers are quite recent in terms of the intensity of use. And when I say recent it dates back to the 2000, early 2000s, which is like some 20 years ago by looking at the history of Coco that started in like the 19 hundreds, 2000s is like quite recent. And it's it's all started when.

F: You know the cocoa tree is a forest crop. But at the initial stages, when they were planting the old variety of cocoa, because it's a forest crop, it took about 6-7 years to start seeing the first ports for them to start bearing fruit. So that's like a long time for a farmer to wait to just harvest port. And then the idea was, can we breed an improved version of Cocoa And if you are breeding an improved version of cocoa, it means you are taking some of the forest characteristics out of the tree such that it became a tree that is domesticated and can study yielding within three to four years, and the moment they took that forest characteristics out of the tree, It meant that they the tree was now yielding earlier and yielding more ports, but it meant that the tree now needed additional support because it is no longer the original forest crop that we know. And that is when farmers, many farmers, started realizing that the incidence of pestering diseases was becoming high. And so you needed to start buying pesticide. And unfortunately, biopesticides are now catching up. So it was all around synthetic pesticides, even now biopesticides are still not very common. But if you didn't apply pesticides, then it meant that no matter the number of ports that

your tree had and you had one pest attack, you could lose all of it. And so for Ghana and Cote d'Ivoire the government came in with this mass pesticides intervention. So the government just buy pesticides and spray cocoa farms for several thousands of hectares. For five minutes because 5 minutes were not used to those kinds of investments and for fertilizer application. I think fertilizer application is even more recent compared to pesticides application. And it's because increasingly land is losing its fertility. The cocoa tree after some time would already use the forest rents because you plant it in forest areas and the forest soils or land already has a lot of nutrients in it. After four, five decades, you wouldn't have that nutrients again, but the tree is still standing there, so you need to apply fertilizer for the tree to get the new trends that it needs to your port. So fertilizers became a recent thing within the cocoa sector and unfortunately we are still within the era of fertilizer and pesticides application, at least within the cocoa sector. It is now I think in the last four or five years that people are moving away from synthetic pesticides to start thinking around IPM they integrated pest management for Cocoa, and that is why even good agricultural practices are coming in strongly cause many of the scientists think that the idea of using pesticides as the first point of call to control pests and diseases is a bit chaotic for farmers. So why don't we try to do sanitary pruning? Why don't we try to clear the width around the farm, if we do these cultural management right, then we can already reduce the incidence of pest and diseases such that even if we are applying pesticides, we are not applying pesticides in huge quantities such that they would leave residues or we are applying it in quantities where it will be efficient both in terms of their resources that we are putting in the quantity of pesticides that we are putting in, so that is the error that we are in here, biopesticides still catching about not very strongly, but fertilizers are still huge and in fact more people might be going in for fertilizers than even in the previous years.

L: Thank you. You have a lot of useful information. I have another question about the knowledge transfer. Can I, can I ask one question, sorry. I wanted to ask if there is something very unexpected that you found in your PhD so far?

F: I really related to the PhD in general. Ohh OK, I think that the very unexpected thing I found was that we scientists, including me, when I set out to do this PhD, I think I set out with an idea that we can find a solution and the solution is going to be that straightforward and that simple and then over the course of the PhD I realized how complex the challenge is, and so any time you think you have found a solution and then you try to subject the solution to the complexity, you

realize that, you're still know were close to a solution. So I think after some time I have come to the realization that maybe we shouldn't be trying to solve things. Maybe we should try to see what we can contribute to the puzzle to make to a complex tree like Cocoa, to a complex sector like Cocoa Sector, which is very political, it's quite daunting. And then if I for instance want to still move within the framework of finding solutions, it's easy to give up because you don't see any solution inside. But if I start thinking of a complex puzzle then I can pick a piece of the puzzle and try to bring meaning into that piece of the puzzle. Then it's more realistic for me to know that I'm contributing to something.

L: No. Yeah, I think this is very relative for us as well and very helpful to hear from you. Yeah. Thank you very much. The problem that we were asked to solve was a pretty broad one. 100 weeks, the NGO, came to us asking how to do these GAP trainings in West Africa. And so the way in which we're trying to answer that, is not answering because there is not like one solution that fits for all as you said, what we're trying to say to them. It's OK, there is not a solution. There is many considerations that must be done. So to provide them with focus points and fundamental options that they have to consider when they go to the context and they try to develop training or intervention specific to the context. So first of all to stress the context, the context specificity necessary and second of all to kind of not tell them, but try to suggest them considerations to be done when trying to implement that.

F: Sure. Great.

L: Yeah. So I have another question.

F: Sure.

L: I also this is also relating to the poster, the knowledge transfer poster. So from your conclusions, you and the others stated that actually locally recruited farmers or pruners were better, in a way, for the adoption of pruning practices. What are underlying factors for that? Is that because locally recruited people, farmers find them more trustworthy, for example. Or is it because they know more about specific context?

F: Yeah. Yeah. I think for them it was more about them also being farmers and they

appreciating the importance of context in making meaning from the scientific or the general knowledge that they had received, because for many of the pruning. So they set up this labor gangs or labour groups as to why they call them gangsters, something like it's so funny. So they set up these labor groups to go and prune farms or prune trees for farmers. And many of these people are local guys and so definitely they will train them with these generic information on pruning in manuals. So you go and you see a tree like this, you cut this and this branches it. It has to remain three main branches with this and this number of lateral branches. And so those generic kinds of knowledge. And so ordinarily you would think that these people will set into a farm. And they do look at every tree and make sure that, yes, so they prune the tree to fit that generic structure, but then they get to a farm and then they start pruning the trees. And in many instances, the farmers are there, and then they would start having discussions. The farmer would say, no, you can catch this branch or no, you can't catch this branch at this level. And because these guys are also farmers, they are patient to discuss with the farmers. Why I can't cut this branch that way and farmers give all sort of reasons and that is why I pick media of the contextual knowledge. Because I followed these guys for like 3 months just following them while they are working and farmers who say no, this particular side of the farm, when it rains this place is waterlogged. So the trees struggle to even get nutrients. So if you prune them deeply, their side of the farm will struggle to survive. But I don't have a problem if you prune this side of the farm.

F: That and this is even on the same farm, but the farmers have differences in the land. And so once they choose to be pruned differently and because these local guys are also farmers and many of them have followed their parents for quite some time in their cocoa farms, they do understand the challenge with these guys is because they are also working within a sector that somebody else is always your supervisor, that would come and check the work that you have done, that the challenge is, how do I convince my supervisor that I pruned this tree even though the tree that I have pruned doesn't fit the picture that you showed me in the manual, and that was one of the recommendations we have been given within one of the papers that we wrote that if they consistently use supervisors that are sort of disciplining there are labour groups to work in such a way that every good agricultural practice fits like what is in the manual. Then they are taking away the context issue. And if you take the context out and you are standardizing everything, it doesn't make sense. And once a standardized practice doesn't work for one farmer, it doesn't work for two farmers. It doesn't work for three farmers. That is it. You are doomed. They don't trust you anymore. Right. So we think that these kinds of standardizations of making

everything fit what is presented in manuals is probably one of the challenges within the cocoa sector, and it is a challenge because sustainability is now tied to certification and it is tied to check listing and it is tied to you doing all these things to be able to make claims that I have done this training in this way and it fits this manual. And so my farms are certified for good agricultural practices.

L: Yeah. So even local pruners are somehow tied to like generic manuals and supervisors who ask from them. OK, but you have to follow these guidelines.

F: Exactly. So they are able to use a bit of discretion, but there is also a limit to what that discretion actually means, because they are working with manuals. They have a supervisor that would come and check that supervisor has an internal control manager that will check because that internal control manager has to make sure that the farm looks in a certain way because there's a certification. They could also come and check and all these people sort of ...many of them are not farmers themselves, and many of them, they are understanding of good agricultural practices, exactly what they so in manuals.

L: And can I ask you so this context specificity is paramount and we heard, for example that there are well, there's for sure different ways to do that. You can go hide and try to go like much information from farmers directly. And we heard that there is actually availability applications now. About that very contrasting opinions on the use of apps like the audience of the context.

F: So you have one of the things that we were doing. So the project that I'm working on has some of these multinational firms as part of the consortium and you know for many of these firms, the moment you try to paint a complex picture to them, the next question is, So what I mean, like there's always that. So what do we do? So what do we do? So we were moving towards the level where we don't actually tell them this is what you do because there's no silver bullet. But to give them like a basket of options. That would not necessarily tell you this is what you do, but consider this and this and this and this and that. So we think that even when there's a lot of talk about moving towards the use of apps, what we think those apps can do is to guide whoever is the coach or whoever is the extension officer or whoever is the trainer to pay attention to certain specific things on the field. I don't know, to what extent the app itself can pick up those context information, but if the app is able to alert the person who is training or coaching that when you get

into the contest, pick information on this, try to understand information on that in such a systematic way that even if it is not very contextualized, at least it is not so generic. So that is how I would think like an app can do that. The app can be like a decision support too, rather than the app itself being the tool that gives you the solution.

L: This basically what we're trying to design the support so we will not designing an app. We're designing a final report, but what you describe like the what you described for the coach is what we're trying to design for the NGO's. And but if you understand a lot of the what you said like application of the app not to the farmer but to the coach and not to find a solution, but you just point at what you want to.

L: I have a question. Yeah. Yep. If you would say, for example that locally recruited pruners or trainers are more able to go into discussions with farmers, really have a conversation about contextual information, for example. And then other like maybe not locally recruited trainers do not really go into that conversation with farmers. Would you say that is either from the farmers resistance or reluctance. Maybe this fatigue you talked about to not really want to go into this discussion, because if you they're not taken seriously or also from the trainer side or the pruner side. To just sort of do not want to listen to the farmers in a way because they have to follow the manual.

F: I think I'm there isn't a really straight jacket because I've also met extension officers who were not locals, but these were extension officers who had worked with farmers for quite some time and they were really patient with farmers sometimes spent hours on the farm just trying to find a solution. So I think overall it's a kind of experience that people gain over the years when they work with cocoa and they work with farmers. So you could have an expert and extension office and that is very patient and he's not a local guy. And still discussing issues with farmers and you could have a local guy that could also go into the context and said, hey, my supervisor said this is how I should prune. And so this is how I will prune. In fact, I met one pruner who is a local guy and the statement he made was for me, it is better that I label your farm as not pruned than to label it as not well pruned. And to label it as not well, pruned means that he didn't prune according to what was in the manual. So he wasn't willing to compromise because then he doesn't want to go and justify anything with a supervisor and this is a local guy, so I think there isn't one straight jacket, it's more about people having gained experience over the years and people to

know how patient they can be with farmers and what is an optimum level of discussion and understanding they can have with farmers. But overall I would say that because the sector itself is not very much appreciative for this kind of patient coaching. Then you don't see it as part and parcel of what happens in there and you don't blame their sector. It is how the whole governance of the sector is set up. Everybody's is trying to chase numbers, chasing to kind of boxes, chasing verification, chasing other thing. That is how commodity chains as the top.

L: Yeah, because you would imagine that at some point the trainers themselves would see that following this generic manual wouldn't really doesn't really work because at some point you just don't see the impact on cacao output. For example, right? It's more to system that it's changing the change, yeah.

F: Is it? Yeah. In some instances it doesn't work. And in in some instances today, they have found at least one or two farms in the area that they did the generic thing and it worked. And that farm is like the poster farm that they show. Other farm is all we did the pruning here and it worked perfectly right. So it's more like using the generic in a poster form to show you that it worked. But farmers would also go and check another farm where they use their generic and it didn't work. So there's more skepticism between extension officers and families. And that is why we think if we don't get to the level where we pay attention to the contextualization, their skepticism among farmers would increase. And you don't want that for a commodity chain that is struggling with sustainability issues.

L: Yeah, it was really great. And maybe you have some questions for us.

F: Ohh OK, so maybe I. Yeah, maybe because you're the people that are commissioning your study are not like real Cocoa firms, so they may be more receptive to a push toward understanding the complexity because yeah, I mean, in my experience, people within the core of the cocoa sector, they are still very much inclined towards simple solutions and they still haven't gotten to the level of understanding that we wouldn't get anywhere if we are still thinking in terms of simple solutions. So I mean, it's good that you have people who are not coaching actors and then you can still present this complexity to them. And then 1 advice I got from my daily supervisor is don't go proposing solutions, it will come back to bite you because it's very complex.

L: Yeah, that's a good advice. Thank you very much. Thank you very much for your review, for your time really, and I hope you feel better soon.

Appendix H

Interview Transcript - Nova Cocoa Farmers Cooperative

Interviewee: members of the Nova Cocoa Farmers Cooperative

Translator: Daniel Kusi-Agyei - Chairman of Nova Cocoa Farmers Cooperative in Ghana

Interviewer: Anouschka Kovy (A), Dana Vonk (V), Frederique Bosveld (F) & Laura Trommel (L)

Date: 15-06-2022 at 14.00 o'clock

A: So this community is mostly consisting of farming practices?

D: Yeah. The predominantly work here is cocoa farming.

A: Yeah. And are the women part of the cooperative as well?

D: Yes. They are part of the cooperative.

A: OK. Because you're all cocoa farmers, maybe you could describe what your job is? And how long you've been doing the job?

D: Yeah, I think I will pass on this one. I have been in the industry for more than 35 good years. Beatrice has been in the cocoa production for 20 years.

A: Wow.

D: Hega has been working for about 40 years in the cocoa industry and Godfried has been working for about 35 good years.

A: So that's long. You all have so much experience, probably.

D: We have a lot of experience in terms of the practical aspects and the theoretical aspects. We have a lot of experience.

A: Yeah. That's why it's so important for us to talk to you. And maybe you could shortly describe what cacao farming is for you. What kind of practice you do on a daily basis, for example?

D: Yeah. OK. I will just speak on behalf of all of us because we are doing this in, yeah, actually.

A: Sure.

D: Currently the work is very very tedious. In the sense that if you have a very big farm like more than 20 to 40 acres, one person cannot do all this work. There's a lot of work in the cocoa, like pruning and spraying.

D: So this is most of the work that we normally do. Even if we had laborers to work in the farm, you have to go there, supervise you have to teach them or tell them what they're supposed to do in the cocoa farm.

A: Yeah.

V: Can I ask a question, maybe? Did you experience any change over the years in your current farming practices?

D: Yeah, yeah. Previously, we used to do the cocoa farming anyhow with modern technologies or the numerous training that we normally acquire from some of the universities like University of Ghana. I mean, University of Science and Technology. Now in terms of our practices, things have changed.

D: Currently, as we are saying, we do normally plant them in lines. As compared to the olden days where we normally plan them randomly. Then also in terms of spraying and when to apply fertilizer, we now do have some time to do all these fun practices. So things have changed like the way how we do it in the previous years is not like the way how we do it now.

A: Yeah. What are reasons for this change?

D: The reason for this change is if you increase your production, you are going to achieve a lot of income. For instance, if for example I have a three acre farm and Hega has got one acre farm. If all my production is more than 10 bucks and Hega is maybe getting only two bucks. It means my money or my income is going to be more than Hega's. If you use modern technologies your production is also going to be increased. At the same time your income increases everything will be also very good for you.

A: And how do you find out what kind of modern techniques might work on your farm? Do you read that somewhere? Or do you hear that from other people or?

D: Normally we have some training. So whatever, sometimes I go to some website or sometimes going to a workshop or seminar concerning cocoa farming, I have to just go with my own pocket money.

A: Yeah.

D: So this is what I normally do because we don't have training much of the time and sometimes have to pay for registration and everything before you are able to get that training or workshop.

V: And by whom are these trainings organized?

D: Fair trade is one of these organizations, and so is the World Cocoa Foundation. There are so many and now is the company in Switzerland. They used to buy the cocoa beans for the chocolate factories and are also training some people. So sometimes when they are organizing some seminars or workshops, you can just join them. Or sometimes you have to pay some money too. There are so many companies, but it's not regular.

V: So if you don't have the money, you simply cannot join these trainings or seminars?

D: Yes, if you don't have, let's say the registration fee, not all the farmers can afford that money. So in this case the person cannot attend. Those who can afford it are the people who can just attend the workshops and the training.

V: Hmm. And do you for example also provide other farmers with the information you received on during such a seminar?

D: Yeah. If I'm just paying the money myself it is not compulsory to teach all their farmers, but I am a lead farmer and the chairman of a cooperative. So sometimes I pass some of the information to my farmers during the meetings. Because as the lead farmer I normally organize some meetings with my cooperative members. So sometimes I say some of the information I had from the seminars with my other colleagues from my own cooperative.

A: Yeah, because we asked you already and maybe we can have an answer from the woman as well on this question, what are the reasons for joining a cooperative?

D: OK. Anouschka, Dana, Laura and Frederique. This is what the ladies are just saying. I want to translate what they said to you. Yeah, so, Madame Hega is saying that she wants to acquire a lot of knowledge from the cooperative members. That is the main reason that she joined the cooperative.

D: And Beatrice is also saying that by joining a cooperative, we are just cooperating, all working together.. Because she's a member of a cooperative the cooperative members can support her or help her to complete the whole work in a few days time. That is the main purpose of these two ladies.

A: OK. Thank you. Thank you for translating.

D: You're welcome.

A: So, do you only cultivate cocoa or do you cultivate other crops as well?

D: Hega, Beatrice and Godfried are saying that cocoa is a seasonal crop. You can't produce or harvest it throughout the whole year, so besides that they are doing vegetables. So planting banana and coconut at the same time. So this will give them some income when cocoa is not there.

A: OK. Thank you.

D: You're welcome.

V: Yeah, maybe just a few questions about the comparatives. Because can everybody enter a cooperative or are there specific requirements before you can join?

D: No, I am in the first place. I'm the chairman, the lead farmer and the same time chairman of the cooperative and the Ghana Cocoa Board. About two years ago I informed all the cocoa farmers to form a cooperative.

D: So, we went to the FM stations to just announce for everybody to join the cooperative. It's not compulsory in this community. There are many people currently, we have nearly 500 members in our cooperative. But not all cocoa farmers in this community are joining. It is the freedom of association. You can't force someone to join this thing, but we don't normally explain our policies and rules to the people that if you join the cooperative, if this is the benefit that you are going to get. So it's not. You don't need to pay anything to join the cooperative or you don't have any requirements. If you're a cocoa farmer and you want to join, you are free to join the cooperative.

V: And is the cooperative certified, do you have any certifications?

D: Previously we used to do certification. We used to work with the Rainforest Alliance Fair Trade and some other companies I forgot the names of. Some are from France. It's not compulsory. Sometimes a company comes to the community and just informs us that they want organic, local, or certified cocoa. So they will break their criteria or whatever they state how they want it. Even sometimes they will not. They will ask you not to use this specific chemical, for example. So currently we don't have any certification body in our cooperative. We are not practicing it currently.

A: Yeah. But would it be beneficial to you as farmers to have some kind of certification? Is that something you want to have?

D: Yeah, you know. When it comes to the certification, these companies will come down and tell you that this is what you are supposed to do with your cocoa beans. Because I know the cocoa beans they are using for chocolate are for a lot of big factories in the Netherlands, Belgium, France, US. They are using the cocoa chocolate factories or confession.

D: So if they're ready to, if it is an organization ready to come and help us like the certification, we are ready to, because not some, even when you do the certification, we normally get some premium or some extra money.

A: OK, thank you. So, more related to the cocoa farming practices. What are some challenges that you all face?

D: Yeah, actually before if any farmer or any person can start cocoa farming, a challenge you have to face is the forest. All the forest that you are supposed to clear for the farm. You have to chop big trees with the chainsaw. Now because of land degradation, we are not panning the land as we used to do it previously.

A: Yeah.

D: After clearing, we sometimes will see that while the plants are the best, there are insects or pests that destroy the seedlings that we planted. So we normally have to protect the seedlings with some spray, with spraying machines or sometimes we use hand spray. Sometimes we used the motorized spraying machine and after that sometimes we needed fertilization because sometimes you see that the plant growth is not all that it is supposed to be. So we normally need fertilizer.

A: Yeah.

D: These are some of the challenges now. Currently before a person can just clear one acre it is very difficult. And we for example need some spray machines because we only have 4 spraying machines for about 500 farmers. So all these things are some of the challenges, even some of the farms are little bit far away so at the same time we need some bicycles or motorcycles.

D: Also now due to the climate change, we cannot expect the rains. You will not have it sometime when you are expecting, and when you don't expect it you will have a lot of rain. So during the dry season, we normally have a lot of severe drought here.

A: Yeah.

D: So we also experience some challenges related to irrigation. When irrigating cocoa farms during the dry season so that the plants get water throughout the year, we can harvest cocoa beans or the pods throughout the year.

A: Yeah.

D: The others also asked me to add this one. During the rainfall some of the rivers or streams get flooded. So it's very difficult, especially for women, to even cross. And also it gets difficult to transport the machines that we have to the other farms. So sometimes we need some small bridges which are beyond our destiny. In our school, we cannot afford the building of bridges. We have made numerous appeals to the assemblies and government bodies and a lot of NGOs. But we haven't got that help from them.

A: Yeah...

F: And are you able to store the water?

D: Uh, yeah. To store the water we normally dig some of this thing, but it's not enough. If you have got some machines to dig it very well, you can just keep all the water to use it during the drought season. But it's not like something like that currently.

F: It's too much at once actually.

D: Yeah, it's too much work, yeah.

A: Yeah. So from what I hear, it's those things that are very expensive. Like these bridges, but also the pesticide machines that the farmers need maybe are just too expensive to get. Is that right?

D: Yeah, because all these machines are being imported from maybe Germany and the current price because of the economic situation.

A: Yeah.

D: And for example when COVID-19 came, there were a lot of things that have changed entirely. The prices of things are just soaring up every passing day. So this is one of the problems, because sometimes the problem is that the farmer may need a spraying machine. We have only two of these machines in our cooperative so it is very difficult to spray all farms at the right time. So the farmer may have to wait for some weeks before it gets to him.

A: Yeah.

V: And what about labor? Because I can imagine that it's really hard and a lot of work. Do you also experience some challenges concerning labor?

D: Yeah, because, you know, in the olden days the farmers were using their children on the farms. Unless they are under age because of the child labor, we are now experiencing a lot of difficulties concerning labor. We cannot use our children when it's time for the child to go to school. You can't use them. So now the youth is also not interested in cocoa farming anymore. There's in the sense that I think they can see that this is not all that good future for them. So it's all the old people who are working in the cocoa farming. Therefore, labor is one of our main constraints. As I was just saying now, before one person can clear one acre, it is very difficult. But with this modern technology, you can just use machines to clean an acre in maybe just a few hours.

D: As Madame Hega is saying, it will be very, very difficult now without these modern technologies. We need such implements or farm machines to increase our action.

F: And Daniel, can you maybe ask the women if there are other challenges specifically for

them? They can also discuss it together if they want.

D: Apart from the cocoa, if they can get something outside the cocoa farming like additional livelihood scales. In terms if the cocoa is not there, they can also rely on something like the vegetables and these things. They can also add to their shop or like they work also.

F: And what it's what could support the women in that. For example, if there is anything they could be supported in because besides the cocoa farming, they also of course do a lot of taking care for the family, I guess.

D: Yeah.

F: So what could be supporting the women if they can just mention anything they could think of?

D: Yeah. And they are saying that the work is very much and hard. Therefore they have to get some modern farming techniques or machines. So what they are saying is, like some machines that will drill the holes, some machines to clear the land. At the same time as a woman supporting the family, sometimes they plant some cassava. So, also get some small machines to process the cassava to get additional income to support the family. This is what the ladies are just saying right now.

F: So if I understand it correctly, access to machines or using machines helps the women would probably also result a lot in saving time for other work on the farm or in the family?

D: Yes, yeah, this is what. Yeah, this is what Hega is just saying that with the support of this machines, it's going to ease their work. And at the same time increase this production also.

F: OK. Thank you. And can you say thanks to the women?

D: Thank you. Thank you.

A: Thank you. I think we should go on to another topic and some other questions. So maybe you could ask Godfried if he ever followed agricultural training and what kind of training this was? The others can add to the question as well.

D: So, Godfried followed some training that provided him knowledge on how to spray the cocoa. They told him for example the actual month they are supposed to start the spraying and he now knows more about the spraying. Sometimes Ghana COCOBOD will import or get some insecticide or pesticide for the farmers. Or they provide the farmers with information on the quantity that they are supposed to spray in each farm, so this is some of the training that he had. And at the same time, they normally tell you also a lot of safety measures like when we are spraying insecticide or pesticide, you have to protect yourself with the overall outerwear including boots and when to protect your face with masks. At the same time they tell them not to spray it along the river so that it will not contaminate the water or pollute the water.

A: Yeah.

D: Because in Africa or in Ghana, there are some rivers that flow to some areas where the people along the river banks or the rivers or streams are normally getting water from the rivers. So in case you spray and pollute the water, it means you are going to kill someone or even the fish and those insects or reptiles in the river.

D: And I, Daniel, too have applied a lot of training. I have attended a lot of training sessions. So now some of the training that I have acquired is good agricultural practices.

A: Yeah.

D: For instance, you have to plant some of the desirable shade trees. The shade trees will normally shade the young cocoa seedlings. So when it gets to harvesting time or the trees are many, you can just remove some like you can do ring backing. The trees will die so that you get the optimum temperature for the cocoa plants and the cocoa too.

D: It is a long term investment. When you put your money in the cocoa, some of the trees here are more than 75 to 80 years old, but still productive. Some of our old ladies and old farmers planted them so their offspring or their youth could use them to get some from the trees.

A: Thank you.

V: And what about the women? Did they also follow some agricultural training?

D: Beatrice and Hega say that they normally get a lot of information from the cocoa extension offices which have been trained by Ghana COCOBOD. For example on how to use the byproducts of cocoa. So according to Madam Hega, they normally get the byproducts. They can just use the byproduct to make some soup. And during the fermentation of the cocoa bean, the sugar water coming from the cocoa beans can also be used as vinegar and other things too.

A: Yeah.

D: So these are some of the things. They can also use byproducts as the cocoa pod for compost. You heap it and ferment it. It will decompose. When it decomposes you can just reapply in the farms because what nutrients have been taken from the farm at the same time you also retain some of them.

A: Thank you.

D: You're welcome.

A: Are you generally happy to receive such trainings? Or do you maybe find some trainings not that useful?

D: Yeah, they are useful. You know, the cocoa industry is something you are supposed to get every information from January to December. We have activities to do every month. You cannot be an absentee cocoa farmer because every month there is something you are supposed to do on the farm.

A: So, for cocoa farming, it would contribute to increasing the cocoa production?

D: Absolutely. It's very, very, very important as a farmer. You know, not all of the members in our cooperative can read or write. So as a person, daily or weekly or monthly, you have to remind them what they are supposed to do.

D: So getting training in good agricultural practices most of the time is going to help the farmers a lot.

F: And so de training should really not be based on uh, yeah, texts for example. So that's what you would advise maybe or to give training in the fields or...?

D: Not all of them. Sometimes it is necessary to take the farmers to the field, because some of the training is practical. When you are standing in front of the drawing board, teaching the farmers, sometimes it will be very difficult for them to understand. Then it is better to take the family to their farm.

D: Let me let me give you an example. Like if you want to teach a farmer like pruning and you are sitting in the classroom or drawing board to teach the family how to prune. I don't think it's going to work. To teach the farmers, sometimes you have to take the farmers to the field, to demonstrate things.

A: Yeah. So maybe all four of you can give an answer to the following question because it's quite an important question. What would be most important for you to learn in a training?

D: Yeah. And I've asked all of them individually and from all of them there is only one answer. It's good agricultural practices that the training they are supposed to get from any company or any organization should focus on. This will help them to increase their production.

A: And what kind of good agricultural practices are you thinking about then?

D: Beatrice was just saying something about the pruning. Godfred is also talking about fertilization and pest control. What sort of fertilizer is going to be very beneficial or very good for the cocoa. Hega is also saying the same thing, like also when she gets to plant something.

D: I have got a lot of knowledge, but I still need and want to learn more. For example, how to get machines to irrigate the farm during the dry season is also something I'm interested to get some training in from the NGO's and other organizations too.

V: What is your opinion on how these trainings should be given? So should it be given for example by someone from the NGO itself? Or maybe these NGO's will teach someone from the local community who will then become like a sort of coach and train the other farmers?

D: According to Beatrice, Hega and Godfried, normally in every community, sometimes some of the NGO's get a lead farmer or someone a trainer in a community who will teach them. But sometimes people from for example the Netherlands can just come down. I know it's very far to take a flight from the Netherlands or to Ghana here, even when we get to Ghana. Here, so far as we are not based in the capital, we are living far away from the capital. You have to get this place. And how many days are you going to spend here? So when you get training from any NGO we are ready to accept those people to teach us.

D: What we normally do is. The organization which normally buys our cocoa beans as each farmer can just sell his or her cocoa bean to any company normally. If that organization who is buying my cocoa can get me someone who is going to train me, that is also fine for us.

A: And if you would look at other things besides cocoa farming, what other things might be important to use in the training to learn farmers? So what would help them in their lives, when you think of things beside cocoa farming practices?

D: According to the ladies, they would like to gain some knowledge about how to make bread with small machines. Because the big machines are very difficult to carry to remote areas. A small machine can help them to just make some bread or process cassava to sell. It also gives some extra income to support the family.

D: I am also planting coconut as it is in high demand in Ghana now and at the same time we have a lot of land which is also very good and suitable for coconut, so you can harvest them through the year. Godfried is also saying that even acquiring some machines and gaining lots of knowledge on how to use these machines to train farmers to spray or assist them with these machines. These are always going to help the farmers to spray most of the farms around this community and help farmers to get some extra income.

A: I understand that. Thank you.

D: You are welcome.

A: And if you we just spoke about the training you had before. Did these training have an influence on your farming practices? So did the knowledge that you gained in the training really help you to change things? Did it have an influence in your life?

D: Yeah. In the first place the training that I've acquired has helped me a lot. In the sense that the whole Asanta region is a very big and productive region because of the training that I've acquired. These activities and training from Ghana COCOBOD made me the best farmer in our municipality. Currently I'm also a regional executive member for Ghana, because of the training that I've acquired. So the training is very, very, very important.

A: Yeah. And what would you say? What kind of training would work best for you? If you think about how many farmers and which time of the year for example, or how long a training should be?

D: I've just asked Godfried and Hega and their response or what they are saying is that training should be offered in a digital and computerized way. And if possible, it would be nice to get the training every two weeks. They'll be ready to do it.

A: So, every two weeks and then what about the digitalization? What did you say about that? Is that a good thing or?

D: Yeah, because like currently as a farmer, you have to keep very good records. Now whatever you are doing, you have to put it on, let's say a computer or maybe a laptop or something like a tablet. So like things like farm expenditure and income, previously we used to write it down. Now it is different. You know the place where we are living is a rural or remote area and this morning even when we could not participate in the interview because of the heavy rainfall and the noise of it.

D: So like in this modern world, when you put something on records, you can always read it back and it will help you to remind you that for example today I'm supposed to go and spray in my field. And then also for some of the youth who are in the cocoa farming, we can also learn some basic skills like how to type, how to do some things on the computer or something. It also helps them.

A: And during these training sessions, did you all have the feeling that you could put in your own knowledge and to have a discussion with the trainer, for example? Saying yeah, but this is what I know about my farm. This is what I know about the environment there. So that the trainer, the one that's giving the training, could take that into account into the training so that it's more adapted to the local environment. Did you have that feeling?

D: I attended so much training and I'm so glad today to have such wonderful people from the Netherlands and a university like Wageningen University and Research coming down to the grassroots to interview us. Because sometimes if you are looking for information or an interview like this when you contact let's say Ghana COCOBOD, it just gets to the capital Accra and those sitting at the office they give you information which is not the priority of the grassroot farmers.

D: So sometimes the information that they get is not the true reflection from the farmers, like importing some machines such as spraying machines. Sometimes they just get the machines to the farmers, whereby the farmers will not even pick or make that choice. So sometimes they don't take our advice or opinions. I'm very, very happy for you to ask me this question.

D: So in terms of any information, you just come down to the grassroot farmers. They are the ones who experience some of these challenges.

A: So if you could and maybe the others can give an answer as well. What kind of things should be taken into account, for example, so you already mentioned the kind of machines that it would be nice if you could have chosen that particular machine and what other examples are there?

D: Something that should be taken into account. So let's say for example the Cocoa Foundation is organizing a conference in maybe Belgium or Netherlands. Let's say you are looking for a grassroots farmer who has got a very good knowledge who knows the experiences from the other farmers who are not getting the opportunity to attend the conference. Normally they sit down in maybe the capital or Accra and just select farmers who are just staying at the office who don't know the experiences or challenges from the farmers. They normally represent the farmers outside Ghana. So when they come back, you see that the information is not representative.

A: Yeah, yeah.

F: I think on behalf of all of us not being farmers, but I just want to express my gratitude for your honesty and also that we, even though we're not farmers, really understand the importance of it and I'm happy you feel about it this way because you're the only one who is actually aware of it and maybe we should move to the question of Laura.

L: Yes, I was wondering if when you sell your cacao, if there are laws from the government that would ensure you a stable pricing?

D: Well, thank you for your question. We are dealing with cocoa. And as a cocoa farmer we don't have any any right or any thing to do like the international organizations have. They have their headquarters in London, UK, but now that the international organization is having their headquarters in Kodua, Ivory Coast, yeah, they just go there and determine the price they are supposed to give it to the cocoa producing countries. This is the price the Government of Ghana is going to give to the cocoa farmers. So we have a stable price, but we don't have anything to do. Whether you like it or not. It is what the government is just paying.

L: OK. So would you say it's more stable than other crops, for example, vegetables?

D: Yeah. The vegetables, you don't have anything like, you know you have bumper harvest when you say bumper harvest, which means we are just ripping all harvesting a lot like maize and other crops. Tomatoes, eggplant, paprika, those things. If a lot of farmers have because of good rainfall, a lot of farmers are having all these vegetables then the price is very, very cheap. But with cocoa you get 100 million tons, 700 tons, or just one ton, you get the same price. Like we have a stable price for the cocoa.

L: And that may also be the reason why a lot of people want to do cacao instead of other things. Because they get a stable price.

D: Yeah. Another factor is that it's a long term investment. If I plant cocoa, I'm going to benefit a lot from the cocoa. When I'm going up, I'm not on this Earth or I've just passed away, my inheritance and my children are going to also benefit from this. They're not going to plant the cocoa again. I always say that some cocoa trees will last more than 75 to 80 years. A lot of people are benefitting from the cocoa trees.

F: Did you also inherit go go trees from your parents or grandparents? Maybe a question to all of you.

D: Apart from Godfried, all of us have established our own cocoa field. We are not lucky. But Godfried was lucky to inherit some of the farm from his grandmother.

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F: Can I ask one more question? I don't know if you still have questions.

D: OK.

F: Still more generally, how would you describe the role of the government? Do they support you, or could you? Could they do other things to support you? Maybe.

D: There are some things Ghana COCOBOD normally gives to the farmers but they are insufficient. I will just mention some of the ideas. Currently the government distributes fertilizer to the farmers who are in need of them, like in the form of granular one or in the form of liquid. But they are not insufficient. Sometimes they give it as a credit, like during the harvesting. So when you finish harvesting your cocoa, you have to pay back.

D: Because sometimes there are some subsidies on their fertilizer as compared to the one you are going to buy it from the open market. So then also pesticides are being given to the cocoa, but supply some farmers some pesticides but it is not sufficient to cover their own farm, so you have to support or buy extra to complete your whole farm and machines that will help you. But they just provide us with some random machines, and the cooperative also got some fuel that is not inadequate or insufficient to the farmers.

F: So yeah, is this support then not contextualized enough?

D: No. Yes, it's not sufficient to provide for the farmers' farms. And there are some organizations who normally give some loans while the government is not.

F: We have to thank you for answering the questions.

A: I had another small question. Are there NGOs that worked with you in the past?

D: Once Fair Trade came into our town. Some of the organizations they come here in Ghana like Fair Trade, Rainforest Alliance, World Cocoa Foundation. Sometimes they come here as an NGO to just come and do certification.

A: But do they? Have you ever spoken to them in this way? Did they ever do an interview with you? Or have a discussion with you in any way?

D: No.

A: And do the others work with NGO's?

D: No. Sometimes the local government invites the ladies to come and maybe learn something like maybe how to use potato to make some drinks. How to use some ginger to make some ginger drinks and these things. Apart from that we don't have any anything from sources.

A: Yeah. OK. Thank you. That was it from our side.

D: You are welcome.

Appendix I

Interview Transcript - World Cocoa Farmers Organization

Interviewee: Mr. Frank Okyere (F) - World Cocoa Farmers Organization Ghana

Mr. Moses Djan Asiedu (M) - World Cocoa Farmers Organization Ghana

Interviewer: Pietro Sala (P)

Date: 16-06-2022 at 14.00 o'clock

P: Since there is an interview, we will be asking you questions. As I said, if you do have other sort of inputs or ideas, we are not touching and you feel. Those are relevant to the topic that has been treated. Feel free to add to that and we will much appreciate your input as well. If for some reason some questions you don't feel like answering, you wish not to answer them, you are free as well to do that and you don't have to justify your choice so.. In the end, we want this to be pleasing for you as well. The interview will take approximately 45 minutes to one hour depending on the quantity of content we will be able to touch. And whenever you feel like you need to go, just let us know.

P: The project we are dealing with is centred around Good Agricultural Practices.. And from now on, I might be referring to those as GAPs.

P: So training in GAPs for cocoa farmer farmers in West Africa since Ghana, it's a huge producers and you are part of the cocoa supply chain, as stakeholders yourself, we really deem it worthy your point of view. The project initiated because 100WEEKS which is an NGO that has its quarters in the Netherlands, but actually it's doing projects in Cote d'Ivoire and Ghana as well. And how do you say like, asked us to support them into designing further project in the area to really help local communities. And so as we said, we really want to assess also the point of view of people on the ground so.

P: Uh, we are ready to start with some question addressing the topic more specific topic. We'll ask you if one way in which we can do this, maybe we can ask things and then we take turn in answering. So we are pretty structured ordered and we don't overlap. So first of all we would ask you to tell us where do you live currently and if you can describe the role since you're all part

of an organization. So what is the role you have in such organization? And for how long have you been active in such organization?

P: Yeah, it's free to decide who starts.

F: OK, so maybe I start. I carry out work in two different organizations. It's also on my small farm that I do. The first organization that I work, which is my my permanent job, is with cocoa farmers, you know cooperative? Yeah, I've been here since 2009. That I joined Kuapa Kokoo is a farmer cooperative. That works with cocoa farmers. We are mainly cocoa farmers and currently we have a membership of over 100,000. Now I am now the person in charge of extension delivery. And issues of environment with cocoa? So and then I also coordinate the world Cocoa Farmers Organization, the world Cocoa Farmers Organization came into being in 2014. That is when the idea came, but it actually started most of our working doing this system. That we started trying to mobilize farmers or farmer groups in Ghana under that umbrella. So currently in Ghana, the world Cocoa Farmers Organization that operates, I am the national coordinator. Trying to bring all these uh farmer groups together so we can have one umbrella or one voice, a common voice for cocoa farmers. So that's is it. And I I talked of my cocoa farm because I work in these two areas most of the time. I go there on weekends, that is on that Saturday or sometimes Sunday. To see what is happening there. So in short, that is what I want to say.

P: Thank you. Thank you.

P: Mr Asiedu, we are not hearing you. If you can, I think you have to unmute you. So there is a microphone

M: OK. Now can you hear me now? Right. I don't have every time. Probably 7, but also had a family. I have been in cocoa farming it that cocoa farmers since 2008. I have a cocoa farm. And there are a lot of the line. I lost it too this devastating virus disease. I am now trying to rehabilitate. For the past three years, struggling to have it done but. I'm still on it. Apart from that, since 2017. I have served as. Uh, it's secretary to world Cocoa Farmers organization. And I'm also the administrator. As we try to set up the Ghana chapter. So I have been involved in mobilising the

farmer cooperatives. And also the work training. From leaders, actually said ourself. To do so, they will be able to do their work well.

P: Then the following question would be how so how do you divide yourself among being farmer and among being part of a cooperative organization?

M: How we manage our time to work as farmers as well as to work for the organisation we are serving. So in my case I have that I work with and the thing is this, the location of the farm. A lot of work on the weekdays. And then also I do the monitoring to be sure that you have to money to get the farm work done. So you have to manage things well so that you have time for the organisation you are serving and also to make sure that the work on your farm is ongoing to get the results that you want. This is how I manage my time as a farmer and secretary.

F: So with me my is more complex but I still manage to do that. My meeting rule my permanent job ensures that I'm here Monday to Friday. So I work and as the extension person, I'm almost always on the field. So yes, moving with cocoa farmers once awhile come into the office and going up and down like that. Now with WCFO, for what I do is that I coordinate so I just play like the role I spoke to you about four or five days ago. It was a Friday. Then I'll contact the leadership because in all these organization we have structures. So that WCFO, we have the groups who are really the cooperative groups that are there, like Daniel's Group is there like the ones I want them to join the biakoye and all that. Now they are the face of the cooperative societies and then the secretariat manned by is Asiedu and other colleagues. They are there. So you have more time. Patrick is fully in the office everyday. So we have a few people that are there. So they do the day to day activities of the office. If there's a meeting for me to join, like virtual like this, I find time and join. So based on my shoulders I do that with my farm like he said in Ghana, almost most of the farmers who are or most of the people now taking the family rule as also working in the mainstream, mostly get people who work for them. And so we have technicians who are there on the field and then they are working this year unfortunately from March till now I've not been able to go to my farm. But their farming is being done, we are doing planting. We are doing this. So you have to better finances and all that and hope that you have somebody taking care of it. So that's what happens. So we call try to combine this with mainstream of work so currently. That's what we do.

P: OK. Thank you. Thank you. So the next question, the drain understand a little bit more what is the role of cooperatives and these organisations? But cocoa farmers, my question our question is what do these organization do to support farmers? Smallholder farmers? Cocoa farmers specifically? So what is the role of? You're organization You're part of in supporting farmers.

M: In terms of organisation. We provide an umbrella organisation for the cocoa farmers. We provide a platform. So that the concerns and challenges of the cocoa farmers can be discard by the umbrella. Come together and quantitize this issues. So what the cocoa farmers organization is trying to do is to play this role as an umbrella organisation. Bringing cooperatives and leadership together. Also mobilizing smallholder farmers who are not yet organised to keep them together and try to legitimise their organisations. Because in Ghana we have a body . Uh, important that the register system.. So we link the map. Yeah. Constitution. That the instructions are different dates and whatever to, you know, let them follow. Should be the legalprocess. That's the. So yes, yes, this will cooperative. So we have mobilize them. Come on board the WCFO platform. And then he, smallholder farmers who are not cutted, who are not in the form of. Would sell the idea that would get them mobilized to cooperate, and they also come on board. So we are moving at that pace. But that is what we're doing to support and once we bring them together. We also undertake capacity building to strengthen their leadership. So to be able to manage. Yeah, groups well and mobilise all people. The idea is that once they are well organized. Yeah. Able to, you know, link up with existing organisations. So companies that you know are ready to support them. The answer is within this organization will not deal with you when you are not well or. So while we strengthen they get their document. Then we can leave that. Some of these organizations. We make the come to us at the research level and then we direct them to the to their corporate is because they want to think directly with the. That are willing to support them.

F: Like he said, I'm bringing these groups together. This means objective and now you bring them together and you need to give them capacity, capacity to understand our objectives and aid that is to have that common voice we want to achieve. And so the leadership what we've been doing over the years is to try

and organize some form of training for the various cooperative leadership. To also have that kind of capacity when it comes to the governance structure, how they have to even function as a cooperative and all that. And then aside that because they are already cooperative, some of them are big, they are OK, they have their structures, they are, they are working, some of them are young, we are bringing them together. So they you have to concentrate more and try to get them to speed, OK to have the structures that works

well for them. So we support in that aspect what we are unable to do. Which the farmers want us to do is to provide them with support when it comes to inputs. Or either finances and all that. But we've tried to find a way around it for some of the groups and this year I'll be a blank. Is not all of the groups OK? Only we have about 24 groups that are out of the front, 24 groups that are, some that we've been able to lead for the persons 2019 we've been able to supporting them to get access to finance. Uh, through some banks? Uh.

Banks like Opportunity International and those within Ghana who who have some form of credit. For farmers, just for farmers in good credit scheme for farmers, we supported some of them to get that. We've also tried to link them to other organizations who works with farmers like Sangalang and all those stuff. So we try and all in that capacity to build their capacity as cocoa farmers and as leadership of those groups, so that they can function well. So that's all been doing some of the groups we lead them to get even government inputs, you know, in Ghana. Depending on the year or government policy that are years

that government supplies inputs for farmers, what fertilizer what I say. How do you call it? Pesticides or insecticides, whatever. Now for you to even have access to fertilizer? There are some ways or channels you need to go through. And I think that in 2019-2020 we have to guide our groups to know their processes and apply for to be able to get access to be able to access those inputs. At the farm gate level. So these are some of the things we've been doing over the years. Unfortunately as a number organization that we are trying to

bring all these farmers together, we don't have the money now because we are young, we don't have the finances, not even the human capital, OK, only most of the things like I told you we are, we are supporting us just like volunteer so. We don't have permanent staff really championing the activities of WCFO, who currently, as it is. Yeah, so that is the only the challenge we have. But we are doing it as lone we are able to bring them together, we do that and then that's one of the areas capacity building because when you take most of the cooperatives in Ghana and then what they are lacking is kind of a capacity when it comes to the structure, the governance structure,

how it has to work and also the capacity as leaders to lead, OK, you know, it's one thing to be leading the group and it's another thing trying to grow the group. How do you grow the group? You should have some form of capacity to know that. OK. Move, move. We don't have strategic plan even though we WCFO has a bigger organization, doesn't have a strategic plan. We are now trying to put something together and we need capacity even in that aspect to be able to do all these things so that we can be working professionally, yeah.

P: OK. And those capacity building activities are they accessible for everybody or? And so the capacity building activities to whom are they accessible to all the people who are part of cooperatives or more people who are a bit, yeah, I don't know, leading roles.

F: OK so it applies to everybody but what we do, what we've been doing for us as the WCFO, what we've been doing is that we cannot do it for all of them. We do it as we categorize, we train the leadership as in the cooperative leadership and then we train we call them lead farmers and then they take it to their level. So one they go it is for them to also train their members. Based on the segments that they have within their groups so, so yes, capacity building is needed, but it has to run through all the membership, the cooperative starting from the leadership down to.

M: So we play facilitation role. As an organization we play facilitation role and then we yeah I think that's what I want to say we pretty facilitation role for the boost to have what they want to have yeah. Linking them to groups and all that. Yeah, we just leave it alone.

M: Can I ask this? I want to add that we also aim at the coming an advocacy organisation for the farmers, for now. Uh, which also we want to actually build capacity in those areas, but a little we can do, we have full collaborating with civil society organizations who are already do that. Common we have. But that we have joined. But in is to be able to Uh presents farmers concern. By the farmers themselves, so we need to also build their capacity. They will do speak on the issues, their level, so that is also one thing we are getting and that one and we have not been able to achieve much on our own. But for now we are collaborating with. Is this then? Uh, the media organizations? And To be able to, you know, push across the concerns of the farmers and there it is to some extent. And that's and that's. Yeah. But we were little. Once we are able to.

You know, build the quantity and get the structures in place. Our advocacy and objective will be pursued figures.

P: One other question we had is this capacity building interventions that you facilitate, do they comprehend also specific agricultural training? Have you ever come into contact with good, good agricultural practices as a concept as an idea? Cause we were like, OK, so that the NGO we are collaborating with came to us with the question of building cultural practices. But as you said, the role is of facilitators and so. You tried to bring capacity building projects there and so we wanted to know if there is a pre existence, if there is pre-existing knowledge on critical to our practices or if that's a concern that should be also introduced.

F: OK. So yes, the concept of good cultural practices is there. But the truth is that not all farmers have the capacity to do it to the skill we want. Now, most of the cooperative in Ghana. And I will use my cooperative. Yeah, OK, call for example, we do a lot of trainings for farmers and so we have first half there that that's that. But even that it is not enough because the extension to farmers ratio is very. The gap is wide, one person. When you do the ratio one person to over 1500, so how effective? Is that person able to reach all these people? So, those are the issues. But the truth is that yes, there are good agricultural practices that we do, but there are some of them that really needs to be. Uh, how do you call it taught well for farmers and one of them that farmers, I know farmers are trying to do their best and even cocoa buddies also trying to support. But you go in there and you see that the way farmers are doing it, if you are technically inclined, you see that they are doing it in the wrong way, although they want to do it to achieve the overall objective is pruning. Is pruning and you know when it comes to cocoa with pruning is one of the most important aspect of the farm management practices that you are expected to do and. Yes, and mostly when you go there, you enter the file. You realize I wanna stand for farmers to prune. March, April, where the rain starts, they start cutting the branches. OK, they cut the branches from the beast going. They just cut the branches to just have way too. But see up there where the canopy is and where there are mistletoes, and all those things and posts that were not harvested over dried post there. They don't do anything there. So are there other day you still create that shade too much shade? For the cocoa. And then

it gives impress for insects and hideout to hide and thus affects the comeback and affect their productivity. So the farmers will then be doing a lot of spraying instead of maybe spring exercise twice or thrice in the year. Then they are tempted because anytime you go into the farm you will spot insects and once they spot the insects then they want chemicals to apply. And this in a way economically affect their income, they don't check that because they put us that they get out, you are using most of them to buy chemicals and applying it and they even the effects of the chemical or you and all that is not quantified. So yes all the cooperatives across Ghana that I know of do one form of training or capacity building or the other but ask whether those kind of training is after skill is the issue and I think that this year I was telling my group we started doing some organic cocoa with some farmers pilot. And we're teaching them how to make these new extracts and then how to make other fully fertilizers like the use of the cocoa down. And we realize that the major challenge with most of those farmers where they put in I talked about and also with farmers even having DCU teach them by how to even apply them, their name, how to even do it, at the scale to meet their needs on the farm. Is. It is that those are challenges we need to do. So for me good agricultural practices are good. We should look at that place, right? Maybe it should be one on one kind of like the call they have a training call. The Farmer Field School or something. I don't know. Just those one are not able to target so many farmers. It has to be at. I don't know. I at a certain skill to be able to get to what we want to do, so maybe this is what I want to see.

P: And how? How realistic do you think that organic farming is or without spraying? Pesticides or fertilizers? Because we read a lot about it. And of course we don't know anything about it. We are not farmers. So I think you're being on that could be really valuable.

F: Yes, Sir. Realistic. Yes. Yes, it's possible organic farming is possible because people are doing it in Ghana. Do the numbers are not so huge, but at least when you take the eastern region that I have a lot of farmers doing organic and because they done it over the years, they don't struggle with pesticides and these farmers, what they are not so many and they've been taking through the rudiments of the farm maintenance. And they need to. Yes, they are really compliant and it's working with ours that will start which is a pilot initially you will face a lot of challenge because most of the farmers are into the organic so much. And so once you want to convert it takes time. And so now they will be asking for alternative to the inorganics. So it means we have to get alternative pesticides for that. And that one is not so much available here in Ghana. There are few ones that are come that the Property Search the with the quick cocoa research have

come out with have approved that farmers can use but it does not even meet the international. There's a difference between the cocoa research approving in Ghana. Now I farmers can use this as organic and there's a difference between the international certified ones where they bring the European accepted one, whatever they have a mark that has to be there on it, like the ISO and so. And then if you want to certify those cocoa as organic, you should be using those ones that have certified internationally. So I think those are the of the challenges we are having but realistically is possible promise. Now we are attending and do that because. We see that that is the way forward, the organic will help, but the sustainability agenda that we are all talking about and so we want to let the farmers know, if possible to reduce cost, do it organically. But for you to be able to do that, your maintenance should be up. Your maintenance should be very well done to reduce their infestation of their past. Finally, let me see that before I see this this year, one we got some of the pesticides for them ago. I think the name is the active ingredient for them to use when they apply it on their farm. All of them were happy because they leave started changing and then the plans started getting a lot of flowers flowering but then immediately this is started in the charade started coming; the charade is the small bean wood is showing. Then you see that most of them were dying of. are there and they started attacking, so the farmers were coming. Oh, we have a lot of terrorist, but it's been attacked by insects. And it's all because of what I mentioned earlier. There are maintenance culture, they are tuning and all that is not up to the standard and it will take time for us to take them through to get to that point. Yeah.

P: So it's more labor intensive maybe.

F: Really. Living. That's very labour intense.

P: So my I ask you, you said about the importance of training, but also about the, the, the challenges of the implementation of training so many times as you said, an initial mistake in pruning can really as a consequence of then? Uh, like tripling down to farmers, allocating financial resources in the wrong way to, but to fertilizers, while obesity sides, while the correct pruning at the first stage could really help prevent that.

P: So do you think the knowledge is would like in more support in delivering knowledge would be more helpful or more support into the implementation phase for example with tools or

with? Support to your organization directly to coordinate the work of farmers. Maybe organization, organization of working groups that go from Farm to Farm. So yeah, the question basically is, do you think knowledge is to be prioritized or implementation because the knowledge is already there?

F: Personally, I would say both. But because the knowledge is important and I think there are, there are few or some people that have the knowledge in Ghana. I know, Daniel. I just does a lot of pruning. He's he was an into cocoa board and all that. He's very good at that. And I know even when you get into Creek we are specialists who asks but when they enter the family can tell you this plant here is wrong. Cut this do that. That is the knowledge is here but not so many people have that knowledge and so that is why the implementation has become a problem because most of the extension people that companies even. Higher or train and send out the sometimes the extension of said, but they don't have the skill. Uh, so for me we can look at that aspect of increasing the knowledge a bit for the technicians. And then concentrate more on the delivery because when we look at the delivery on the farm, the farmer was will pick it up immediately. They are able to do it. Let's see if I get a day with let's say 20 farmers and we are on the cocoa farm and I'm telling you. We have these trees there. That's why one we all stand there. We do this. We do this. We do this. We do that for about 3 or 4 trees and I let each of them go and practice and I'll come and check by the time we do that for maybe two times or even the whole day, the farmer will have communication. You have that. That, that, that's OK. I have to be doing this. So over time you will realize how to do that. And so applying it unfold. Over time, we'll let most farmers get to know the skill, and then it will be permanent then, because they also be training the others, they are descendants to take over and all that. So yes, it's move, but one has to be more than the other.

P: But do you think there is also other forms of intervention? Or forms of support. That's should be prioritize as well.

F: Currently what is happening? In even in most of the groups is people are looking at alternative livelihood. And the other alternative livelihood and other income income generating activities, so most of the groups that I know are now with the support of other organizational partners. Uh, uh, going into something like Yann production means rice and other alternatives,

even some food crops. People are doing that to try to get the cocoa farmers and add that income because we've realized that because they're cocoa farms are so small and also doesn't food all year round and with all the challenges and all that, so mostly the farmers don't have income in the lean season. So bee keeping and all those things people are doing it. Most of our groups are doing it. It's ongoing and it's I think it's good we can deepen it and then. Those that are fortunate to have these kind of interventions in their communities, in their groups, they will testify to it. That is, it really helps, but it's not so much for nouns. When you look at the number of farmers we have and the number of farmers that are receiving this kind of interventions. Uh, uh, the the difference is a bit wide, and then one other thing that apparently. People are also doing. Though farmers don't see that as support. OK, it's a the the agro forestry system that people are doing where they are coaching farmers to be planting trees and all that. They see the planning of the trees, alright and they they are adapting to plant but they don't see that support although it says support. The reason is that because of the national laws that when you plant the tree you are supposed to own it. But even the process for you to own it, it's not clear you can say you own it. But identity, if you don't have any power to back it, you can't even when the need comes for you to get the resources from it, you won't get. So these are some of the things that are there, but for which these are also called, but for which farmers can see, some of them are support. Yeah. But then they keep doing it because of the benefit they think they will get from their for their plans. They should they will get for the alcohol plants and all that. I don't know if you can add any.

M: So the diversification. We think that there are challenges in the sense that most of the cocoa farmers are aging. The energy and the strength they have dedicated to the cocoa farmers. So in the kind of thing that it has to back on. Was something how to use this energy and then try to set up another. If we add that to bring income. Uh, they become the problem. And so so that one is a challenge. And the body with the something that maybe the power has money that you can use this money to finance setup. Then that isn't the problem, but most of the aging farmers When we talk about them that identify, if you have not already. It is not something that you like. So. So that's the challenge, but I think that's all the things that are being done now. Younger ones are buying to them. We think that now that I telling your question about diversification at what point. Somebody has invested all his strength and resources. Now he has the cocoa farm at the source of lovely. Shouldn't you now change to other things to be able to earn enough income, where is the strength? Where is the finance to you? Get to that. So this questions that all of us are trying to find answers because go to the field and you meet about 50 to go farmers or even

10 cocoa farmers. You get about eight of them who are over 57 to the assistant. So then over over 60 years. At this time. And they have the energy you'll be able to start something that will be bringing in more. He hasn't got the money to bring finance that you then. Well, these are questions that all about they are managed to when you come to that person and every situation of it.

P: Yeah, that's very challenging and complex. Yeah. So diversification, it's paramount, but it's really dependent also to access to credit. Obviously, as you already mentioned, your your struggle is also trying to provide this access to credit to the farmers.

P: So another question we we we can ask you and I'll try to join two so that we can.

F: Maybe before, maybe before your question. I think based on what I see, this said my something has come into my mind and that is you know he mentioned the, the challenge with the diversification for the agent farmers or the old farmers over age farmers yes that is there and I think one challenge one support that pharmacy but we are not getting has to do with library services. Library services because of now most of them are over aged and because the they don't see who farming anymore as lucrative. So the only the farming communities and so now it's not there couple with the issue of child labor and all that. So it makes it a bit really difficult in the. My own father, yesterday was his 81 birthday. And he has a big cocoa farm in Tampa. Now last weeks I called him and he said when they went this for three weeks, 2 weeks even tried to get somebody labor laborers to go and win the farm is a problem now. I cannot go and do that work because of what I'm doing. I'm here. And so these are the challenges. But if we have access to labor, labor providers, service providers who can even take up the farm, do it and then the profit that comes, they share that will be something we have to look at. People have started in Ghana by a few of them are practicing that, but as to whether we can skill that and app and make it look creative, maybe when we are looking at what to do next, you can also factor that. Let's see.

P: And to what extent do credit share price or those things strangers in the beginning? To what extent did they help with the labor?

F: Currently, those good have started. What they do is that they go in their labor service providers do come into your community, they discuss with you and take over your farm. So they they now like a agencies engage their youth, OK, hire them like as I employ people, train them

and then they will use them to manage the file. And then based on their agreement they have with the farmer at the end of the year when they have harvested or whenever they harvest, they share the process. They think one for their their labor costs that they've done and then the remaining they share with the farmer the farmer then have. So in that case if you are old. Like 50 something 60 and you cannot take care of your family. You have somebody taking care of it and you can still get something out of the farm once the money yet well, and then use part of your proceeds to pay off that aspect of the cost being cared. Yeah, but it's about a few of them that have sprung out. I know about two or three groups. And the bruised have begun something like that in in about 3 communities, which is working, but it's not mass spread. And so once he mentioned that aspect of old age, I think it came to my mind, I wanted to put backwards.

M: So let let me add that. Rising costs of labour services. If you can get it, they charge them higher. Why cause? There are alternative area that are making within even around the same farming communities. The guy will look at the number of hours he spends in the cocoa farm around my you are paying and then alternative call the other side where we have gold mining, galumphing and other activity. Ohh, even buys a motorbike and he's riding, so taking people to commute. So he texts quick one is bringing higher income. It's like that the few available are charging higher. Be able to. I do the work for the aging farmers. And these complaints are all over. All of us, so it is, it's not availability. And also the rising cost. Yeah. These are things we are battling with.

P: Yeah, I stand and. OK. So I don't know if you still have time. We do have a couple more questions, but if you need to go feel free to let us know and we don't want to to. Uh to to force you to stay. So as I said. We'll try to do maximum 10 more minutes, yeah.

F: That's that. That should be fine. Let's go ahead.

P: OK. So one question that we think is also really relevant is what are the challenges specific challenges that your organizations faces in trying to support and some of them, the farmers and some of them you already mentioned, but we were wondering also if distance for example or power dynamics within the supply chain something and also what is your relationship with national governments and international? NGO's. So if there is a lot of collaborations or if sometimes you feel like the link

there, it's weak and it's missing. And so if you would like to have more support also from these bodies.

M: OK. I'm frank. Can you take this one up?

F: I just see. Yeah, if I got the question, what are some of the challenges we have now, let me start with the last bit that you said. Collaboration. Yes, I think we need more of our collaboration. Both nationally and internationally for us as the WCFO, what has kept us in Ghana, what has kept us is the partnership. We initially and then to win the civil society groups and with other other bodies. I know through the some bodies in the EU and get in touch with us and we are trying to vote that collaboration, but we need it more. What we realize that for us to make headway. That's done WCFO. We need these support contacts collaboration to force national governments to do what is right. You can see farmers coming together as under one umbrella body as it tracks. At a treat to to them, we need their country. Amongst even the cocoa farmers themselves and cooperatives. I have a number of farmers. I do programs that I get income on a yearly basis coming under the summer or that take away my own do I, call it my influence and all that. OK. No, we are not taking away what is influenced by continuing to do your things. But then together we can make a stronger team as in the past. And so that aspect people don't get it and at the national level they also feel threatened because you know once we are able to bring all these farmers over how we call it it, when you look at the electric are they say it and the thousand if you're able to bring this all these 800,000 together it means that you have so much voice and you can influence a lot of policy. Which they don't want and we trying to bring that together is a bigger challenge, especially when we are young, the farmers are not ready now to even contribute when the Council dues, the groups are like, but the only ones support from you what you can bring on board, learn them. But it's about what the farmer wants, know what they can contribute unless we are able to change that, that psyche that mindset. That will come move us at at a peace as one people. So that area, that's how it is. Nationally, yes. When you come to the ground level. Umm, the government level the cocoa board staff, we are so OK with them at their regional, at their district level. And when it comes to the national, we have a challenge because that is where the issues are and that is where they influence policy and they are not ready to go with you. So you have to be trying to seek the attention and you are not getting and all that. But over time we are doing what we can do that aspect to we need support and the support we might need is the support from outside the influences from. Do you like now the EU due diligence and those things that are

coming, you know it affects everybody and then they it affects the farmer more. So if we have to make inputs into that then that will help us as cocoa farmers to try. So the government has a role, we have a role. But can we do it together? Who is going to push so that that collaboration works. I think for us that is key for us to get that. And then once we get that I think the the sky will be the limit will be able to. For the 4th and then move on. I don't know whether I got all the question, but I think the latter parts is what I got miss if I add.

M: Yeah. So come from the challenges. We are facing, a must say challenges are within and without. Within, in the sense that we have the farmers challenges. Dependend on the government. Legal body has to be expanded. Looking up to them. Has to become organised, self-organizing being independent and able to do your trade. Then when you come to the coperative like Frank had said, that fear also is there. And that you know, that legal body too legal van has also benefited from. The inaction on the part of cocoa farmers said that whatever they want to do, they push it and nobody will question them. So they are also holding on to that and any any, any possible change. That's the those school. They have resisted and in some cases, but we have now, we have tried to, you know, where open up because. Fortunately, our Constitution in the country says that we have freedom of association so nobody can retail your your your initiative so that the low back and have to do what we are doing. But you know the political environment. Frequent changes your there is also not helping our call. So sometime everybody will want to align with the the political authorities to be able to also benefit from something. So these are few challenges as their country, but that every moment we cannot change. What we can change is the farmers mindset. How are readiness to come together? People in the previous time have been speaking for farmers. But now we want to farmers to speak for themselves. Come together. There's there is this thing that there is nothing compared to self organized farmers when it comes to, you know. Uh, we coming together and then we have the collective action. You know, this is what it within that year in people and then so so. So that is that I the nationally we want to say that. If you are able to access other international bodies, particularly on network cast, see to support us to do what we want to do. I believe that because right now we don't have those things and then now that we are opening up to the pool and collaborating. Today is the day you are reaching back. Probably WCFO has. The international community. Because we are recognized that international Cocoa organization. There.. So whatever is happening in our country, we are trying to get to power. At the farmers are there. Yeah. Producing the national national asset like. Yeah.

P: Thank you. Thank you very much. That was actually super, super relevant, I think super insightful and OK. So yeah, I tried to join the last two questions. So we're actually pretty done with the with the interview. Thank you very much for your availability and everything you you shared with us because I think that there is a lot of really, really valuable insights you share with us. If you have any questions for us, please just let us know either now or if you come up with that later. You, you you have our emails and then so just just send it free and we are back to answer and also if you're interested we can share with you the final output of our research that should be done by the end of next week or or half of a follow. Wait.

F: Yes, I think I think what I was going to ask is that, yeah, as as as. A young organization, the CFO, we will be glad with what you are doing. The reason for research is for us to improve. And so once you are doing this, we want you to also give us access to the result of it and then we see we also see the next time it also guide us or should pass in doing some of the things we have to do. But yeah, I know you've spoken to a lot of groups, so at least that also when we get the final report that also help us. So don't forget to get us copies. Once you are we are download and then.

P: Still, a small disclaimer. Because I think you really are experts and. You know so much more than they do and we try to do our best and we read a lot and we spoke to a lot of people. But of course you are the only person who truly know what is going on. So we are very open to feedback as well. And if there are things you do not agree with or you have other ideas about them, we would always be happy to, to receive your free speech, your feedback. Yeah.

F: You, I I have a I have a question also you are talking about an end you that you are working with. That, you know, dealing with these that good, I require practices. Uh, would you find it necessary to recommend the Blue CFO and maybe any of our cooperatives to them? And what is that possibility? Because now? We are looking at reaching that works, spending our hands. What do you think?

P: OK. So the NGO we are working with currently just since we are in the academia, we are part of the marketing and university, they basically come to us and asked us to provide knowledge on the topic of good cultural practices to improve cocoa yields. What we're trying to do since we

thought that only good agricultural practices could be too much of a focus point of view. That's why also why we asked you that's also relevant to explain you why some of the questions. Why? We asked you other aspects. So the empowerment and the activations and the facilitation role that other player self, what we're trying to give them is an overview. But I'm gonna get cut. Our practices might be needed. But you also have to consider these, these and these aspects when developing an intervention. So what we're trying to do is really provide knowledge on how to design the best possible intervention. Umm, the NGO came to us in the 1st place because they're planning to expand their intervention in Ghana and Cote d'Ivoire so we can actually I we wish to make a an acknowledgement page in our reports in which you if you agree we'll be mentioned cause you actually participated and gave us a lot of information and so with that we can actually provide your contacts if you are interested and see if they NGO in the 1st place is interested to already begin. Looking for contacts in the in the local area? Yeah, and especially because you're the ones who have the expertise on the agricultural practices and they're quite new with it still so.

P: OK. Well, thank you very much again for allowing us to share your time and. We will share with you the final output. It was really insightful. Thank you very much again for your availability and I hope to talk to you soon with the final output to. And also thanks on behalf of our other Members.

F: OK. Yeah. Thank you too. And in the future, I want you finish with your studies. We are hoping that one of these days we will get one of you or one of your colleagues to ask volunteer for the CFO out in there in the Netherlands, there are office is almost close because we don't have somebody working for us so. Cool. So we need people who wants to, who buys in the idea of farmer, farmer, unity and empowerment to come on board unless work together. Who knows, maybe we can make we can impact a lot of lives in the in the future.

P: If you ever have a vacancy in, share it and then we can.

F: Yes, democracy is there. Yes, that would. We don't have the money to pay. So you have to come on and then raise the money out there. And then we all work together.

F: Of course.

P: Thank you very much again. Have a nice day. Bye.