



Capacity building in agricultural development projects

A case study about women smallholder farmers
in Kerala, India



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in Kerala, India

Master thesis submitted to Delft University of Technology
in partial fulfilment of the requirements for the degree of

MASTER OF SCIENCE

in **Complex Systems Engineering & Management**

Faculty of Technology, Policy and Management

by

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To be defended in public on March 26 2021

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Preface

Agriculture. We would not exist without it, yet it is something so underappreciated. I have always been fascinated by other cultures and why there is so much division in this world. I wondered why some people get the opportunity to grow and others not and why, despite so many development projects, there is still so much poverty. A few years back, I had the opportunity to conduct research about the potential for biogas digesters for farmers in South Africa as part of my minor programme. In this project, it became clear to me that ‘helping’ people by providing them with a farm and some chickens for free was not going to improve their livelihoods in the long run. They should be motivated to grow as farmers and have the knowledge, time and resources to do so. It raised questions. How can the livelihoods of the farmers be improved? And are development projects or initiatives the key to development? By writing this thesis, I had the opportunity to gain a better understanding about one of the core principles relating to this: capacity building. A term used in many different contexts and a term people give other meanings to. This thesis tries to address this gap and give a clear understanding of what capacity building is and what components are important.

Writing this thesis was a fun, challenging and exciting process and marks the end of an era. An era wherein I could develop myself and build my own capacity. Not only by having courses during my study, but also by experiencing a change of mindset, from a student who was satisfied with a simple pass, to a student who has found her passion and motivation to learn more about topics she finds interesting and develop her skills to grow professionally as well as personally.

This thesis would not have been written without the help of a number of people. First of all, I would like to thank the supervisors of my graduation committee. Otto, thank you for your time and dedication, and introducing me, already a few years back, to the field of entrepreneurship and development and the area of capacity building of smallholder farmers. It is a subject that really suits me and something that I would like to continue with in the future. Frances, a big thank you for your involvement and commitment in this thesis as well. Due to your commitment, constructive feedback and inspiring stories during our meetings, my study made some big improvements. It was an honour to work with the both of you, and the thesis meetings were always very pleasant.

Secondly, I would like to thank the people in India who have contributed to this research. The people from mByom, in special Vidya and Ajith, thank you for time and commitment and interesting meetings we had. Amruth, thank you for visiting all the farms in your area and women smallholder farmers to participate. All participants who were willing to take one hour of their time to share some inspiring stories. Women smallholder farmers, who took the time to participate in an interview, instead of taking their already valuable time to work on the field. Without your input, this in-depth study would never been possible.

Thirdly, I would like to thank my family and friends. Mom, Dad, thank you for always showing your support the last 24 years, when I had these crazy ideas to travel to Brazil on my own. Thank you for providing me with the most delicious food and study breaks during the last months of writing my thesis and offering me a place to work without distraction. To all my friends, thank you for your love, support and fun breaks. And Jaap, thank you for your positivity and showing me the Northern lights while I was in Norway.

Lastly, I would like to thank the Climate Institute of the TU Delft for their financial support.

Julia Kooijman,
Rotterdam, March 2021

Executive Summary

Agriculture is important for all of us. In many developing countries it is essential to survival of many. However, agricultural growth, food security and poverty reduction are exposed to many challenges, including climate change, competition between smallholder farmers and commercial farmers and other threats. In the last decade many development projects in developing countries have focussed on agriculture and smallholder farmers. Some projects focussed on improvement of agricultural productivity, in order to generate income for local farmers, contribute to food security for a region or country and improve the quality of life. In these projects, farmers are often introduced to new techniques and technologies. This can help farmers improve their production, but they should be able and willing to make use of those technologies. This is highly related with the capacity of smallholder farmers to do so.

Capacity building within agricultural development projects is a crucial factor for sustainable growth of smallholder farmers. It can help to increase the capabilities of a community to continue practices learned in an intervention and increase trust in other stakeholders. However, it is the case that capacity building initiatives often fail to deliver the right capacity for sustainable growth (i.e. sustained effects of an intervention). Common causes for this failure are: the needs of the local community are not heard or met; a top-down approach is used; the environment one is operating in does not provide any room to apply the learned practices; or no long-term support and merely a training session is provided.

Capacity building is not only about training local stakeholders to obtain the needed skills and competencies, also the social environment, institutions, cultural values, beliefs and attitudes of an individual and its' community should be considered. The focus on these values, attitudes and beliefs is sometimes forgotten. Smallholder farmers might be able to learn the technical skills, but if it goes against their traditions or values to make use of them, capacity building of the technical skills will be useless.

Given the complex situation outlined above, the question arises how smallholder farmers can be introduced to new technologies and practices, in a way that they are able to grow, instead of stagnating. There is fragmented research about how project executors deal with these parts of capacity building in the context of smallholder farmers. Therefore, this study aims to answer the following research question: *Can capacity building be included in agricultural projects focussed on smallholder farmers in developing countries, and if so, how?*

Approach

While capacity building is often an important element in agricultural development projects, the concept of capacity building is interpreted in many ways and failures to build capacity of smallholder farmers still exist. This study started with a literature review exploring the challenges smallholder farmers in developing countries face. Those challenges include a lack of knowledge and skills; no confidence to change; many commitments besides farming; a lack of vertical networks; no access to resources like seeds, fertilisers and financial loans; and heavy rainfall destroying their crops. The literature study continued with reviewing how capacity building is applied in different contexts and which components are important for capacity building of smallholder farmers. This resulted in a conceptual framework, with 23 components categorised along four dimensions of capacity: (1) The Present Business Performance; (2), Information, Experience, Skills and Algorithm; (3) Values, Attitudes and Beliefs; and (4) Enabling Environment. This conceptual framework was validated in the second part of the study, by means of a case study. The case study focusses on women smallholder farmers in Kerala, India. Women smallholder farmers are often producing merely for self-consumption. Therefore, the case study focussed on the feasibility for women smallholder farmers to increase their production and what

components influences this feasibility (i.e. their capacity to grow as a farmer). Interviews with several experts, including women smallholder farmers, academics and employees or founders of NGOs in India, were conducted to partially validate and adjust the framework for women smallholder farmers.

Results

The results indicate that it is not enough to only train knowledge and skills when building women smallholders' capacity to grow. Women smallholder farmers face many challenges, varying from access to good quality seeds and fertilisers, heavy rainfall, insects or diseases destroying their crops, or a lack of time to farm. Moreover, the enabling environment is hindering them in growing as farmers: they are seen as the homemakers and labourers, and not as farmers. In a society characterised by patriarchy, women are often treated as inferior to men. Women smallholder farmers are not only hindered in their ability to grow by their knowledge and skills, but also by their other responsibilities, their ability to take risks and their enabling environment. The results indicate that the informal institutions, i.e. the relations between people in a community, are very important. Solving challenges women smallholder farmers face does not only require the right knowledge and skills, but also requires a change of mindset, wherein there is planned for tomorrow.

Most of the NGOs interviewed in this study are directly involved with women smallholder farmers. These NGOs provide not only training, but also assist women with other issues with which they are faced, e.g. the many responsibilities including the care of the household; market access; and access to resources. Results indicate that duration and type of support are important: long-term support is needed for a self-sufficient community to evolve. Not only do women smallholder farmers need to acquire new knowledge and skills, their values, attitudes and beliefs and their surroundings need to change to grow as farmers or become self-sufficient. In addition, supporting communities in several areas at the same time, can contribute to sustainable development.

The conceptual framework this thesis initially proposes is evaluated by means of interviews and revised based on this evaluation. The final proposed framework distinguishes components to consider when developing a strategy for capacity building of women smallholder farmers. The four dimensions the framework distinguishes interact and support each other. For instance, possessing the knowledge and skills to do something does not suffice, there is also the need to feel empowered enough to undertake action with this knowledge. Moreover, the environment should enable a woman to come forward.

As simple as it sounds, building capacity, it is the opposite. Capacity building is a complicated process, wherein many components important for capacity building of a woman smallholder farmer to grow need to be considered. This has to do with the fact that not only knowledge has to be increased, but that a change of mindset is required. A change of mindset of a woman farmer and her surrounding is not completed in one day. This takes time and requires long-term involvement. However, long-term is a challenge. It requires frequent commitment of project initiators to be present for the long-term and funding. Therefore, a recommendation for future research is to conduct research about factors that influence funding to understand how funding can be achieved for longer periods of time. A second recommendation for future research is to validate the framework in other developing countries, where other components might be important. A third suggestion for future research is to validate the proposed framework by project developers who have conducted multiple capacity building initiatives. Their experience can be of high value. A fourth suggestion for future research is to adjust and validate the framework for the case of men smallholder farmers. Components found important can differ when compared to the framework this study proposes. Lastly, future research can focus on the mismatch of agricultural development projects and the sustained outcomes. What causes that outcomes are non-sustained? And of what factors should a capacity initiative consist to have guaranteed sustained effects?

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List of Abbreviations

Abbreviations	Meaning
CoSEM	Complex Systems Engineering and Management
FAO	Food and Agriculture Organization of the United Nations
GDP	Gross domestic product
IESA	Information, Experience, Skills, Algorithm
SI	Social Institutions
VAB	Values, Attitudes and Beliefs



Part I: Introduction & Conceptualization

1. Introduction

Agriculture is important for all of us. In many developing countries it is essential to survival of many. Growth in this sector increases incomes among the poorest two to four times more effectively than growth in other sectors (Townsend, 2015). Moreover, in developing countries agriculture contributes greatly to the gross domestic product (GDP) and is therefore important for economic growth as well. However, agricultural growth, food security and poverty reduction are challenged by climate change, competition between smallholder farmers and commercial farmers, and other threats.

In the last decade many development projects in developing countries have focussed on agriculture and smallholder farmers. Some have focussed on improvement of agricultural productivity, in order to generate income for local farmers, contribute to food security for a region or country and improve the quality of life (Pretty, 1999). Others have focussed on creating awareness and access to markets for smallholder farmers to sell their products (Markelova, Meinzen-Dick, Hellin, & Dohrn, 2009). Smallholder farmers can benefit from aggregation in a way that production costs are reduced, yields can be increased, the market might become more aware of the yield products and price uncertainties can be eliminated (An, Cho, & Tang, 2015). However, in order to have aggregation work well, the quality and quantity of products delivered by farmers should be guaranteed (e.g. Gockel et al., 2009; Kroesen & Ndegwah, 2019). The same holds for introducing smallholder farmers to new technologies. New technologies can help farmers improve their production, but farmers should be able and willing to make use of those technologies. This is highly related with the capacity of smallholder farmers to do so.

Different scholars argue that capacity building within projects in developing countries is a crucial factor for success (e.g. Dollar & Pritchett, 1998; Kroesen, Darson, & Ndegwah, 2015). Moreover, capacity building can help to increase the capabilities of a community to continue and increase trust in other stakeholders. With technology becoming extremely important this decade, especially for economic growth, local stakeholders should be able and willing to adapt to them (Borensztein, De Gregorio, & Lee, 1998).

Capacity in this context refers to the capacity of a group or individual to learn, change and develop, but also includes their cultural values, attitudes and beliefs (Folke et al., 2002; Kroesen et al., 2020). When introducing smallholder farmers to new technologies, it is simply not enough to provide them with equipment and a manual: they should be willing and able to make use of them themselves (Morrison, Pietrobelli, & Rabellotti, 2008). Capacity building is not only about training local stakeholders to obtain the needed skills and competencies, also the social environment, institutions, cultural values, beliefs and attitudes of an individual and its' community should be considered (Kroesen et al., 2015). The focus on these values, attitudes and beliefs is not always accounted for in agricultural development projects in developing countries. Smallholder farmers might be able to learn technical skills, but if it goes against their traditions or values to make use of them, or if there is no sufficient level of trust, capacity building of technical skills will be useless. Moreover, if farmers are not provided with an environment wherein they can apply the learned skills, training alone is ineffective (Amani, 2016). This might explain why many projects or initiatives in the past failed to deliver successful outcomes on the long-term (e.g. Iwuchukwu & Beeior, 2018; Matthew & Olatunji, 2016; Mignouna et al., 2011).

In almost any agricultural development project elements of capacity building are included. Even though importance is given to building capacities of smallholder farmers, many examples of failed capacity building interventions in the last decade can be given. Xaba & Dlamini (2015) researched the impact of the training and capacity building pillar of the Comprehensive Agricultural Support Programme in South Africa. They found that the provided training of farmers did not have a positive impact on the incomes of the participating farmers, even though this was the aim of the programme. They suggest that training

should have focussed more on entrepreneurship instead of subsistence farming only. Mafukata (2016) adds to this that the post-project management systems were lacking, since no management responsibilities were given to local farmers. Ramukumbasup et al. (2011) investigated the reason for success and failure of training farmers received by the Land Bank in South Africa. Emerging farmers pointed out that the training they received was not of the desired quality and does not promote their objectives. Therefore, it did not add value to the incomes of their enterprise. Feder et al. (2010) performed a case study of six non-sustained and four sustained farmer-led-extension groups in Bangladesh. They found that in the non-sustained programmes, farmers did not recognise the benefits of the programme and the needs of the farmers were not met (e.g. the farmers wished for seeds and fertilisers, which were not provided in the programme). Djagba et al. (2014) compared two failed irrigation schemes with a successful one, wherein the successful scheme was supported with long-term technical and financial assistance when compared to the two failed ones. Baloch & Thapa (2018) studied the performance of extension services provided by the government of Pakistan. Herein a top-down approach was used instead of the intended participatory approach; extension officials were not able to deliver the right information to the farmers; and only half of the smallholder farmers made use of the service. A last example is about the effects of a capacity building workshop in an adaptation project. In the capacity building workshop, participants learned about new adaptation and management practices. Two years after the workshop, the researchers went back to test the impact of the workshop. They found no difference between the management practices of participants and non-participants (Alpízar, Bernedo Del Carpio, Ferraro, & Meiselman, 2019).

These are just some examples of failed capacity building initiatives for smallholder farmers, with different reasons for failure. Common causes of the failure of these projects can be found. For instance, the needs of the local community are not heard or met (Feder et al., 2010; Ramukumbasup et al., 2011; Scheba, 2017); a top-down approach is used (Baloch & Thapa, 2018; Mafukata, 2016); the environment a farmer operates in does not provide any room to apply the learned practices (Potter & Brough, 2004; Scheba, 2017); or no long-term support and merely a training is provided (Alpízar et al., 2019; Djagba et al., 2014).

Given the problem situation outlined above, the question arises how smallholder farmers can be introduced to new technologies and financial instruments, in a way that they are able to grow and continue themselves, instead of stagnating at one point. It is known that capacity building is important for the success of entrepreneurial projects in developing countries. Projects focus especially on the capacity training side of knowledge & skills, but taking the cultural values, beliefs and attitudes of an individual and its' community in mind are sometimes forgotten. There is fragmented research about how entrepreneurs or project executors deal with these parts of capacity building in the context of smallholder farmers.

1.2 Research question and approach

Following from literature, the focus of this thesis is on capacity building of smallholder farmers. Even though methods for capacity building exist and smallholder farmers participate in projects, it seems that delivering the right capacity the market or technologies demand from them on the long-term is still hard. A hypothesis found in literature is that capacity building initiatives focus on training knowledge and skills, but sometimes forget the cultural aspects, e.g. the needs, values and attitudes of the farmers, which are also important for building capacity (Kroesen et al., 2015). Therefore, this thesis aims to deliver insights in the components to consider when developing a strategy for capacity building in agricultural development projects. This study aims to answer the following research question:

Can capacity building be included in agricultural projects focussed on smallholder farmers in developing countries, and if so, how?

Important to note is that capacity building in this study is not only about training or teaching smallholder farmers the right practices, skills and knowledge, but it goes beyond. It is about putting the knowledge and skills to practice, having trust in oneself and others to change current practices and seeing opportunities in the market and future to grow and improve the quality of life.

1.2.1 Research approach

This study proposes a framework which includes components to consider when a strategy for capacity building of women smallholder farmers in agricultural development projects is to be developed. This study is an exploratory research, with a qualitative research design: namely a case study on women smallholder farmers in Kerala, India. Therefore, the main research question and sub-questions are answered via the case study approach as defined by Yin (1994). A case study is used to gain an understanding of a phenomenon in a real-life setting. In this case capacity building is the phenomenon, and the case is to study women smallholder farmers in Kerala, India. The women smallholder farmers are currently merely producing for own consumption. The case study considers the feasibility of increasing their productivity, by examining their current practices, their attitudes and the challenges they face. Building their capacity is an important element for increasing their productivity. In addition, this case study includes other stakeholders in the field.

The first step in this case study is to learn more about capacity problems smallholder farmers are currently facing. Thereafter, the key factors for effective capacity building have to be identified. Furthermore, current practices of capacity building in agricultural development projects are to be found. A literature review is performed to acquire a better understanding of which components are important for capacity building and which factors influence a smallholder farmer's capacity to change, on the basis of which a conceptual framework is proposed. This conceptual framework is partially validated by means of the case study. In this case study, interviews are conducted with several experts. Those experts vary from women smallholder farmers in Kerala, employees/founders of NGOs who have worked with women smallholder farmers in India to academics in this field of study. The framework is adjusted to women smallholder farmers on the basis of the interviews, resulting in a proposal of the framework: Components to consider when developing a strategy for capacity building of women smallholder farmers in agricultural development projects.

1.2.2 Sub-questions

To answer the main research question, the following sub-questions are addressed:

1. What capacity problems are smallholder farmers in developing countries currently facing?
2. How do current agricultural projects focussed on smallholder farmers in developing countries include components of capacity?
3. What are key components for effective capacity building?
4. How are current practices of women smallholder farmers in Kerala?
5. How do experts, academia, women smallholder farmers and other important stakeholders in India value the different components of capacity?
6. How is the traditional mindset of women smallholder farmers in Kerala currently taken into account in building capacity?
7. What recommendations can be made in the Kerala project, in order to have a strategy for effective capacity building?

Sub questions 1, 2 and 3 are answered by means of the literature review. Sub questions 4, 5 and 6 are answered by means of the interviews. Sub question 7 is answered by a combination of both.

1.2.3 The case study: Women smallholder farmers in Kerala

Kerala is a state in the south-west of India, as depicted in Figure 1. The majority of the population in Kerala depends on agriculture for their livelihood. In Kerala, crops like banana, pepper, coffee, coconut, cashew and rubber are cultivated. In the last decades, the focus of cultivation has switched from food crops, to the so-called cash crops like rubber and coffee. This has led to a food crisis in Kerala.

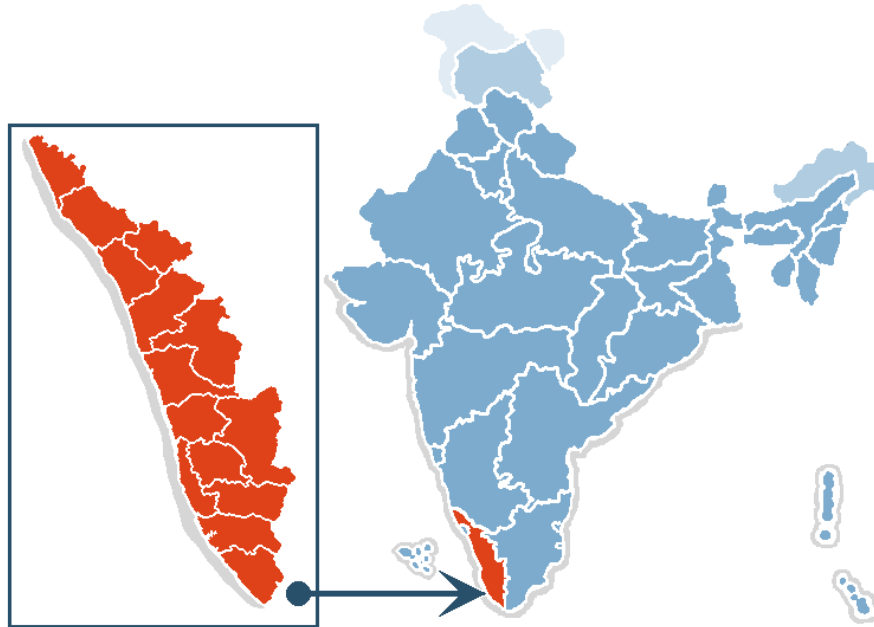


Figure 1 Kerala, India (Saravask, 2006)

Attention has been brought to food security and how small-scale farming can contribute (Anand & Maskara, 2016). Moreover, if women smallholder farmers would increase their production and sell some produce to the market, they can generate an extra income for their families. However, women smallholder farmers are facing challenges with access to markets and often do not know how to produce on a larger scale. Moreover, they are not really seen as farmers, but as labourers (Anand & Maskara, 2016).

In collaboration with mByom Consulting and Management Services this case study is designed to gain a better understanding about the current situation of women smallholder farmers in Kerala. mByom has developed an app, called aHope, for aggregation of the produce of women smallholder farmers in Kerala. This app will initially be used for the aggregation of coir fibres of coconuts, but mByom aims to expand this app for aggregation of homestead produce as well. Their vision is that production of women smallholder farmers will increase when market access is provided via this app. However, it is the case that women smallholder farmers face other challenges besides market access. Therefore, the case study examines the current situation of women smallholder farmers in Kerala, including the feasibility if women smallholder farmers can increase their production, seen the challenges they face. The main question in this case study is, can women smallholder farmers, who are now merely producing for own consumption, improve their production and enter the market, and if so, how?

1.3 Relevance

This study provides insights that have a societal relevance, a scientific relevance and a relevance to the MSc programme.

1.3.1 Societal relevance

Many development projects aim for sustained effects of their intervention. Currently there are, however, many examples of failures of capacity building interventions (e.g. Iwuchukwu & Beeior, 2018; Matthew & Olatunji, 2016; Mignouna et al., 2011; Ramukumbasup et al., 2011). For instance, farmers are taught about how they can increase their production and do so for a small amount of time, but the effects of the intervention in the longer run diminishes (e.g. Iwuchukwu & Beeior, 2018; Pritchard, 2014). The knowledge gained in this MSc study provides insights on components that influence the capacity of smallholder farmers to undertake action and grow. Thereby it provides project executors or developers of agricultural development projects insights in the challenges smallholder farmers face and their attitudes towards change. This can help them in developing a strategy for capacity building of smallholder farmers, whereby the effects of an intervention can be sustained. As an intervention of capacity building takes a lot of commitment and effort, think about time and funding, it is desirable that effects are sustained and smallholder farmers are able to grow.

Sustained effects of an intervention are not only important for project developers or executors, they are also crucial for smallholder farmers themselves. A strategy for capacity building wherein needs, wishes, attitudes and values of smallholder farmers are addressed can help increase their capacity to grow as farmers. It can improve their livelihood, by improving food security and/or by increasing their income. Moreover, from a smallholder farmer's perspective it does also take time and commitment to be involved in a capacity building intervention. This is time that cannot be spend on other tasks, like an extra job they work or other commitments they have as well. Hence, it is desirable that a capacity building intervention does include the needs of smallholder farmers and builds their capacity for sustained effects.

1.3.2 Scientific relevance

The scientific relevance in this study can be found in several aspects. Over the past decades, capacity building and the sustainability of development projects has become a topic for discussion. First of all, within literature regarding capacity building there is attention drawn to the fact that capacity building requires long-term support. However, it is not very clear what long-term support entails and what kind of support is required for sustained effects of an intervention. Secondly, capacity building is often interpreted as the teaching of knowledge and skills. Some scholars (e.g. Carl Folke, Hahn, Olsson, & Norberg, 2005; James & Hailey, 2008; Kroesen et al., 2015; O'Rafferty, Curtis, & O'Connor, 2014) draw attention that only teaching of knowledge and skills would not be sufficient, but that local needs and attitudes should be considered as well. However, many the latter is not discussed by many authors and not accounted for in many studies concerning capacity building. Thirdly, studies often perform a case study and state several factors that are hindering smallholder farmers to grow (e.g. Iwuchukwu & Beeior, 2018; Matthew & Olatunji, 2016; Mignouna et al., 2011; Ramukumbasup et al., 2011), but do not provide a clear overview of the factors that hinder a smallholder's capacity to grow. Therefore, this study proposes a framework with components to consider when developing a strategy for capacity building of smallholder farmers. In this study, not only attention is brought to the knowledge and skills aspects, but also to the enabling environment and the values, attitudes and beliefs of an individual and their surroundings.

1.3.3 Relevance for the CoSEM curriculum

This study is pursued within the context of the MSc. programme Complex Systems Engineering & Management (CoSEM). Therefore, it should fit the CoSEM curriculum well. Women smallholder farmers are often producing merely for self-consumption. Some agencies or NGOs in Kerala, including mByom Consulting & Management Services, aim to assist women smallholder farmers in order to create an extra income and improve the quality of life. The type of assistant differs, from creating market

access to actually building capacity. In order to have sustained effects in these types of initiatives, factors that influence the capacity of women smallholder farmers should be discovered. Therefore, this complex socio-technical system should be understood. In this complex system, many stakeholders are involved, like the women smallholder farmers themselves, the community in which they live, several actors in the supply chain and NGOs supporting the farmers.

1.4 Reading guide

The remainder of this study is structured as follows. Firstly, the concept of capacity building and problems smallholder farmers face are further elaborated on in Chapter 2. The knowledge gathered in this chapter provides answers to sub-questions 1, 2 and 3. In the following chapter, Chapter 3, the findings in literature are combined in a conceptual framework: components to consider when developing a strategy for capacity building of smallholder farmers. The second part of this research aims to partially validate and adjust the conceptual framework for women smallholder farmers, by means of a case study. Chapter 4 introduces the methodology of this research with regards to this case study and interviews as main data-collection method. Chapter 5 presents the results of the case study, which functions for the basis of the discussion in Chapter 6. Chapter 6 adjusts the conceptual framework on the basis of these results and proposes a framework with components to consider when developing a strategy for capacity building of women smallholder farmers. The conclusion of this study and answers to the sub-questions and main research question are presented in Chapter 7. This chapter also discusses the limitations and recommendations for future research.

2. Literature review

This section provides the state of art about capacity building of smallholder farmers in a developing context. This literature review is conducted to gain an understanding of difficulties smallholder farmers in developing countries state and the different approach of capacity building that exist. First, the meaning of capacity is explained. Thereafter, the problems of smallholder farmers are described. The third section focusses on capacity building as a concept and the current approaches and views that exist. The last section gives a wrap-up about the implications of this literature review.

2.1 The concept of capacity and building

Capacity is a broad concept and interpreted in the literature in many ways. In the 1990s, capacity was seen as a crucial factor for the success of sustainable development projects (Dollar & Pritchett, 1998; World Bank, 1996). This argument still holds nowadays. Morgan & Baser (2008, p34) define capacity as “*the emergent combination of individual competencies and collective capabilities that enables a human system to create value*”. Moreover, O’Rafferty et al. (2014) argue that capacity consists of three components; (1) foundational components, including information, culture and values, (2) competencies, which includes behavioural aspects, skill and motivations, and (3) capabilities, which includes the collective skills and competencies. Kroesen, Darson, & Ndegwah (2015) formulated capacity (C) as follows:

$$C = f[(IESA) + (VAB) + (SI)]$$

Herein, IESA stands for knowledge: information, experience, skills, and algorithm. This part refers to the getting things done. The algorithm part stands for a long-term learning process, which includes information, experience and skills. VAB stands for values, attitudes and beliefs. Kroesen et al. (2015) argue that capacity building requires that the inner core of oneself should be targeted. Values here include taking responsibility, being open, having internal discipline etcetera. This includes the attitudes towards others and imply social interactions. A change in this value systems demands a long-term process. The last part of the formula, SI, stands for the enabling environment: social institutions, policies and regulations supporting particular values and attitudes, and organisation for capacity building. The enabling environment affects the context wherein capacity building takes place.

Capacity building as a term is interpreted in many ways and is used in a wide variety and in many different contexts (Cornforth & Mordaunt, 2011). It is important to define what capacity building is, what components it includes, what different forms it takes and what it includes in this study. Capacity building can be seen as the external interventions or support that build capacity in order to facilitate change. It is a broad concept, and concerns many aspects, for instance the availability of material and human resources, as well as institutions and financial credit (Wubneh, 2003). James & Hailey (2008) argue that capacity building also includes basic beliefs, values and culture. Kroesen et al. (2015) agree with this argument, and state that capacity building does involve training in skills and competences as well as cultural values, attitudes and beliefs. They argue that it is the latter one that is not always taken into account in development projects with a capacity building element. Potter & Brough (2004) came up with a systemic approach to capacity building. In their view capacity building is the creation or strengthening of capacity, wherein stakeholders should be able to continue after programme assistance has left. Moreover, they should be able to execute autonomous of changing technologies, techniques, social structures and resources. They say capacity building is about developing a sustainable and robust system. They argue that capacity building focuses on different levels, with the macro level focussing on a national or regional level, including institutions, and the micro level focussing on individuals with a relation to the resources they need to develop.

Capacity building assists capacity development, by including several stakeholders, assisting in the process of planning, designing, monitoring and evaluating interventions designed for change (Pritchard, 2014). It should not be confused with capacity development, which can be defined, according to FAO as: *“the process whereby individuals, organizations and society as a whole unleash, strengthen, create, adapt and maintain capacity over time”* (FAO, 2010, p10).

Promoting capacity building demands for long-term investment and commitment. Bingen, Serrano & Howard (2003) argued that less attention should be brought to quantitative outputs of development projects, like transaction costs, but more attention should be given to qualitative project outputs, like the willingness of farmers to continue. They suggest the following: *“In the long term, only an investment in process/ human capacity will enable farmers to function as independent economic and political actors.”* (Bingen et al., 2003, p417).

Literature about capacity building is broad and no straight answer is given to what capacity building exactly is and what factors it includes. Authors have their own interpretation of capacity and the case is that capacity building is applied in different contexts, which also influences the interpretation of capacity building. However, a change of concept can be seen, that is: capacity building is not only building capacity by improving knowledge and skills, but it includes a longer process, since cultural attitudes, processes and human capital should be invested in.

2.2 Capacity problem of smallholder farmers

This study considers capacity building in agricultural development projects. Therefore, challenges smallholder farmers in developing countries currently face should be discovered. Based on literature, smallholder farmers' problems are versatile. Some of these challenges have to do with their capacity and some challenges influence their capacity. In literature those different capacity problems of smallholder farmers are described. Some authors agree on certain aspects, like the access to credits, whereas others mentioned very specific problems for a specific case. This section starts with an overview of a typical smallholder farmer, whereafter their main problems are described. Lastly, specific problems of women smallholder farmers are described, since that is the focus of the case study.

2.2.1 Smallholder farmers and their problems

Many smallholder farmers can be seen as survivor farmers: they do not start their business by choice, but want to increase security and have an income for their households (Berner, Gomez, & Knorringer, 2012). Therefore, they do not specialize but diversify their activities, are not growth oriented, and motivation to do business is because they want to maintain their families, not because they want to grow business wise. They avoid risks, and do not ‘put all their eggs in one basket’ (Wright, 1999). Moreover, it is often the case that those smallholder farmers farm because of a necessity, because they cannot generate income anywhere else, or because of a lack of other resources (Berner et al., 2012). In addition, mostly women are performing farming activities, who want to support their families with a little extra, while their husbands are working another job.

Smallholder face several constraints that influence their ability to undertake profitable activities in agriculture (Fan, Brzeska, Keyzer, & Halsema, 2013). For instance, smallholder farmers have a lack of knowledge and skills (Brown et al., 2019; Tiamiyu, Bankole, & Agbonlahor, 2012), which can be caused due to a lack of training (Brown et al., 2019). Additionally, often seen is that obtained knowledge and skills in training are not put to practice. Insecurities, risks related to the new practices, no trust or confidence in oneself and the willingness to change are reasons for this non-practice (Duveskog, Friis-Hansen, & Taylor, 2011; Scheba, 2017; van den Berg, Phillips, Dicke, & Fredrix, 2020). Why would one take the risk to change farming practices, if old practices have proved to be sufficient in the past

and new practices might bring risks? In order to grow, a change in this mindset is needed, which focusses more on an entrepreneurial side. In addition to this mindset, there is a negative perception towards the work of farmers in some communities or areas, which influences the willingness to change or grow as a farmer well (Kroesen, Darson, & Ndegwah, 2019; Versteeg et al., 2017). Farming can be seen as a last resort and a non-respectable or honourable job (Kroesen et al., 2019). Working in the cities is seen as a more attractive option to generate income.

Smallholder farmers usually have high social capital, in a way that they are committed to their communities and families (Chepkoech, Mungai, Stöber, & Lotze-Campen, 2020). However, this can also be a challenge, since they might feel the urge to commit to their family, church and community, which can be quite time-consuming (Versteeg et al., 2017). Whereas the horizontal relations of smallholder farmers are usually secured, the vertical relations with important stakeholders is often lacking (Abdul-Razak & Kruse, 2017; Tihamiyu et al., 2012). For example, smallholder farmers have lower access to extension services, lower market access and the right people at a governmental level. This in turn makes it hard to access markets, promote ones' interest or have access to credits, loans or other means.

Non-investment by farmers in their land can have many reasons, but the insecurities they face contribute to this non-investment. For instance, many of the smallholder farmers have lost their land already to large-scale land acquisitions for more commercialized and large scale farming (Vorley, Cotula, & Chan, 2012). Sometimes, they were promised jobs that were created on the land, but in the end it turned out they did not get those jobs, so their financial situation came at stake. Moreover, smallholders might not even own the land on which they are operating, which brings even more insecurities (Vorley et al., 2012). The economic situation of many smallholder farmers is also a problem. Often smallholders don't have the financial means to invest in new seeds, fertilisers or technologies (Pritchard, 2014). They need to have access to credit to do so, but this access to credit is also lacking. In addition to that, the institutions in place in a country do often not cover the needs of smallholder farmers, and bureaucracy and corruption can affect smallholder farmers (Berner et al., 2012; Munyua, Adera, & Jensen, 2009). In the past, commodity and food prices have been kept artificially low, which negatively influence local prices (Laube, Schraven, & Awo, 2012).

Smallholder farmers on their own have a small bargaining power, which makes it harder to access the market (Versteeg et al., 2017). Aggregation with other smallholders is an option, however the question here rises how to trust a potential competitor (Berner et al., 2012). Related to natural aspects, smallholder farmers can be vulnerable to climate change, like drought and heavy or low rainfall (Munyua et al., 2009). Moreover the condition of for instance the soil can increase or decrease a smallholder farmer's performance or ability to adapt to certain circumstances (Brown et al., 2019). Access to physical infrastructures, like water, solid waste management and transportation are constraints as well (De Vita et al., 2001; Munyua et al., 2009).

2.2.2 A woman smallholder farmer

Since the case study of this research focusses on women smallholder farmers, it is important to know what a woman smallholder farmer is and what her main characteristics and problems are. In India, a common term used for a woman smallholder farmer is a homestead woman farmer. A homestead refers to an operational farm unit in which a number of crops are cultivated, and where livestock, poultry or fish production can take place with the purpose to satisfy the farmer's (and farmer's household) basic needs (Nair & Sreedharan, 1986). It has evolved in many tropical countries over a long period of time. For the remainder of this research, the term woman smallholder farmer is used, because this is the more common term used in literature.

Even though it are mostly women playing a substantial role in farming, they face inequalities (Vorley et al., 2012). For example, they have lower access to basic services, like education and health, and lower access to goods, like land, credits, agricultural extension services and training.

Women have many responsibilities: they have to take care of the household and work that comes with that and have to take care of many other things, like a homestead farm, as well (Kumari, Vasantha, & Kumari, 2018). Because of this household work there is not much time left for other work. Kumari et al. (2018) argue that not much time is left to grow as an entrepreneur for a woman if they do not receive any family support, from for instance their husband or family members.

Women smallholder farmers face several challenges as well. These can be a lack of high quality seeds, a lack of knowledge to improve the production of crops or insect attacks (Kumari et al., 2018; Mukta, Haque, Sadat, & Tareq, 2020). Moreover, they are, when compared to men, not the landowners, not the ones with access to training or extension services and the ones who do most of the fieldwork by hand (Bertini, 2014; Hillenbrand, 2010). Adding to that, men are mostly the ones controlling the financial assets and the decision-makers in the household (Hillenbrand, 2010; IFAD, 2015). In some contexts, women face also mobility restrictions, i.e. they cannot travel as freely as men can do (Hillenbrand, 2010; IFAD, 2015; Kumari et al., 2018). It is therefore also difficult for women to go to a market to sell their products, and they are therefore dependent on the male members of the family (Kumari et al., 2018). Moreover, sometimes the product can also be of low quality when compared to products already available at the market. Receiving a fair market price is also hard for women smallholder farmers (Kumari et al., 2018).

Literature also suggests that women are not recognized as farmers, even though they are doing the farming work (Carnegie, Cornish, Htwe, & Htwe, 2020; Hillenbrand, 2010). Women are seen as labourers or helpers, while men, doing the exact same tasks, are seen as farmer (Carnegie et al., 2020). In addition to this, it is harder for them to have access to certain resources (like seeds and fertilisers) (Mukta et al., 2020). This hinders them in growing as a farmer. Hillenbrand (2010) argues that agricultural development projects will target the ones with better access to land and technological resources more, which are in many cases men. Something similar is also mentioned by Carnegie et al. (2020). They state that women participate in so-called self-help groups and micro-credit schemes, but activities with exposure to technical information related to improvement of farm activities is mostly exposed to men. According to them, there are still many underlying gender norms in a community, a household and on the farms itself, which disadvantage women.

Some authors argue that it is not that one should merely target women in a programme (Doss, 2018; IFAD, 2015). There is a role for men as well in when looking at livelihood improvement via agriculture and one has to look at the dynamics within the household (Doss, 2018). As Doss (2018) argues, if one only targets the women in households, it is likely that one will miss out on constraints and opportunities for a household to grow. For instance, the woman in the household can do the work on the land, while the man is the one with the ability to go to the market and sell the produce.

2.2.3 Problems related to smallholders' types of capital

The descriptions above already described some of challenges smallholder farmers in developing countries are facing. With respect to literature, the smallholders' capacity problems can be divided in several forms of capital. These include social capital, economic (financial) capital, institutional capital or natural capital, that are discussed in this section.

Human capital

Human capital comprises the knowledge, skills and ability of an individual to enhance potential incomes or productivity. It includes the things that can be trained. One capacity problem smallholder farmers face related to the human capital is the lack of knowledge and skills they have (e.g. Brown et al., 2019; Tiamiyu, Bankole, & Agbonlahor, 2012). For instance, smallholders might experience inadequate knowledge and skills in new farming techniques, management methods, have storage difficulties and no experience with marketing their products (Tiamiyu et al., 2012). It is therefore hard to grow and improve as a farmer without any assistance. The study of Brown et al. (2019) about the adaptive capacity of smallholder farmers in India, Cambodia and Bangladesh, argues that a lack of training was constraining the adaptive capacity of smallholder farmers. The lack of training caused that smallholders did not contain sufficient knowledge or skills. They argue that experience, available labour and health can enhance the adaptive capacity of smallholder farmers (Brown et al., 2019). Abdul-Razak & Kruse (2017) state that training is important for smallholder farmers' adaptive capacity. Moreover, they found that the level of knowledge and skills related to adapting to climate change by using new technologies is highly correlated with the years of farming experience. Furthermore, smallholders might have to deliver the right quantity and quality to the market for an acceptable price (Versteeg et al., 2017). This has to do with their experience, but also with knowledge and insights.

Human capital refers mostly to that which can be trained (e.g. knowledge and skills), but human capital is also about critical thinking and the confidence to put those skills into practice (van den Berg et al., 2020). Some things can be taught, but having the confidence or attitude to put it into practice might be an issue. Scheba (2017) gave a clear example of this. In his study he found that farmers were taught new farming techniques in farmer field schools, however, a significant part of the trained farmers stayed with their traditional practices. Some farmers were convinced that their old techniques were the best techniques, since they have always done it like that, and it had worked out for them in the past. Another reason for not putting the learned skills to practices can be that smallholder farmers have no confidence in themselves for being able to improve their own farmer activities (Duveskog et al., 2011)

Social capital

Social capital can be seen as the voluntary relationships and networks between people, groups or organisations that have a positive influence on opportunities of mutual benefits and a common goal (Smith & Kulynych, 2002). Trust, a common meaning, inclusiveness and equity are important drivers for this type of capital. It can increase opportunities for members of these groups or communities as compared to a situation where individuals have no interaction.

Different authors suggest that social capital is needed to help systems in their adaptation and support (e.g. Carl Folke et al., 2005; Missimer, Robèrt, & Broman, 2017). For instance, social capital can enhance the flexibility of management of institutions, groups or organisations (Carl Folke et al., 2005). An important factor of social capital is trust (Missimer et al., 2017; Rothstein, 2005). Trust increases social capital and can create groups and connect society. When there is no trust, or trust is broken, this social system can collapse and a lot of effort is needed from leaders, stakeholders or other people to repair this trust again (Rothstein, 2005). Within adaptive capacity, trust also plays a role. An individual alone might not be able to understand everything about a system, wherefore trust in other stakeholders is needed to control the system together (Rothstein, 2005). From this point of view, trust is seen as a key factor for the quality of a connection (Missimer et al., 2017). Trust can decrease the complexity of a system, because the system can be remained and controlled together. With trust, a system can be run together, knowledge is shared among individuals, transaction costs decrease, and collective adaptation or collective action is made possible in the continuously changing systems around (Missimer et al., 2017).

Smallholder farmers seem to have good access to social capital (e.g. their community and families) (Chepkoech et al., 2020). The linkages within their community have a positive influence on development, however, they can also be a problem. Versteeg et al. (2017) found that socio-economic characteristics of smallholder households and their perceptions influenced their ability to adapt to new farming practices. Farmer households in their study felt other urges as well to commit to, like family, church and community commitments besides their working on the land and planting trees. The households perceived this as constraining the adaption of new techniques and maintenance of the trees on their land. However, Versteeg et al. (2017) suggest is that church, community institutions and leaders have an influence within communities and having their support and cooperation is critical for success in a local context. Versteeg et al. (2017) also observed that smallholder farmers on their own have little bargaining power. This makes it hard to receive a fair market price for their produce. Social networks and farmer groups might help in this.

Another constraint found related to social capital were smallholder farmers' poor linkages with important stakeholders like extension workers or governmental agencies. Poor linkages to markets and farmer groups is constraining smallholder farmers as well (Brown et al., 2019; Tihamiyu et al., 2012). Moreover, access to extension services was found to be a problem for smallholder farmers (Abdul-Razak & Kruse, 2017). Access to extension services is important, since these extension services can help smallholders in many aspects, like the improvement of production by providing advisory services or increasing their access to resources like seeds and fertilisers.

Economic capital

The economic capital is the amount a company, organisation or individual can produce by the use of its current financial capital, equipment, labour etcetera. It involves credits, money and other economic assets whereof equipment, seeds or fertilisers are bought with. Economic resources are important for smallholder farmers' adaptive capacity (Abdul-Razak & Kruse, 2017). Moreover, smallholder farmers' capacity to adopt to new programmes can also be dependent on their economic capacity (Nigussie et al., 2017).

Smallholder farmers' face several problems related to economic capital. To start, it is hard to make a living out of a small-scale farm. Small farms are the opposite of economies of scale, and therefore might experience low productivity, high transportation costs and transactional costs, and inefficient markets (Munyua et al., 2009; Versteeg et al., 2017). It is hard to make a living if one would have a small farmland and sometimes jobs besides farming are needed to secure livelihoods (Chand, Prasanna, & Singh, 2011). Some farmers might not have the financial means to buy certain seeds, fertilisers or other products that are needed to grow (Pritchard, 2014). Related to this, farmers might learn that some seeds or fertilisers are better to use than other during a training programme, but are not able to purchase them. This makes it hard to put that what is learned to practice, and undermines the effectiveness of the programme the farmer participated in (Pritchard, 2014). In the study of Versteeg et al. (2017) the access of smallholders to new seeds, inputs and information was a key constraint to adaption (i.e. planting) and maintenance of (new) trees. Availability of seeds seemed to have a big impact in one of the planting areas. Another economic constraint smallholder farmers face is the access to credit (Pritchard, 2014). Some farmers might want the next step to grow and invest in their agricultural activities, but in order to do so, they need to invest financially. Therefore, they need access to credit. In absence of institutions or banks that provide these credits or may ease the access to credits, smallholders might be dependent on NGOs which supported them, but are not able to provide them loans because of their own financial situation (Pritchard, 2014).

Lastly, related to economic capital is the market access of some farmers. Market access, or at least the perception of the market access is important (Versteeg et al., 2017). Smallholder farmers who perceive the market as uncertain, or who perceive the market as having no market opportunities at all can be discouraged to plant or maintain their trees, crops etcetera.

Institutional capital

The institutional capital is about the formal institutions to support individuals or organisations in achieving the desired outcomes. Institutions can help smallholders to have access to certain types of goods or credits (Pritchard, 2014). It is argued that policies do not cover the needs of smallholder farmers (Munyua et al., 2009). Moreover, bureaucracy and corruption can affect smallholder farmers (Berner et al., 2012). For instance, money that is allocated to support smallholder farmers can get lost when corruption is at stake and never reach the farmers in need. In addition, continuously changing policies can make it a risky environment to take certain actions. Lastly, risks are at stake when farmers take on leased land. It might occur that lease farming is not legalised, which is the case in Kerala, India. This comes with risks for the farmers leasing the land (Devi, Thomas, & Solomon, 2017; Haque & Nair, 2014). Haque & Nair (2014) underline the need for legalisation of the leased lands in order to improve livelihoods of landless poor women.

Natural capital

Natural capital are the natural resources (e.g. water, soil, air, living organisms) and environmental services, for example the regulation of water, plant pests. Smallholder farmers are vulnerable to climate change relating aspects, like drought and heavy rainfall (Munyua et al., 2009). Moreover the condition of for instance the soil can increase or decrease a smallholder farmer's performance or ability to adapt to certain circumstances (Brown et al., 2019). The natural capital of smallholders relates to their knowledge and ability to detect and react to environmental changes (van den Berg et al., 2020). The latter is also highly related to their human capital.

2.3 Effective capacity building

In order to improve the types of capital for smallholder farmers in an effective way to increase the capacity of smallholders and support sustainable growth, one should know how capacity building is taken to practice. Many definitions, frameworks and views of capacity building exist. They are described in this section and common views and elements are discussed.

2.3.1 Different levels of capacity building

When reading literature about capacity building, a common understanding is present of the dimensions and different levels wherein capacity building takes place. Those are on an individual level, on an organisational or institutional level, and the enabling environment (Amani, 2016; FAO, 2010; Fukuda-Parr & Lopes, 2013; Morgan & Baser, 2008). The individual level contains the experience, knowledge and skills, but also includes attitudes and behaviours (FAO, 2010). On an individual level, skills are improved via training, but individuals should also have an incentive to change, be motivated to collaborate or to put new working methods into practice (Amani, 2016). The organisational level includes the internal procedures, processes and overall functioning of an organisation. On an organisational level, the capacity of leaders are built, but organisation can also function for communication between individuals and create trust among members (Amani, 2016; Morgan & Baser, 2008). The enabling environment is the context wherein capacity building takes place, and where both individuals as well as organisations function and work (FAO, 2010). This also includes the institutional environment, wherein on an institutional level, policies, legislation, norms, credit facilities etcetera are improved (Amani, 2016).

Fukuda-Parr & Lopes (2013) also say that capacity building takes place at three levels: the individual level, the institutional level, and the societal level. Capacity building at the individual level entails learning and building knowledge skills. Capacity building at an institutional level involves building on existing capacities, whereby one should let current initiatives grow and improve instead of creating total new ones. The societal level focusses on capacity in the society and a transformation for further development. Here it is about creating opportunities for individuals or organisations to expand and use their capacity in real-life (Fukuda-Parr & Lopes, 2013). The three layers are interdependent and need each other to grow and work. According to them capacity building does not only include the learning and training of new skills and knowledge, but it entails the capability to use them. This comprises the different reasons for people to use the skills, so it involves cultural aspects as well, as identified before.

An example about changing cultural aspects can be given on how capacity building includes those three levels, and why considering all three levels is important. Empowering women in agriculture and promoting gender equality does not only come from training women in agriculture: it also requires a new perception and attitude towards women in agriculture. The community should accept that women are able to participate in commercial crop sales, the market itself should change their perception and women's self-perceptions should be changed (Some, 2014). In this example, women's self-perception should be changed, which takes place on the individual level. But household's and market's perceptions should be changed as well, which takes place on an organisational level. The enabling environment can empower women in the agricultural market by changing policies or funds and the community should accept that those women participate in crop sales.

2.3.2 Different approaches towards capacity building

Several approaches towards capacity building in development projects exist. Three of them are discussed in this section.

First we start with the systemic approach to capacity building by Potter & Brough (2004). They argue that capacity building is a concept that is too broad and that it often comprises not much more than training. Therefore, they came up with a systemic approach to capacity building. In their approach, they defined nine components of capacity building. First component is *performance capacity*, which consist of the tools, instruments, money and equipment to perform the intended job. Thereafter, they talk about *personal capacity*, which is according to them the capacity of an individual to do the job. For example, is a person skilled enough to perform a certain task, or does that person need training, experience or motivation? Here they do not only include technical skills, but also interpersonal skills and motivation. The third component of capacity they talk about is the *workload capacity*, so are there enough persons to cover the labour. The fourth component is the *supervisory capacity*, which includes a monitoring system and the deviation of responsibilities among persons. The fifth component is about the *facility capacity*, which is all about training centres and facilities to perform the job itself (i.e. enough space in the building to train people, but also enough offices etc.). The sixth component they describe is the *support service capacity*, which might help workers in the future by supplying, training and administrative staff. The seventh component is the *systems capacity*, which is about communication with the community, proper information systems and the flow of information, which has to be effective timewise as well. The eight component is the *structural capacity*, which is about decision making processes and leans more towards institutional processes. The ninth component is the *role capacity* which is about the authority individuals, groups and committees have to make certain decisions. Potter & Brough (2004) argue that sometimes there might be a lack of skills, but training alone is not going to fix this capacity. Figure 2 shows the capacity pyramid with the nine components. The four layers in this pyramid (tools; skills; staff and infrastructure; and structures, systems and roles) all interrelate. For

instance, the use of tools requires skills, and skills require staff and an infrastructure to perform it (Potter & Brough, 2004).

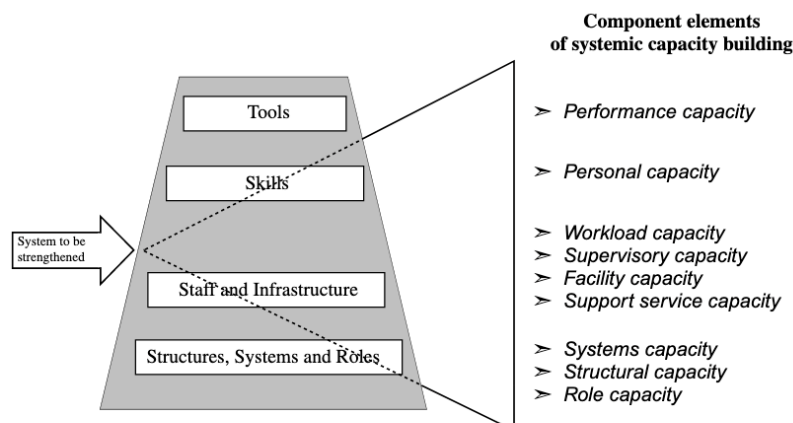


Figure 3. Capacity pyramid as prism

Figure 2 Capacity pyramid as prism, from Potter & Brough (2004, p341)

In the systemic capacity approach Potter & Brough (2004) go beyond training, knowledge and skills that are important for capacity building. However, this approach is more focussed on a whole sector or organisation to function well instead of an individual on itself. However, they do include components that are useful for a smallholder farmer's capacity to grow and they underline the interaction between all components that is taking place. They state that merely training of skills would not be enough. Adding to this, FAO (2010) states, for a capacity training to be effective and enhance change, it has to be done with other modalities of capacity building as well. Those include policy measures, knowledge sharing or support farmers with putting new techniques to practice, which are summarised in Figure 3. In their report they are not really clear about what modalities should be used in combination, because it can be questionable if an intervention would have the means to support farmers in all those aspects.

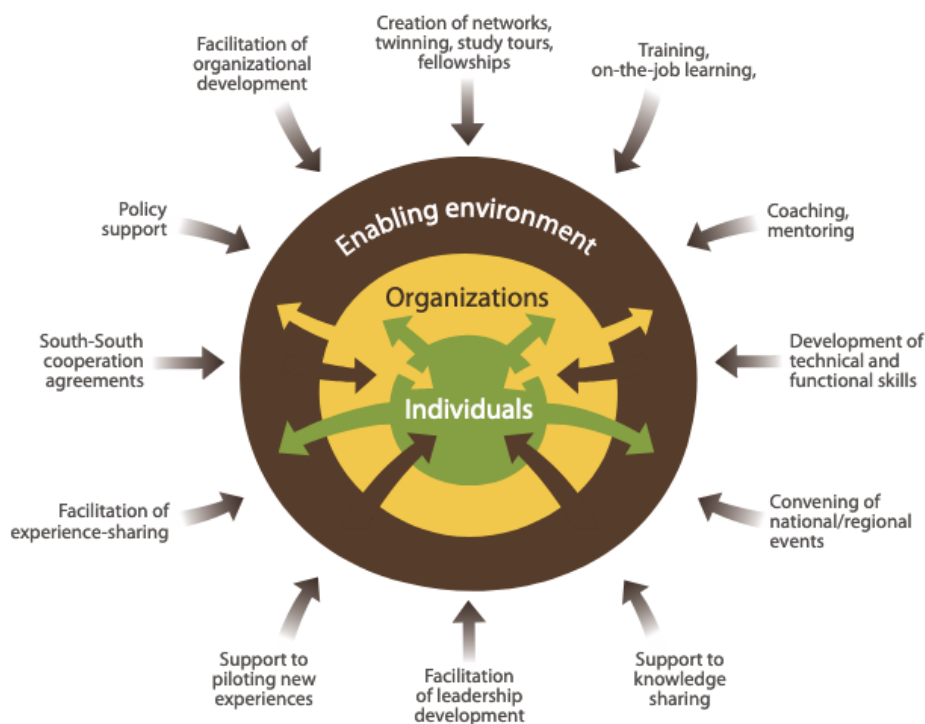


Figure 3 Modalities to support national capacity development processes, from FAO, (2010, p21)

Within the report, FAO (2010) created a capacity development framework, that is depicted in Figure 4. Capacity development is a long-term process, which requires continued follow-up and external support. The framework aims to help identifying the dimensions and types of capacity that need strengthening. It contains three components: technical capacity; functional capacity; and dimensions. In this framework, the technical capacities enhance the structures, strategy processes and technical skills to cope with for instance integrated pest management and the growing and treating of crops (FAO, 2010). Those technical capacities can be taught for instance in workshops and training. The functional capacities enhance capacities which relate to the individual or organisational effectiveness, which are needed to apply the new learned skills and knowledge from the technical capacities. Some examples of functional capacities in this case are management and leadership skills; marketing; soft skills as communication, negotiation skill and advocacy, and strategic planning. The three dimensions in the

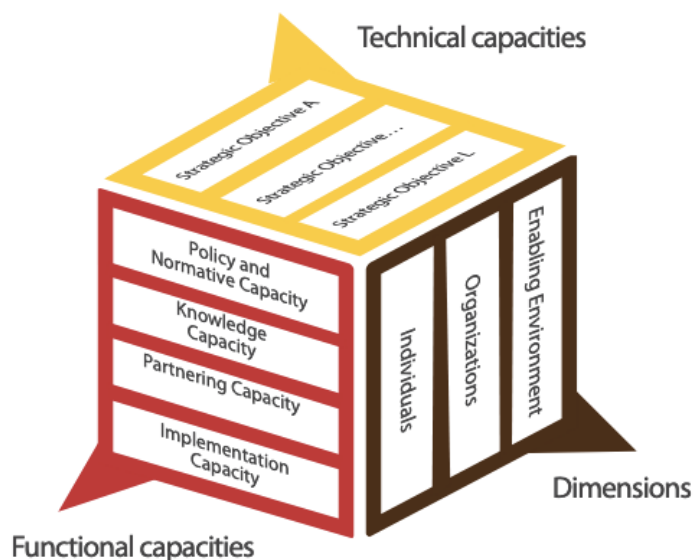


Figure 4 The FAO CD Framework, from FAO (2010, p24)

framework have to be considered in every capacity development process (FAO, 2010). The dimensions work interdependently with others and what happens in one dimension influences the other dimensions.

O’Rafferty et al. (2014) proposed a framework for capacity building for design education. They describe capacity building as: “ *an iterative process iterative process that incorporates the building of frameworks, work cultures, policies, processes and systems enabling an organisation or individual to improve performance to achieve successful outcomes*” (O’Rafferty et al., 2014, p170). Even though the framework of O’Rafferty et al. (2014) focusses on capacity building in design education, some clusters of the framework might be useful for capacity building in an agricultural context. For instance, the culture and values cluster are applicable in an agricultural context as well. It is hard to define, address and measure culture and values, but conflicting cultures should be taken into account. For example, the awareness and attention to the local context can be broadened, respect individuals in their thinking and be aware of a cross-cultural context (O’Rafferty et al., 2014). Additionally, the analytical and organisational clusters are applicable to an agricultural context. The analytical cluster is about the specific hard skills one should have to be sustainable and also considers the costs of a certain approach, whereas the organisational cluster is about the legislation and internal and external cooperation.

2.3.3 Capacity building process

Capacity building is not something that is done in one day, it is a process with several stages. Based on a literature review, Amani (2016) came up with a scheme for the capacity building process, which is depicted in Figure 5. This capacity building process is a cycle, which contains of seven stages. The stages should not be seen as separate, consecutive stages, they can happen at the same time, and the cycle must be seen as an iterative process, with constant feedback.

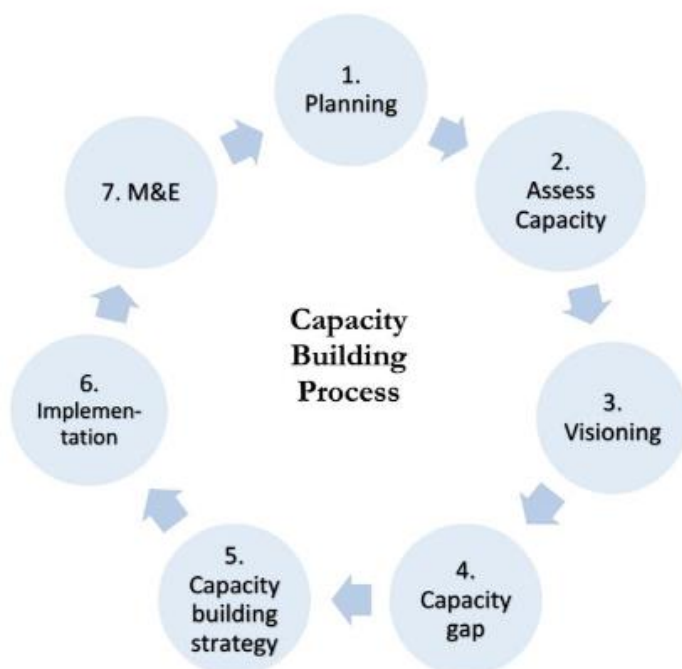


Figure 5 Capacity building process, from Amani, (2016, p48)

The cycle in Figure 5 gives a good overview of a capacity building process and is supported by other authors who describe a similar process of capacity building as well (Amani, 2016; De Vita et al., 2001; FAO, 2010). Capacity building starts with a planning stage, wherein all relevant stakeholders should be

involved. This includes donors, development agencies, NGOs and beneficiaries. In the planning phase, their commitment, needs and motivation should be discovered, and the objectives and different priorities of different stakeholders should be unravelled (Amani, 2016; De Vita et al., 2001; FAO, 2010). Those objectives and priorities might differ between stakeholders, so it is important to generate a shared understanding and goals of the capacity building. This can be done in various ways, e.g. by conducting surveys, having focus groups, organise town meetings or have individual meetings. Information gathered via these methods can provide effective knowledge about the socio-economic status of a community. Moreover, this information can be used as a benchmark for monitoring and evaluation in the future (De Vita et al., 2001). The second step would be to assess the capacity that currently exist (Amani, 2016; De Vita et al., 2001). The results of this assessment can serve as a baseline, to know if the capacity building has actually improved something. The third step is visioning, which involves creating a vision of how the future should look like and to generate long-term and medium-term goals. The fourth step consists of three steps, namely: (1) making goals and objectives of the visions defined in step three; (2) determining the technical and functional capacities that are needed to achieve those goals and objectives; and (3) comparing the current capacities with the needed capacities to find the capacity gaps. The fifth step in the process would then be to translate this capacity gap found in the previous step into objectives and an implementation plan. It might be needed to procure other implementing staff, if current officials are not able to implement the capacity building strategy as planned. The sixth step would be to implement the capacity building strategy on all three levels (institutional, organizational and individual), whereafter it should be monitored and evaluated in the seventh step. De Vita et al. (2001) argue that capacity building is a long process, and the environment wherein operation takes place continuously changes. Monitoring and evaluation can help strengthen the capacity building, by having feedback and making adjustments. As De Vita et al. (2001, p25) state: *“Tailoring the strategy to local needs and organizational readiness is likely to require some flexibility in the approach and expected outcomes”*.

As Amani (2016) mentions, to develop a capacity building strategy should not only enhance training of farmers. It is also providing the farmers with an environment wherein they can apply the learned skills, and follow-up support is needed to have a behavioural change. This can come from an organisational level, wherein incentives might be created, communication is provided and promoted, and barriers towards behavioural change are identified, or from an institutional level, wherein market barriers are removed or an enhancing institutional environment is created (Amani, 2016).

On an individual level it is important that farmers (potential beneficiaries) participate themselves. Herein, the level of participation can differ as well, and have an influence on the outcomes of capacity building (Amani, 2016). For instance, farmers participating by only sitting in a meeting and receiving information does not serve the goal of capacity building. A participatory process in which farmer contribute and are involved in planning, design and implementation does have a positive influence on the outcomes of capacity building (Amani, 2016; FAO, 2010).

2.4 Current capacity building practices of smallholder farmers

In the section before, we already read about approaches towards capacity building and which components seemed to be important when building capacity. To draw conclusions on these findings it is important to know the approaches to capacity building of smallholder farmers are currently executed. Moreover, points for improvements or deficiencies of these practices indicate which elements are currently not accounted for, both in literature as well as in real-life development programmes.

Current capacity building approaches are implemented more bottom-up than top-down. Moreover, more and more recognized is that solving smallholder farmers' problems collaboration, observation, reflection, negotiating are necessary (Kiptot & Franzel, 2015).

Pritchard (2014) discussed some lessons from the capacity building programmes of the International Fund for Agricultural Development (IFAD). He stated that weaknesses exist in the programmes, which have a negative influence on the effectiveness of capacity building. Training needs and capacity gap identification can be improved, training provision can be improved, and planning and coordination with other programme activities should be done. Support after training to put the knowledge into practice was also a point that needs to be addressed. Brabben & Cornish (2005) reviewed the level of capacity development for agricultural water management in Zambia. They concluded that capacity development needs to have a purpose. One has to know what they are building capacity for. Moreover, local stakeholders should be understood and fully collaborate. Looking at an institutional level, they argue that government officials should be explained more what capacity building can do for them, their country and several projects. Lastly, they concluded that the capacity building process should receive more attention as compared to the infrastructure (in this case the irrigation scheme).

Training is one of the most used forms of capacity building. Different forms of training exist, including face-to-face trainings, online trainings and peer-to-peer trainings. In agricultural development projects, mostly face-to-face trainings are provided. Some projects include Technical and Vocation Education and Training (TVET), which is seen as important for development (Oketch, 2007). Moreover, lead farmer and Farmer-to-Farmer approaches have been applied, with different outcomes and improvements for future programmes (Kiptot et al., 2006; Lukuyu et al., 2012). Some scholars argue that Farmer-to-Farmer approaches are successful in a way that farmer trainers continue after project assistance has left (Lukuyu et al., 2012), however, other scholars argue that there is still a space for improvement (Kiptot & Franzel, 2015). For example, within the Farmer-to-Farmer approaches, farmers learn about new technologies, but do not apply them in their local context, which can cause poor implementation of the technology (Kiptot & Franzel, 2015). Another way of promoting capacity training of smallholder farmers is using 'lead farmers', which are experienced farmers who train other less experienced farmers. This approach is used by the FAO in their farmer field schools since 1997 (FAO, 2019). Kusnandar, van Kooten & Brazier (2019) propose a new approach of involving and empowering smallholder farmers and wholesalers, by understanding one another and co-creating solutions. This approach has led to collaboration between farmers, and farmers and wholesalers, who created solutions applied to their own situation.

Kiptot & Franzel (2015) looked at a Farmer-to-Farmer approach, wherein farmer extension services were provided by farmers to farmers. Those include a voluntary farmer-trainer, wherein a farmer volunteers to train other farmers in their communities. This approach argues that farmers can easily spread new technologies, because they are very acquainted to local conditions, culture, and practices. Moreover, trust by the community in them is there as well, since they live in this community. They interviewed voluntary farmer-trainers and asked where there was room for improvement. A mentioned challenge was the lack of training materials, like relevant books, sample seeds, pens etcetera. Moreover, farmers mentioned that there were sometimes too high expectations of the farmers that were being trained. Additionally, some farmers also resisted to change their farming practices. Other challenges mentioned by the farmer-trainers were that there were no incentives for farmers to participate. Creating incentives, like including a brand or certifications can overcome this. One challenge female trainees faced more than male trainees, were family conflicts. Some female trainees were not able to implement what they have learned during the trainings, since it is their husband that makes the decisions withing their household.

The project Kiptot & Franzel (2015) studied was a donor funded project, which support the farmer-trainers, but will come to an end at one point in time. In order for the farmer-trainers to be sustainable (i.e. to continue also when project funding has ended), they suggest that the farmers should be linked to community extension service providers as well, in order to learn from each other (e.g. have the right knowledge and know about new innovations). Lukuyu et al. (2012) see potential for farmer-trainers as well, but state that the farmer trainers should be seen as an addition to traditional extension services. They can help to reach a greater number of farmers and promote new innovations. However, some improvements can be done. Farmer trainers should be assisted more by extension workers, because sometimes they do not possess the right knowledge about several technologies. Moreover, they should be trained in communication and other soft skills (Kiptot & Franzel, 2015; Lukuyu et al., 2012).

van den Berg et al. (2020) reviewed the impact of 65 farmer field schools. They showed that farmer fields school can have a positive effect on human, social, natural and financial capital. Farmer field school enhanced social capital by creating trust, collective action, networking and emancipation. Human capital was increased in terms of innovation, confidence and critical thinking. For the latter one for instance, farmers started to think about why former practices had failed and that it might be caused by themselves instead of it being faith or witchery. Natural capital was increased by improved field practices and agricultural diversification, whereas financial capital was increased through raised incomes and profits. One remarkable thing of this study is, is that not all effects on capital were mentioned, and only one study out of 65 stated a negative effect on a form of capital caused by the farmer field schools (see van den Berg et al., 2020, p6, table 1).

Chivasa (2019) studied the sustainability of support services of adaption of conservation farming and crop diversification in Zimbabwe. The sustainability of the support services seemed to be sufficient, since household farmers were able to continue once main support had left. Farmers stated that providing demonstration plots in every village helped to improve the adaption of the conservation farming techniques, because it helped to spread information and knowledge. Current demonstration plots were too far away for some farmers or hard to access. Moreover, farmers suggested that every household should be provided with farming assistance, and not only the ones with the least power (Chivasa, 2019).

2.5 Implications of the literature review

This literature review gave an overview about the state-of-art of capacity building in agricultural development projects. Section 2.1 described the definition of capacity and capacity building, which not only requires improving skills and knowledge, but also a change in mindset and the environment one operates in. Section 2.2 gave an overview of the main challenges faced by smallholder farmers. Besides, it gave a deeper understanding of challenges related to one's capital. Section 2.3 started with describing the three different levels wherein capacity building takes place, that interrelate. Here the individual level entails individual learning, individual attitudes and perceptions and an individual's skills and knowledge (Amani, 2016; FAO, 2010; Fukuda-Parr & Lopes, 2013; Morgan & Baser, 2008; Some, 2014). The organisational level are the internal procedures and processes, communication between individuals and the enhancement of trust in groups (Amani, 2016; FAO, 2010; Fukuda-Parr & Lopes, 2013; Morgan & Baser, 2008; Some, 2014). The enabling environment entails the context wherein capacity building takes place and the policies and institutions that influence one's capacity (Amani, 2016; FAO, 2010; Fukuda-Parr & Lopes, 2013; Morgan & Baser, 2008; Some, 2014).

Section 2.3.2 elaborated on three frameworks of capacity building. The frameworks gave clear overviews of what elements are important in capacity building, however they do not expose the challenges individuals are face. Moreover, no attention is given if certain elements are more important than others when building capacity. Section 2.3.3 discussed the process of capacity building, with

emphasis on the involvement of relevant stakeholders, identifying their needs and wishes and how capacity building can take place. The last section discussed current capacity building approaches of smallholder farmers in developing countries. This section revealed that sometimes the needs (i.e. local context, needs for certain resources and challenges) of smallholder farmers are not taken into account (Brabben & Cornish, 2005; Kiptot & Franzel, 2015; Pritchard, 2014). Moreover, some authors suggest that additional support is needed in order to have sustained effects of a programme (Kiptot & Franzel, 2015; Lukuyu et al., 2012; Pritchard, 2014).

Following the findings from literature, the capacity building process includes the need for involvement of local stakeholders. Moreover, cultural values and attitudes of individuals are also important for the capacity of an individual. However, a lack of attention is given to the values, attitudes and beliefs in both theory and capacity training approaches. Stated is which capacities are important for sustainable change, but challenges individual farmers face are often not given attention. For example, the capacity development framework proposed by FAO (2010) is specialised for smallholder farmers, but does not describe their challenges in great detail. However, studies show that farmers face many challenges besides having a lack of knowledge and skills, which include a lack of access to resources, market access and commitments besides farming. Besides, often studies do not provide a clear overview of which factors are important to consider when developing a strategy for capacity building in agricultural development projects or often lack attention to the values, attitudes and beliefs. Questions remain which factors in the enabling environment influence a smallholder's capacity and how important values, attitudes and beliefs are. Therefore, a gap in literature exists, which consists of (1) a lack of system: it is not clear what matters most; and (2) a lack of attention for the cultural aspects of capacity building, i.e. the values, attitudes and beliefs. The next chapter will further deliberate on these gaps and proposes a conceptual framework with components important for capacity building of smallholder farmers.

3. Conceptual framework

The literature review provided insights in the current State of Art with respect to capacity in general; challenges smallholder farmers face; how effective capacity building can take place; and what current practices of capacity building exist. These insights provide the basis for an initial conceptual framework on capacity building. This chapter describes the process with which this conceptual framework was devised and explains the conceptual framework and its components in more detail.

3.1 Capacity in this research

Literature shows that capacity building takes places at three different levels: the individual level; the organisational level; and the institutional level (i.e. the enabling environment). Moreover, to achieve change in farming practices of smallholder farmers, not only their knowledge and skill are important, but also (and maybe especially) their perceptions, values, attitudes, mindset and beliefs. A definition of capacity in literature that reflects these aspects to not only includes the skills and knowledge, but also focus on this mindset, value, attitudes and beliefs is the following one, as formulated by Kroesen, Darson, & Ndegwah (2015):

$$C = f[(IESA) + (VAB) + (SI)]$$

Herein the IESA stands for knowledge needed to get things done, defines as: information, experience, skills, and algorithm. VAB stands for values, attitudes and beliefs. Values here include taking responsibility, being open, having internal discipline etcetera. SI stands for the enabling environment: social institutions, policies and regulations supporting particular values and attitudes, and organisation for capacity building. As this definition does not only focus on the training of smallholder farmers to build their capacity, but also focuses on that what is important as well, the values, attitudes, beliefs and the enabling environment, this definition is used in the remainder of this thesis.

3.2 Conceptual framework: Components of capacity

Different capacity problems smallholder farmers face and factors that influence their capacity were identified in the previous chapter. Moreover, several factors were found to be important for a capacity building process. The outcome of the literature review indicates factors to consider when developing a strategy for capacity building. To develop the initial conceptual framework, first components of capacity are selected and defined. The selection criteria for the components were as follows:

- The component is found in the literature review;
- The component is applicable for smallholder farmers in a developing context;
- The component is related to capacity or capacity building; either on an individual, organisational or institutional level.

The criteria above resulted in a selection of 23 components of capacity. The components that met the criteria above were selected and can be found in Table 1. The first column of this table shows the component, the second column the meaning of this component, i.e. what this component comprises, and the third column shows the corresponding authors.

Table 1 Components of capacity

Component	Meaning	Corresponding authors
C1. Knowledge & skills	This entails that which can be taught. It is about the technical knowledge and skills about certain practices. A question here raised is: Does an individual possess the skills knowledge to perform a certain task?	(Abdul-Razak & Kruse, 2017; Brown et al., 2019; FAO, 2010; Potter & Brough, 2004; Tiarniyu et al., 2012; Versteeg et al., 2017)
C2. Training	This is about the training the farmers receive. A lack of training can cause a lack of knowledge and skills, but also the type of training has an influence on performance. For instance, training in the form of teaching in a classroom has a lower success rate than on-site practice, training and learning while doing.	(Abdul-Razak & Kruse, 2017; Brown et al., 2019)
C3. Experience	The years of experience in farming has an influence on the level of knowledge and skills a farmer has, and the ability of a farmer to use new technologies.	(Abdul-Razak & Kruse, 2017; Brown et al., 2019; Versteeg et al., 2017)
C4. Local context	The local context is sometimes forgotten by project developers/executors. Some technologies or practices can be a success in one environment but fail in another. Farmers can learn about new technologies, but if they are not applied to the local context, poor implementation can be a consequence. Assessing the local context and basic needs of a community; and being aware of the local context is therefore important.	(Amani, 2016; De Vita et al., 2001; FAO, 2010; Kiptot & Franzel, 2015; O'Rafferty et al., 2014)
C5. Internal motivation	What is the reason a farmer performs farming? And is there a desire to change by the farmers, or do they want to stay at their old practice? For instance, if a farmer can be seen as a 'survivor farmer' their internal motivation for farming would be to generate a secure income, which makes them probably risk averse.	(Berner et al., 2012; O'Rafferty et al., 2014; Potter & Brough, 2004)
C6. Available resources	The tools, instruments, money and equipment that is available to perform a certain task. Should additional resources be purchased, now or in the future, and are farmers able to do so? Resources include seeds, fertilisers and equipment. They should be available in some sort of way for the intended beneficiary farmers and not only at the start of a programme, but also once main assistance has end.	(Potter & Brough, 2004; Pritchard, 2014; Versteeg et al., 2017)

C7. Vertical networks	Vertical networks can enhance a farmer's performance. This component is about the access and linkages with important stakeholders, like extension workers, civil servant or persons who facilitate credits, that can help farmers to grow. Moreover, it can be hard to access the market if a farmer has no vertical networks.	(Abdul-Razak & Kruse, 2017; Brown et al., 2019; Tihamiyu et al., 2012; Versteeg et al., 2017)
C8. Horizontal networks	Horizontal networks are the relations and connections of individuals within a community, society or group. Farmer groups and the community or neighbourhood are examples of these horizontal networks. Horizontal networks can have a positive influence, in a way that mutual benefits can be achieved together. However, trust and a common meaning are important factors for the performance of horizontal networks.	(Missimer et al., 2017; Tihamiyu et al., 2012; Versteeg et al., 2017)
C9. Regulations, legislation and policies	Institutions, regulations and policies can help farmers to grow. Currently, a misalignment of the policies and farmers' needs exists.	(Munyua et al., 2009; O'Rafferty et al., 2014; Pritchard, 2014)
C10. Monitoring and evaluation	Is there monitoring and evaluation of the programme interventions? Are farmers monitored with the work they do? And is there a chance to give feedback on current practices or feedback for improvement. Implementation phase onwards (so also after implementation).	(Amani, 2016; De Vita et al., 2001; Potter & Brough, 2004)
C11. Support services	Support for farmers after training to put the learned knowledge into practice.	(Berner et al., 2012; J. O. Kroesen et al., 2019; Potter & Brough, 2004; Pritchard, 2014)
C12. Commitments besides farming	Farmers might have commitments besides farming (like their household, church or community) and see the farming on their land only as an additional income. This determines their mindset, but also the amount of labour available.	(Kumari et al., 2018; Potter & Brough, 2004; Versteeg et al., 2017)
C13. Planning for the future	In order to have a sustainable change and an intervention of capacity building to be sustained, independent judgement and planning for the future by the farmer is required. Something can work now, but what about a month from now, or a year, or even five years?	(van den Berg et al., 2020)
C14. Empowerment	Empowerment is important. Lack of empowerment can undermine the confidence in oneself to learn new things into practice or take action. Without empowerment, an intervention of capacity building would be useless.	(Duveskog et al., 2011; Some, 2014; van den Berg et al., 2020) (Potter & Brough, 2004)

C15. Trust	Trust is important. As mentioned, smallholder farmers are risk averse, so why should they participate in a programme to change their current practices? To do so, they should have trust in the programme, but also trust in other stakeholders, like other farmers, extension workers etc. Trust should be built and to gain trust, a long-term commitment is needed.	(Berner et al., 2012; Missimer et al., 2017; Rothstein, 2005)
C16. Market opportunities	A driver for change can be the market opportunities that are available to sell goods. Smallholder farmers who perceive the market as uncertain, or who perceive the market as having no market opportunities at all can be discouraged to plant or maintain their trees, crops etc.	(Munyua et al., 2009; Versteeg et al., 2017)
C17. Involvement of relevant stakeholder early in process	All relevant stakeholders, from experts, NGOs towards smallholder farmers (e.g. intended beneficiaries) should be involved early in the project, for instance already in the planning phase. This way their intentions, commitment, needs and wishes can be defined early in the process.	(Amani, 2016; De Vita et al., 2001; FAO, 2010)
C18. Perception towards farming	In some communities or areas there might be a negative perception towards farming, which influences the willingness to change or grow as well. Farming can be seen as a last resort and a non-respectable or honourable job. Working in the cities is seen as a more attractive option to generate income.	(Kroesen & Ndegwah, 2019; Versteeg et al., 2017)
C19. Available infrastructures	Available infrastructures, like water, accessibility of a farm, draining systems etc.	(De Vita et al., 2001; Munyua et al., 2009; Potter & Brough, 2004)
C20. Ownership land	Is the land owned by the farmer itself, or does the farmer rent the land from someone else? If the latter is the case, it may occur that a farmer may be less willing to invest in the land.	(Devi et al., 2017; Haque & Nair, 2014)
C21. Size of land	The size of land determines how much can be cultivated and how 'big; or 'small' a farmer can potentially become. Moreover, if smallholder farmers can be more efficient in terms of economies of scale.	(Chand et al., 2011; Munyua et al., 2009)
C22. Key activities and current practices	The key activities are the activities the farmer is currently taking. For instance, what is he or she cultivating at the moment? This, together with the current practices, give indications about the farmer's way of farming and his or her mindset.	(Osterwalder & Pigneur, 2010)

C23. Revenue stream	How are current revenues made? Are current revenues made? Are products or crops made on the farm already sold to the market, or are they kept for own consumption?	(Osterwalder & Pigneur, 2010)
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These components were then categorised according to the three dimensions of capacity distinguished in the formula above (Kroesen et al., 2015), wherein Present business performance is added as fourth dimension. The resulting conceptual framework is displayed in Table 2.

Table 2 Conceptual framework components to consider when developing a strategy for capacity building of smallholder farmers

Component	Dimension
C20. Ownership land	Present business performance
C21. Size of land	
C22. Key activities and current practices	
C23. Revenue stream	
C1. Knowledge & skills	IESA
C2. Training	
C3. Experience	
C5. Internal motivation	VAB
C4. Local context	
C12. Commitments besides farming	
C13. Critical thinking / planning for the future	
C14. Empowerment	
C15. Trust	
C18. Perception towards farming	
C6. Available resources	SI (Enabling environment)
C7. Vertical networks	
C8. Horizontal networks	
C9. Regulations, legislation and policies	
C10. Monitoring and evaluation	
C11. Support services	
C16. Market opportunities	
C17. Involvement of relevant stakeholder early in process	
C19. Available infrastructures	

The conceptual framework includes different components that have shown to be important when developing a strategy for capacity building of smallholder farmers. However, as this framework is based on a literature review its applicability is evaluated for a real-life case. The following chapters assesses the conceptual framework accordingly for the case of women smallholder farmers. The next chapter provides an explanation of the evaluation of the conceptual framework.



Part II: Validation

4. Methodology

The previous chapter proposes a conceptual framework for capacity building of smallholder farmers based on the literature. The validity of the conceptual framework is validated and adjusted for a specific case study, namely one that focuses on capacity building for women smallholder farmers in Kerala.

Local stakeholders, women smallholder farmers, experts and academics (1) evaluate the conceptual framework for smallholder farmers in general, (2) propose components that have not been included and are important in the context of women smallholder farmers, leading to (3) the proposed framework for women smallholder farmers. The literature study identified several components of capacity which influence a smallholder's capacity to undertake action. How important these components are in the case of women smallholder farmers and if other components are not mentioned but are considered to be of importance is validated by means of this case study. Capacity building is different in every context and local conditions are important. This section explains the case study itself, the situation of women smallholder farmers in Kerala and how capacity building plays a role, the main research method, semi-structured interviews, used to gather information, the selection of interviewees and other data sources used to form the data that was analysed.

4.1 The case study

This study is an exploratory research, with a qualitative research design. This qualitative research design is the case study on women smallholder farmers in Kerala, India. The case study approach as defined by Yin (1994) is used. Yin (1994) defines a case study as “*an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident*” (Yin, 1994, p13). A case study aims to gain an understanding of a phenomenon in a real-life setting (Yin, 2012). In this case capacity building is the phenomenon, and the case is to study women smallholder farmers in Kerala, India. The case study is centralized around the feasibility of increasing their production and the components that are influencing their capacity to grow. Herein, their current practices, the challenges they face, their motivation to farm, and their enabling environment are examined.

One benefit of the case study approach is that the phenomenon of interest, namely capacity building, is analysed in a real-world context (Yin, 2012). One drawback of a case study as a research approach is that the results are hard to statistically generalize (Yin, 1994). In addition, the results found can be very case specific or specific for the local context in Kerala as well.

4.1.1 Women smallholder farmers in Kerala

The case study for this study focusses on women smallholder farmers in Kerala, India. Kerala is a state in India with a rich ecoculture. In collaboration with mByom Consulting and Management Services this case study is designed to gain a better understanding about the current situation of women smallholder farmers and the feasibility for increasement of their production. mByom is currently introducing an app, called aHope, for aggregation of the produce of women smallholder farmers in Kerala, India. They recognize that one of the main challenges women smallholders face is their lack of access to markets to sell their produce. However, in order to sell produce, production should be up to a level where enough produce is left after taking it for self-consumption. Following from literature, aside from market access being important for the capacity to grow, other factors are influencing this capacity as well. For instance, women face other challenges, including their ability to acquire resources (e.g. seeds and fertilisers) and other commitments besides farming. Therefore, the case study examines the current situation of women smallholder farmers in Kerala, including the feasibility if women smallholder farmers can increase their production, seen the challenges they face. The main question in this case study is, can women

smallholder farmers, who are now merely producing for own consumption, improve their production and enter the market, and if so, how? Herein, the question rises how the capacity of women smallholders can be build and which factors should be considered when developing such a strategy. The interviews will gather information about the current situation of the women smallholder farmers in Kerala and the main challenges they face. Moreover, several experts (i.e. academics and employees/founders of NGOs) are interviewed who have worked with women smallholder farmers in India in the past. This in order to gain a better understanding about which components are important for capacity building of women smallholder farmers.

4.2 Data collection: The interviews

To gain a broader understanding about the current situation of women smallholder farmers in Kerala and which components to consider when building their capacity, interviews were conducted as the main form of data collection. Semi-structured interviews were held, in which participants can elaborate on their answers and follow-up questions can be asked by the researcher. Semi-structured interviews were chosen instead of fully structured interviews or surveys to not hinder the depth and richness of the answers given (Bryman, 2016; Yin, 2012).

Interviews as a research method has some drawbacks. First of all, they can be quite time-consuming to conduct (Yin, 2012). Contacts have to be established with potential participants and arrangements made, the interviews themselves need to be conducted and the data needs to be transcribed and analysed. Secondly, the data gathered may contain very detailed and specific information that only applies to the situation of the women smallholder farmers in Kerala. Thirdly, the researcher may interpret that what is said by the interviewee in a different way than that is meant by the interviewee (Alsaawi, 2014). Moreover, the ideology of the researcher can influence the interview's outcome. This issue can be solved by good preparation by the researcher, in this study by basing the interview on a literature review. Lastly, the results of the interviews cannot be generalised (Yin, 2012). However, since this study is exploratory, generalisation of the findings is not one of the objectives. Therefore, this is not issue.

To gather enough participants in the interviews a collaboration was established with LEAD College of Management, Kerala, by mByom Consulting and Management Services. They brought the researcher of this thesis into contact with a student from LEAD College of Management, who helped arranging interviews by contacting women smallholder farmers in Kerala. Moreover, several experts who have worked with women smallholder farmers in India in the past were contacted via email, phone or LinkedIn with the question to participate in an interview via Zoom. Interviews were held in November and December 2020 via Zoom.

Before the interview, participants were sent a topic list that included themes that were going to be discussed during the interviews for participants to prepare. The topic list can be found in Appendix B Topic list of interviews. A Zoom link was provided to the participants for the date and time agreed. Before starting the interview, the researcher introduced the procedure of the interview and described the way in which the data would be used and stored. The participants were asked for permission for recording of the interview for which they all provided verbal informed consent. The researcher started with a short introduction about the background of the researcher and the aim of this research and introduced the translator. The questions posed during the official interview were directly related to the components of the conceptual framework proposed in Chapter 3. Different questions were asked to different kind of experts. A list of the interview questions can be found in Appendix C Interview questions.

Each interview lasted around one hour. The researcher made notes during the interview about quotes and topics that stood out. Directly after the interview these notes were processed, in combination with an impression of the interview itself. The audio recordings were transcribed in the form of a verbatim by the researcher word-by-word. This verbatim, however, contains only the information that is relevant for this case study for reasons of efficiency. The final transcripts consist of the researcher's notes and the transcribed interview.

4.2.1 The interviewees

Potential interviewees were selected via desk research and through mByom Consulting's network. The initial idea was to solely select experts (initiatives and NGOs) directly involved with women smallholder farmers in Kerala. However, due to circumstances (primarily related to the COVID-19 pandemic) not only experts from Kerala, but also from other states of India were included. Therefore, some of the information gathered in the interviews is not specifically applicable to the women smallholder farmers in Kerala. Potential interviewees were contacted via email, phone or LinkedIn, and asked to participate in an interview via Zoom. Moreover, some of the interviewees introduced other interviewees to participate in this research through snow-balling.

Smallholder women farmers were contacted through mByom Consulting's network. They established a connection with LEAD College of Management, Kerala, an MBA Institute, that provides value-based education in business administration, with a strong focus on agriculture. LEAD selected one student who helped the researcher to establish connections with seven women smallholder farmers in Kerala, to conduct interviews. The student spent five days travelling to farms in his region and asking women smallholder farmers there to participate in an interview.

In total 20 interviews were conducted. Alsaawi (2014) argues that sufficiency can be felt by the researcher herself and that saturation is a good criterion. This criterion was achieved as very little new information was gathered in the last few interviews.

Table 3 depicts the expertise of the participants. A first type of expert is 'worked with women smallholder farmers': a person who works for an NGO or governmental department in India and has supported women smallholder farmers in the past or is currently supporting them. The second type of expert is an 'academic': a person who has conducted research involving women smallholder farmers in India. The third type of expert is a 'marginal farmer in Kerala': a person who knows the local context and the differences (e.g. in the type of problems) between the women smallholder farmers and themselves. The fourth type of expert is a 'woman smallholder farmer': a person who knows about her own situation, the problems she is facing and the environment in which she is working.

Table 3 Expertise of the participants

Participant	Type of expert	Participant	Type of expert
P1	Worked with women smallholder farmers	P11	Marginal farmer in Kerala
P2a & P2b	Worked with women smallholder farmers	P12	Woman smallholder farmer
P3	Academic	P13	Worked with women smallholder farmers
P4	Worked with women smallholder farmers	P14	Woman smallholder farmer
P5a & P5b	Worked with women smallholder farmers	P15	Woman smallholder farmer
P6	Academic	P16	Woman smallholder farmer
P7	Marginal farmer in Kerala	P17	Woman smallholder farmer
P8	Worked with women smallholder farmers	P18	Woman smallholder farmer
P9	Marginal farmer in Kerala	P19	Academic
P10	Woman smallholder farmer	P20	Worked with women smallholder farmers

4.3 Data analysis

The qualitative data gathered is analysed using Atlas.ti software, an analysis and research tool for qualitative data analysis (Frieze, 2019). The interviews were analysed and coded (Frieze, 2019) using pre-determined codes linked to the components of the framework developed in Chapter 3, and emerging codes, identified during analysis of the data.

First step in the analysis was to read all interviews and highlight references to the components or information that was considered to be highly relevant but not directly related to one of the components. Once this was done for all interviews, the second round of analysis was to link codes to the highlighted information. This could be the pre-determined codes which were the components of the framework, or emerging codes. The last round entailed reading all the interviews again, checking the codes and whether any relevant information was not captured in the first two rounds. The results of the analysis are presented in the next chapter.

5. Results

This chapter presents the results of the analysis performed with Atlas.ti. Section 5.1 discusses the codes that belong to the Present Business Performance of the women smallholder farmers. Section 5.2 discusses the codes that belong to Information, Experience, Skills and Algorithm, and section 5.3 discusses the codes that belong to the Values, Attitudes and Beliefs. Section 5.4 finishes this chapter by discussing the codes that belong to the last dimension, the Enabling Environment. The results are substantiated with quotes from the participants. Due to reasons of readability, some quotes are slightly modified preserving the essence of the quote.

5.1 Present Business Performance

Codes that belong to Present Business Performance are: (1) key activities and current practices; (2) revenue stream; (3) ownership and size of land; (4) challenges. The last code, challenges, is a code that emerged during the analysis.

Key activities and current practices

Women smallholder farmers cultivate a **variety of crops** including tomatoes, ladies' fingers, peas, papaya, tapioca, coconut and spinach. They cultivate crops that are **used in their own homes**. This is also the main motivation for the choice of a specific crop. **Decisions on crops** are mostly very practical. As one participant states: *"Me, my children and husband like many types of vegetables. What I am growing we are using for self-consumption. That kind of vegetables I am cultivating."* (P14, woman smallholder farmer). Moreover, a motivation to pick a certain crop over another is the attention or care involved (P15; P18). Only one of the women smallholder farmers who participated in this study farmed with a business purpose and grows cash crops like cardamom, coffee and tea. *"From the beginning itself, we have cultivated the coffee, cardamom and tea. Because these crops only can grow in this hilly area. That is the reason."* (P17, woman smallholder farmer).

When one asked what a **typical day** of one of the women smallholder farmers looks like, similar descriptions are given. *"I will go to the farm in the morning and evening and I will look after the plants and their leaves, to see if there are any flies or insects that have destroyed it. I used to manure by cow dung as a fertiliser, I am doing this fully organic. In the morning and evening I will water the plants."* (P15, woman smallholder farmer). For the other women smallholder farmers this description can be applied as well. They water the plants in the morning and then leave to go to work at their full-time job during the day. In the evening, when they return, they water the plants again (P10, P12, P14, P15, P16, P18). One participant states that only on Sundays she does have time to take better care of the plants, because Sunday is her free day (P16, woman smallholder farmer).

Cultivation in the homesteads is done completely **organically** (P1, P2, P3, P4, P5, P7, P8, P9, P10, P11, P12, P14, P15, P16, P17, P18, P19). The biggest motivation for this organic farming is health. P10: *"It is only because of health. We are healthy because we are eating organic vegetables."* The women smallholder farmers prefer to cultivate their own, organic crops instead of buying crops with chemicals at the nearby shops (P14). Therefore, only organic fertilisers (i.e. manure) are used and chemical pesticides are out of question.

Revenue stream

Currently it is the case that all but one of the women smallholder farmers are only producing for **self-consumption** (by them and their families). Only one of the interviewed women smallholder farmers farmed with a commercial purpose (P17). Produce that is in abundance and not consumed by the direct family is **given to the neighbours for free** (P10; P12; P14; P15; P16; P18). However, one participant states that not much surplus is there: *"I am using the crops only for self-consumption. I don't sell them."*

If there is more than needed for self-consumption, I will give it to my friends.” (P15, woman smallholder farmer).

Ownership and size of land

There are several options for women in Kerala to cultivate crops. First of all, they start cultivating their own land, if they **own a piece of land**. For the seven women smallholder farmers that were interviewed, the latter is the case: they were all cultivating their own land and did therefore not have to rent land (P10; P12; P14; P15; P16; P17; P18). However, as several participants argue, it might be the case that other women do not possess any land and therefore have to rent it (P3; P4; P5; P6; P7; P9; P19; P20). Cultivating on **leased land** can come with some risks. For instance, lease contracts cannot be renewed, while farmers have invested time and energy in cultivating this land (P3). As one participant argues: *“A lot of your issues depend on land ownership. Kerala is one of the fewer states that has gone to a land reform in a way that access to land is a little better distributed and women have better access to it.”* (P3, academic). In Kerala, some women collectives are renting a piece of land and are farming collectively (P3; P4; P20). However, the lease contract is not officially recognised by the State and often lease contracts run for a short period of time, e.g., four months to one year (P7; P20). Therefore, risks come with leased land (P3; P4; P20).

The **size** of the farmlands of homestead farmers is around one acre in Kerala. This has implications for potential growth of the homestead farmers. As one of the participants explains: *“They are not getting wealthy by having one acre of coffee. But they are certainly going to get enough money to buy food, additional clothing, eventually a motorbike which is liberating for them, because they don’t have to depend on local transport, which can be quite prohibitive.”* (P2a). As P2a and P20 express, maybe one farming is seen to be a complementary livelihood instead of completely depending on agriculture for the livelihood.

Challenges

There are several problems women smallholder farmers currently face in Kerala. A first problem is **heavy rainfall**, related to climate change (P4; P7; P9; P10; P11; P12; P17; P18). As one woman smallholder farmer said: *“The biggest obstacle I am facing, is the unconventional change of the climate. ... We have a small amount of land. We don’t know when this rain will come. Every other activity can be controlled, but these disasters can’t be controlled. This is the biggest challenge.”* (P12, woman smallholder farmer). The heavy rainfall destroys the crops of the women and they have no idea how to cope with this. Moreover, crops are also destroyed by **insects and diseases** (P14; P15; P16). The women do not know how to treat the plants, without using the chemical pesticides. The **quality of seeds** is also not always good and affects the yields their crops (P9; P10; P14; P15; P16; P18). As one of the women states: *“We get bad seeds. We want to get the government or the manufacturer to ensure that we are getting the best seeds.”* (P10, woman smallholder farmer). A last issue the women smallholder farmers state they have is the **lack of time**. They only have time to farm in the morning and evening, so expanding or being part of a collective would be too time-consuming (P10; P12; P14; P15; P18).

Participants besides the women smallholder farmers name **financial issues** as a challenge (P1; P3; P7; P9; P13). Women do not always have sufficient economic resources to invest in farming activities to increase production. Moreover, women smallholder farmers have low to zero access to loans if they are not in a Self-Help group. **Market access** is also an issue (P8; P9). One of the reasons for this: *“It will be hard for them to find the market, because the market can get the products at a cheaper rate than that the homesteads can give.”* (P9, marginal farmer in Kerala). A question some participants wonder about was what will happen once assistance from local government leaves. Farmers can be quite **dependent on assistance** (P3; P6; P13; P20). *“If the dependency continues and the women rely on this institution*

(Kudumbashree) for everything. There has to be something more home grown and something that detaches them on this continuous reliance on this institution.” (P6, academic). With this institution, P6 means Kudumbashree, the poverty eradication and women empowerment programme implemented by the Government of Kerala. This institution assists women in Self-Help groups, in a way that they provide loans to these groups. Lastly it is the case that not every farmer receives assistance, even though they need it (P9).

5.2 IESA: Information, Experience, Skills & Algorithm

The codes belonging to this dimension are: (1) knowledge & skills; (2) training; and (3) experience.

Knowledge & Skills

The knowledge & skills of farmers are that which can be taught. It is about the technical knowledge and the skills to perform certain tasks. One common theme found in the interviews is that women smallholder farmers do not possess the knowledge and skills to farm on a larger scale than they are doing currently (P4; P5; P7; P8; P9; P13). They know how to cultivate vegetables in terms of what to produce for self-consumption. However, they do not know how to produce more crops so that there is enough produce left to sell to the market. As one participant argues: *“Primarily there is an information gap. And that gap is how do you strengthen your existing field practices. What pesticides you need to add, what bio fertiliser can you apply, or what specifically can help the crops.”* (P5b, worked with women smallholder farmers). P6 states that the knowledge is present, because women in Kerala are already working in the paddy fields, but that there is room for developing their skills.

A woman smallholder farmer might not possess the knowledge and skills needed to grow, but it can be taught: *“I can give you one example. With one crop I have shown them that this is the cultivation of vegetables. Prior to my visit to the village, they did not know how to grow the vegetables. Now they are growing vegetables. Each and every farmer lady are earning a lot of money by selling the vegetables.”* (P1, worked with women smallholder farmers). Hence, in the case that one does not possess the knowledge and skills needed, the opportunity should be given to gain this knowledge and skills.

Training

The women smallholder farmers **learn** most of their practices and agricultural knowledge from other family members (P10; P12; P14; P15; P16; P17; P18). For example, by knowledge shared from mothers and fathers, who have been practicing farming their whole life. Generation to generation the traditional farming practices are transferred. Only two of the participating women smallholder farmers have received training from outside (P15; P18). P15 obtained this training via the Self-Help Group she is in, and P18 found an advertisement in the newspaper about agricultural classes provided by the government. Other ways the women smallholder farmers gained new knowledge were via YouTube (P12) or via magazines (P17).

Not everyone has **access to training** (P3; P6; P7; P9; P20), even though this is important to grow or gain more knowledge and skills to produce on a larger scale than is done now. Women smallholder farmers state that they do demand more training to gain more knowledge (P15; P18): *“I want to get more training on how to do the farming. The government has to improve their training activities to the farmers.”* (P15, woman smallholder farmer).

How **effective** a training is, also depends on the type of training that is given. A simple 7-day training in a classroom might not be sufficient. *“The women are given a 7-day training, to give them a broader understanding of how this business should work. But with 7 days, that is just a qualification criterion to get the loan. When it comes to actually running the business you will fail.”* (P4, worked with women

smallholder farmers). However, one of the homestead farmers did take some classes provided by the government, which were classes of one hour and said the following how these classes have helped her: *“There I got the knowledge on how to nutrition the soil and how to get the right amount of anything that should be needed in a plant. It really helped me.”* (P18, woman smallholder farmer).

Once training is given, knowledge and skills often improve. Participants who have worked with women smallholder farmers told several success stories of how the training they provided has actually benefited the farmers, and how for instance new agricultural practices, like organic fertilisers were applied (P1; P2; P5; P8; P20). Training can not only help farmers in gaining more knowledge and skills, but it can also be a good exercise for building trust within a group of women farmers (P5). The training provided should meet the wishes of the women, which is sometimes lacking (P5). One participant argued that a training for women farmers should be given by a woman (P1).

Some participants who have worked with women smallholder farmers gave examples of training given merely in classrooms (P4), while others gave examples of trainings done by demonstrations in the field as well (P1; P5; P8). One common thing found is that the farmers were not only supported with training, but also with access to credits, creating a community, having market opportunities and the solvation of other problems.

Experience

In terms of years of experience, the participating women smallholder farmers have been practicing farming for a long time. The women smallholder farmers interviewed were all involved in farming because one of their family members did it as well, so they have had experience with farming from their childhood onwards. They mostly stay with the traditional farming practices, which they have learned from their families. Their experience with the use of technologies is minor (P3; P7; P9; P11; P13; P16). Several reasons were given for this. For example, P7, a marginal farmer in Kerala gave the following reason: *“Because the farmers are not getting much education on how they can expand and how to use the newest technologies.”* Another reason given by participants was the farm size. Most of the women smallholder farmers are farming for own consumption, without any commercial purposes, and only on one acre of land, so the use of technologies would not be feasible (P3; P11; P16). Using technologies would also be a big financial investment for them, which is not feasible.

5.3 VAB: Values, Attitudes, Beliefs

The codes belonging to this dimension are: (1) Internal motivation; (2) Local context; (3) commitments besides farming; (4) Planning for tomorrow; (5) empowerment and confidence; (6) taking risks; (7) trust; (8) perception towards farming. The code taking risks is a code that emerged from the interviews.

Internal motivation

Several motivations were given by participants for why women perform homestead farming. The homestead women themselves gave four main reasons. Reason one was that their **family farmed as well** in the past. Therefore, they felt the urge to continue themselves (P12; P14; P17; P18). Most of them grew up with their parents being farmers. *“My parents were the main motivation for starting this farming. My mother, father, everyone is doing the farming activities. So, I received all the culture from them.”* (P14, woman smallholder farmer). The second reason for being into farming was the **passion** the women feel for farming (P10; P12; P14; P15). *“It is my passion. I am very happy farming. It makes me happy that the vegetables are growing outside the house.”* (P15, woman smallholder farmer). This passion can come from inspiration from family members, as well as the lifestyle it brings. A third reason women smallholder farmers gave is that vegetables and crops can be cultivated completely **organically** when homestead farming. This reason was given by all of the women smallholder farmers (P10; P12;

P14; P15; P16; P17; P18). They believe that eating organic vegetables and fruits is better for the health and that the fruits and vegetables one can buy in the supermarket are full of chemicals and pesticides. As one farmer states: *“If we are not doing this homestead farming, we will have to buy vegetables from the outside shops. It will be much healthier to eat our own vegetables. We are conscious about health and that is the reason why we are into farming.”* (P16, woman smallholder farmer). The last reason, which was given by only one homestead farmer was the **income** one can generate (P17). This was the only woman smallholder farmer who was farming with a commercial purpose. *“I am interested in farming and it provides a good minimum return. A lot of health conditions can be removed. These are all the factors why I want to continue farming”* (P17, woman smallholder farmer).

Reasons other participants gave why women smallholder farmers are into farming were: the way of living that comes with farming (P1; P2); the (extra) income one can generate (P2; P3; P4; P8; P9; P20); and organic farming (P1; P2; P3; P4; P6; P7; P8; P9; P19; P20). Especially the reason for having an (extra) income is one that it might be because women are farming out of a necessity instead of their own willingness (P3; P20). However, some participants (P6 & P7) argue that it is not the motivation of the women to make a living out of farming. P6 stated that there is a lack of motivation for putting all the effort in something they do not know the outcome of: *“I asked women smallholder farmers the question: why don’t you open a business. The answer they gave me was: well, we are very happy, even earning one pound a day, because we don’t have to break our head into getting the raw material, and we don’t have to break our head in going to the market. ... Why should I break my head in accessing a bigger market. This will help my family get the food and basic things they need.”*

A common theme found in the motivation factor was the role that projects or programmes (can) play to motivate farmers to continue or grow. The participants who have worked with women smallholder farmers in the past state that they **created incentives** for the farmers to make sure that the farmers stay motivated (P1; P2; P4; P8; P20). Think about village competitions, e.g. the best farmer of the year, area or village (P1; P2); quizzes with very good, farming related prizes like a spraying machine for fertilisers (P1); or better pricing for higher quality crops or crops where water is used more efficiently (P2; P8). Moreover, economic incentives are used for creating the so-called Self-Help groups, for instance by receiving an amount of 10,000 rupees for the formation of such a group (P4; P20).

Local context

The local context differs everywhere and in India the differences between states regarding the level of development are very big. In the areas where the women smallholder farmers live, a lot of homestead farming happens (P16; P17). Many participants stated that Kerala is already quite developed if one compares it to other states (P3; P4; P6; P13; P19; P20). Especially with respect to women empowerment Kerala is quite ahead. In the late 1990’s, the state introduced a programme of women empowerment, Kudumbashree, which focussed completely on women issues and their empowerment (P3; P5; P19; P20). This institution is still strongly present these days. This might cause why women in Kerala already have the opportunity to leave their houses and go to work.

Even though women in Kerala are quite empowered already when compared to other states in India, there is still a problem of **patriarchy**. Women can work as a farmer, but getting seeds from somewhere or getting access to the market is challenging. Especially the latter is male dominated. This is a long and deep-rooted process that has to be changed. One participant stated: *“Kerala, despite being the most liberal state, patriarchy is still very strong here. Though women are equal in farming activities, they are still short of, in the social frame of things, they are still very supportive to men’s work.”* (P3, academic).

Most of the project initiators seemed to consider the local context and needs of the local community: *“Knowing their needs is what helps us to drive our project. Yes, off course, we are clear that the information that we give is to the point and fits the needs of the community.”* (P5, worked with women smallholder farmers). They also considered the level of patriarchy and how to include women more, in a way that their husband or other male figures would accept it as well (P1; P2; P6; P8).

Commitments besides farming

Being a woman smallholder farmer comes with a lot of responsibilities and commitments. She has to make sure that the family functions, she has to work a part-time or full-time job and she has to take care of the crops (P1; P2; P4; P5; P8; P10; P11; P12; P14; P17; P18; P20). The women are called the ‘housekeepers’ or ‘homemakers’ (P11; P20) and have the responsibility to take care of the family. The participating women smallholder farmers state that they **do not have enough time** available to farm fulltime (P10; P12; P14; P15; P18). As one woman smallholder farmer states: *“I am busy in the business and all the activities, so I may lack the time. I have two children and my own shop. I have a lot of side activities besides the farming. It is hard to manage all.”* (P14, woman smallholder farmer). Six out of seven of the women smallholder farmers were working a full-time job during the day. They only have time to take care of their crops in the morning and evening, or on Sundays. As several respondent state, farming is more of a supplementary activity (P5; P9; P20). Sometimes women are not farming because of **practical reasons**, e.g. they have to take care of the family (P2; P5). Solving those practical challenges by some sort of intervention can help women to start farming (P2). For instance, in the programme of P2, they established a day-care for the children, free of charge, which gave the women the opportunity to go out to the fields during the day and farm.

Planning for tomorrow

To have sustainable change and sustained effects of an intervention, some sort of independent judgement and planning for the future is required by the farmers. For instance, the soil cannot be depleted when farming is continued on the same piece of land. Participants state that the women smallholder farmers do not initially plan for future expansion (P1; P2; P4; P5; P7; P8; P20). *“The homestead farmers are not expecting to expand. They are only thinking about their daily expenses. They are focusing on their segment and not focusing on the future, there is only a short-term plan.”* (P7, marginal farmer in Kerala).

When asked if they kept records of their farming activities, the women smallholder farmers’ answer was no (P16; P17; P18). In their mind they would know what they have been cultivating and since P16 & P18 were farming only for the home purpose, tracking their farming activities would not be necessary.

Some participants who worked with women smallholder farmers made sure that there was an element that focussed on independent judgment and planning for tomorrow within their intervention (P1; P2; P5; P8). For example, they taught the women about soil depletion, the consequences of it and what can be done to avoid this, or established a cultivation calendar, in which the farmers would know what to cultivate when (P1; P2; P5; P8). However, some participants stated that this could be included more, and women should learn to think from a market perspective and plan their farming activities in advance (P4; P7; P8; P20).

Empowerment and confidence

Women empowerment is an important factor for women smallholder farmers in India to grow. Participants state that the women have a lack of confidence and they do not feel self-worthy (P1; P3; P5; P6; P7; P8; P13; P20). *“She does not have any self-worth or self-esteem, because she has not got the respect that she deserves.”* (P1, worked with women smallholder farmers). The participants argue that empowerment of women in the programmes can happen by giving them the confidence that they

can do farming, increasing their feeling of self-value and self-esteem. P5a states the following: *“We asked the females if they are happy doing the agriculture. Now they say they are more confident and happier. Earlier they used to say they are a housewife only. You are taking care of the household, now through our programme, the work is diversified. They say the husband is also giving more importance to the woman.”* The women in the projects are empowered in several ways. For example, interventions made sure that the women were being recognised as important, both as a person as well as in agricultural activities (P1; P2; P5; P6; P13; P14; P20). As one respondent states: *“Because of the platform, women are now seen as homestead farmers. ... I think that has been a shift.”* (P6, academic). Additionally, some participants argue that creating an income for the women and having those women control that income also empowers them in some kind of way (P1; P2; P3; P4; P6; P10; P20). By women providing an income for the household, they can gain more respect and power within the family, one participant argues (P20). In every example of women empowerment from the interviews, an intervention from the outside was converted. Before those interventions, women had never left their houses and it were mostly the men travelling places (P1; P2; P5; P13; P20). P13 said the following: *“The idea of women going out and staying somewhere for a training was not welcome. But we built our training centre within a backyard area, around 35 km from a town, so it was within the village. Somehow, once they came, they could relate to it. So initially they used to say, no it is not possible for us to come, we have to look after our household, we have to look after our children.”* However, it is a step-by-step process, and assistance is needed for the women. *“One has to give the women the feeling they are the farmers, they are the title holder, they are the household heads, kind off. And providing them all kind of inputs through capacity building, so that they can compete with male farmers.”* (P13, worked with women smallholder farmers).

Taking risks

Taking risks can be hard when a lot is at stake or when one is not empowered and has a lack of confidence to take initiative. Not every participant talked about the ability of women to take risks, but the participants who did, stated that it can be quite hard to take risks for the women (P6; P7; P9; P13; P20). Moreover, they stated that the women are quite risk averse. Two of the participating women smallholder farmers also declared they were not able to take risks at the moment. P18 said she preferred to do the small-scale farming, because the last years the heavy rainfall destroyed much farmlands. P12 states that she would like to have a stable income and that this stable income would give her the ability to do whatever she likes in farming related activities, like investing in new crops and techniques. P7 describes the risk averse behaviour as follows: *“But when they are investing their time and money, they are more afraid. ... They are afraid to spend their time on something that won't give them an assurance.”* (P7, marginal farmer). P6 said the following about the women being risk averse: *“So I was telling women why don't you invest in business, you already have so much of money. There were two answers. One was, it is quite risky, because we don't know, even if we invest so much money in this, we will have to return this money and we don't know how much profit this business is going to bring. I understand that you have done surveys and to say that this business is going to be profitable, but I am still not convinced.”* (P6, academic).

Trust

Participants state that trust is important in any relation (P1; P2; P3; P5; P6; P8; P11; P13; P19; P20). Trust is something that has to be created and initially might not be there. When an NGO or initiative approaches a villages or individual farmers to participate in a project, there can be a lack of trust (P2; P5; P8; P11; P13; P19; P20). Farmers might have been disappointed in the past, which creates distrust: *“Women still have a lot of distrust with the system and they fear that the institutional arrangements will not work in their favour in case there is a dispute.”* (P19, academic). However, by open communication,

being transparent, visiting farmers several times and having clear intentions, this trust can be created (P2; P8; P13).

A common theme mentioned by participants was the **ripple effect**. When a project has beneficial effects for the beneficiaries, other non-involved farmers from that area will get interested to be involved in the project as well, seen the positive results for others. This was mentioned by many participants and not only occurs in projects initiated by NGOs, but can also be applicable for the Self-Help groups that are established by women themselves (P1; P2; P4; P6; P7; P8; P11; P12; P13; P14; P20). As one participant mentioned: *“The farmers in the village who are not involved, will also follow if they see that the farmers involved in the project are making progress. They would become interested in the project than as well.”* (P1, worked with women smallholder farmers).

Trust is not only important when an NGO will do some kind of intervention, but also when women are cooperating in terms of a self-help group or a collective. Some participants state that trust issues occur in many self-help groups or collectives (P3; P4; P13; P19), whereas others are more optimistic and state there is trust in almost every collective (P1; P2; P6; P7; P20). The participants who stated the latter argue that initial trust is present at the women in self-help groups, since they already know each other from their community or neighbourhood.

Perception towards farming

The thoughts on how farming is perceived in Kerala differ among participants. Some say that farming is something that attracts many people, because of the lifestyle that comes with it (P1; P4; P12; P14; P15; P16; P17; P20). Others say that it is not an honourable job and most of the people aim for employment in the cities (P5; P6; P7; P9; P11; P19).

In the past, **farming used to be a men’s profession** (P5; P6; P8; P13). However, a lot of tasks in agriculture are performed by women (P2; P3; P6; P13; P14). Even though women were doing most of the labour, they were not recognised as a farmer. Currently this is changing, women are coming forward via several interventions that are taking place and are slowly getting recognised as a farmer as well (P5; P6; P13; P14). *“So as a homestead farmer, women have made that transition: from a woman who always did that labour and did not have the choice to make decisions. Now the choice seems to be promoted a lot because of these interventions.”* (P6, academic). However, participants state that this is a slow transition, and men are still the decision-makers and the ones who will go to the market to sell products (P3; P6; P8). Some participants state that men are doing the professional farming, and women do it only for the home purpose (P9; P11; P18).

5.4 SI: Enabling Environment

The last dimension, enabling environment consists of ten codes. These codes are: (1) Available resources; (2) Vertical networks; (3) Horizontal networks; (4) Regulations, legislation and policies; (5) Monitoring and evaluation; (6) Support services; (7) Market opportunities; (8) Involvement of relevant stakeholder; (9) Available infrastructures; (10) Selection of beneficiaries. The latter code emerged during the analysis.

Available resources

Access to **seeds and fertilisers** can be quite challenging. Farmers can get seeds and fertilisers from the government, the local panchayats or buy them at the local shops nearby, the so-called nurseries (P7; P9; P10; P12; P14; P15; P16; P17; P18). Moreover, some of the women farmers exchange their seeds with others in their Self-Help Groups (P10; P14; P15; P18). Participants state that there is room for improvement (P2; P4; P7; P9; P10; P11; P14; P19; P20). The government should have better quality

seeds available for women and support them in **access to loans** as well. This is also a problem mentioned by participants (P1; P2; P3; P4; P6; P7; P10; P11; P12; P15; P16; P18). On an individual basis it is impossible for women to access a loan. Moreover, it is often the case that the man in the household is the one who controls the money of the household. P1 states that this can be solved with an intervention, by doing the payments online instead of cash, and transferring the money to the woman's bank account. Moreover, through Self Help Groups small loans become available for women smallholder farmers. However, the question here is, is it enough to provide such a loan without further support (P6; P20).

Overall, the availability of resources is lower for women in Kerala when compared to men. For instance, men have the ability to access forms of transportation, like motorbikes and cars, while women are forced to stay in their own bubble (P2; P18; P20). As one participant states (P19, academic): *"In terms, women's capacity, one of the biggest hinders is given their ability to pull resources, they can do a lot more."* Here, the informal relations and patriarchy appears again.

Vertical networks

Vertical networks can help women smallholder farmers to grow. However, some participants state that the homestead women do **not** have **many connections** with local governments, higher governments and markets (P1; P2; P5; P11; P13; P18; P20). *"A governmental institution has various programmes and training programmes. But the problem is that it is not often communicated to the women farmers, and they really cannot access those programmes by themselves."* (P20, worked with women smallholder farmers).

Some of the participating women smallholder farmers do not feel supported by the (local) government and state they require of their support (P15; P18). For example, they would like to have more training in agriculture (P15) and require more financial support (P18).

Vertical networks can be **created via interventions** (P2; P5). For instance, in the programme of P2, they have created a whole network, of coffee farmers, buyers of the coffee and coffee tasters, who are all in contact with one another via the interventions in the programme (P2). *"Now we see we are reaching the unreached in the sense, there are some farmers, they have the field, but because of the lack of linkages with the bank, they stopped doing agriculture. Now, due to our involvement, with a different kind of support, they also become farmers."* (P5a, worked with women smallholder farmers).

Additionally, being in a **Self-Help Group** can help women to improve their linkages with the local panchayats or extension services (P1; P3; P4; P5; P6; P13; P14). As one woman smallholder mentions: *"And when getting in such a group the government will also support by giving the subsidies, schemes. If we are in this group, we are getting many benefits from the government."* (P14, woman smallholder farmer). However, some women smallholder farmers state that they do not have time to be a part of such a group, since they have many other commitments as well (P10; P16).

Horizontal networks

Horizontal networks can be found in several aspects. It can be found at the household level and the relation between a husband and wife; the Self-Help Groups in which women participate; the neighbourhoods in which the women live; and the relation between men and women in their neighbourhoods. Most of the women farmers state that they are in good contact with their neighbours (P10; P12; P14; P15; P16; P17; P18). They share seeds with one another, ideas and knowledge about (new) crops or cultivation practices and motivate one another in farming practices. In Self-Help Groups, women farmers discuss their issues and family things (P3; P4; P14) and they will exchange seeds and other resources. Moreover, being in such a group can help the women to access loans and credits.

The **farming** can be done **individually** or as a **collective**. None of the participating women smallholder farmers were farming collectively. They stated that they were not interested in this, because of a lack of time, or because they are only cultivating for the household (P10; P14; P16). However, it can be the case that women farm in a collective of around five women. They can lease a piece of land to cultivate (P4; P6; P7; P8; P9; P14; P20). Participants state that in these groups self-organisation takes place and women will divide tasks based on their competences (P1; P6; P8). Moreover, it can benefit the farmers in a way that they can learn from one another, share responsibilities and reap more benefits as a group.

There is also a strong **sharing mentality** present at the women smallholder farmers (P2; P10; P12; P14; P16; P17). Women farmers share their vegetables or seeds that are left with their neighbours or group members from the collectives they are in. *“Yes, we will help each other. We will share with one another. When I am making some sort of vegetables, I will give it to others and others will give their vegetables to me as well.”* (P16, woman smallholder farmer). The reason for this sharing mentality does not become completely clear during the interviews. It can be culturally determined, but it can also be the case that the women do not know how to sell their products or that they do not feel confident doing this, since they have never done that before. The overall impression from the interviews is that the neighbours are important, but that family is the most important thing.

Horizontal networks can increase women’s capacities, however, the opposite can also be true. When looking at the relations and way of **interacting between men and women** in a village, there are considerations that need to be taken into account. First of all, men are seen as the decision-makers (P2; P5; P8; P9; P13). Especially considering farming, they are the ones who will go to the market, sell the produce and make strategic decisions. One participant (P6, academic) argues that it also has to do with the type of decision that has to be made: *“If the decisions are more strategic, like the market, they are mostly made by the men. But if the decisions are more of operational kind, for instance, if these plants will need irrigation at 3 pm today, that is it, that is where the role of women becomes prominent.”*

Considering the farming related work, women are the ones doing most of the labour (P5; P6; P7; P8; P13; P19), while men are the ones performing some dominant activities, like the selling of produce. This also has to do with **the mobility factor**. Men are the ones who can leave their homes and have better access to forms of transportation (P3; P5; P20). Therefore, they are the ones who travel and go the market.

Regulations, legislation and policies

Regulations and policies from the government are changing continuously (P4; P13). When the government is changes, that happens every four years, the regulations and policies change as well. This has impacts on the homestead farmers, who are already quite dependent on government support (P4), but also on project managers who work on behalf of the government (P13). Some participants argue that the government supports large-scale farmers more instead of small-scale farmers, even though small-scale farmers do demand support (P11; P18). Two of the women smallholder farmers stated they were content with the support they are receiving from the government (P14; P15). In Kerala there are also problems with policies regarding cultivation on leased land. Since leased land is not formalised, the farmers cultivating on leased land are not insured or not able to obtain certain certificates (P20).

The challenge that will come when all the support and institutions disappear, and women smallholder farmers have to continue on their own is also mentioned (P3; P6; P20). *“I think, it is whatever we have seen in Kerala, it has always been in the light of Kudumbashree. I am wondering if this institution disappears, say, something happens and this institution is no longer there. What is going to happen with those women in Kerala. What do we do then? Or do the women say, even if the institution is not there,*

we are well capacitated enough in agriculture, in production, marketing operation, everything. That is the challenge.” (P6, academic).

Monitoring & evaluation

This code was not discussed in-depth during the interviews. However, some NGOs did state that they give constant feedback to the farmers (P2; P4; P5). The women smallholder farmers themselves stated that they do not monitor their cultivation practices or the amount of crops they harvest.

Support services

Some of the support givers (i.e. NGOs) support women smallholder farmers in many areas. Herein, they did not only teach farmers about new techniques, the use of fertilisers, or how to grow a certain crop, but they also provided farmers with market access, continuous feedback on cultivation and advise services (P1; P2; P5; P8; P13).

What some participants stated what made their projects successful was: *“I think for me it was the fact that we had a sort of agreement that we would be there as long as the community needed us. It wasn’t like a 5 year programme and then all the assets were sold off and the vehicle goes and the guy goes back to Germany or America and that is the end of it.”* (P2a, worked with women smallholder farmers). Or as P5 states, they will first assess the needs of farmers, and based on that needs introduce new crops and provide them with advisory support. They will not only train the farmers in new techniques, but also have a helpline through which farmers can call and ask for advice. *“It is not like a one-time thing of providing information”* (P5a, worked with women smallholder farmers). Moreover, P1 and P5 declare that their support is available in an extended way, e.g. via phone or ICT systems that the farmers use. This makes it easier for them to communicate and provide more farmers with the right amount of information at the right time.

Some of the participants stated that they are there for the long-term (P1; P2; P5). They would live in the villages, interact and become a part of the community. Being there for a longer period of time provides the opportunity to have a sustainable intervention and convey some sort of lifestyle participants argue. However, it requires a lot of commitment as they stated, asks a lot of the trainer’s private life and is not possible for everyone. It also depends on the (type of) funding that is available. P13 explains that they can only carry out projects for a period of five years, because of financial constraints and their dependency on donors, like with many projects (P13). However, P13 did describe the most ideal situation: *“You have to complete the circle. If you produce and entrepreneur, that entrepreneur has to be successful. Once that circle completes, you start as a trainee, you become a good trainer, after training you start an initiative. For that initiative you have to have financial support, you have to have technical guidance, you have to have marketing support. After all that and some good luck, you have this circle succeed. Once this circle completes, then you have many more people coming forward. But if that circle does not complete, say it was a good training, she started very well, but at some point she got stuck, because marketing is not possible. So the circle is not complete. So it won’t lead to some more followers. So a long-term programme is required, where such a circle completes. That is a dream in most of the government programmes, it is not easy. It is very hard.”* (P13, worked with women smallholder farmers).

Market opportunities

As a smallholder farmer it is quite hard to access the market when there is not much produce left after crops are used for self-consumption. The produce of the women smallholder farmers interviewed are currently too low for selling to the market, except for P17, the homestead farmer who produces with a commercial purpose. Several participants state that the women smallholder farmers do not have access

to the market to sell their produce (P3; P4; P6; P7; P9; P13; P20). There are several reasons for this. First of all, they are too small to deliver a sufficient and guaranteed amount of produce for the market. P9 states that the market can get the products at a cheaper rate, from a commercial farmer, than the homestead can give. P7 argues that the homestead farmers also do not know how to approach a market, since they have never done this, and linkages are poor. Moreover, P3 and P6 argue that the market is also **male dominated**. P3 summarises the main problems as follows: *“Well, it is very difficult to access a market. For various reasons, think about the physical location of the market, the players in the market, the market relationships, the dominance of maybe male agents in the market. The role of patriarchy. The relation is very much in favour of men and mobility is an issue. So, there are difficulties to overcome.”* (P3, academic).

Some NGOs did assist the farmers in accessing the market (P1; P2; P5; P8; P19; P20). For instance, P1, P2 and P8 would invite buyers for the produce to the villages. Moreover, P5 used to buy the produce of the farmers and sell it via a Farmer Producer Group, which is already close to some sort of aggregation. Several participants argue that **aggregation** can be a solution for women smallholders to enter the market (P3; P4; P7). By collaborating, through aggregation, they have a stronger bargaining position and the buyers have a quantity assurance. However, in this process there should be an element of trust and everyone should gain equally.

Involvement of relevant stakeholders (early in the process)

This factor was not discussed in depth, but the interviews indicated that the farmers are included early in the process of project preparation, especially in the process of selecting beneficiaries (P1; P2; P5; P8). As P5a states, they will first look and assess the needs of the farmers before they start a project. Based on that needs they will provide advice. P6, however, also stated that a lot of capacity exercises happen in Kerala where the needs are not always taken into account and that project initiators determine what will be taught to the women, instead of hearing their needs.

Available infrastructures

As mentioned before, Kerala is already a quite developed state. All the women smallholder farmers said they had good water access (P10; P12; P14-18). Only one women smallholder farmers said it is difficult to have water in March, but that the government provides water from one central point, that the farmers can bring back to the farmlands (P17). The participating women smallholder farmers also have access to internet and a mobile phone. There are opportunities to use the latter to get better access to information for women. This is not always done, as one participant says: *“This is also one of the ways to connect the women, with computer, mobile phone. Nowadays everybody has a mobile. But how they are using it, that makes a lot of difference.”* (P5a). Programmes and initiatives supporting women smallholder farmers are also making use of ICT, like mobile phones and computers to communicate with the farmers (P1; P5; P8). For example, they are available for questions of the homestead farmers via WhatsApp or phone calls (P1; P5) or could assist them via Zoom when travelling to the farms was not possible due to the COVID pandemic (P8).

Selection of beneficiaries

A common theme that occurred during the interviews was how NGOs and support givers select their beneficiaries. Motivation (P1; P2; P5; P13) was one of the main criteria for the selection of small or marginal women smallholder farmers (P1; P2; P6; P8; P13; P20). They have proven to be motivated farmers based on field visits by the NGOs and insights on their intentions, their habits and motivation for being involved. As one participant stated: *“When I feel that farmers are very cooperative and they are interested in improving their agriculture, then I adopt this village”*. (P1, worked with women smallholder farmers). Furthermore, it can be the case that a particular area is selected and farmers living

in this area are the intended participants (P1; P2; P5; P8; P13). What some NGOs did as well was to select participants based on project objectives (P5; P15). For example, if a project needs to train 5000 farmers, 5000 farmers are selected (P13). This has also to do with the requirements of the donor(s), i.e. the funding party. It is not the case that potential participants will join a programme right away, they may need to be convinced of the value of the project to build a relation of trust (P2; P13). This is especially the case when a community is approached that has never heard of the assisting party/NGO.

6. Discussion

This chapter discusses the results presented in the previous chapter. The results indicate that to increase the production of women smallholder farmers, not only the knowledge and skills need to be considered. Nearly all of the NGOs interviewed provide women smallholder farmers not only with training, but also assist women with other challenges they face, like the practical challenge of having many responsibilities and having to take care of the household; creating opportunities for market access; and increasing the ability to access credits. They stated that it is better to be there for the long-term, to support a sort of lifestyle and to create a self-sufficient community. This also indicates that a change is required in the values, attitudes and beliefs of a woman smallholder farmer and her surroundings, so merely training in knowledge and skills is not enough. The implications of the results are discussed in this chapter. The results of the interviews are compared with the findings of the literature review. Different points and views are discussed. A framework is proposed with components to be considered when designing a strategy for capacity building of women smallholder farmers in agricultural development projects. This framework is further elaborated in the last section of this chapter.

6.1 The woman smallholder farmer (and what to cope with)

No woman smallholder farmer is the same and every individual has to cope with his or her own problems, opportunities and view of the world. Therefore, the following description should not be generalised, but should be seen as commonly found elements that might be applicable and that should be taken into consideration when developing a strategy for capacity building of women smallholder farmers. Similarities are found regarding a woman smallholder farmer's daily occupation, her problems and what she has to cope with in her daily life.

6.1.1 Her knowledge and skills

A woman smallholder farmer **has to cope with** many challenges including climate change, which results in heavy rainfall destroying their crops; insects and diseases that destroy their crops; the quality of seeds that is not always guaranteed; their lack of time for farming activities; the market that is hard to access; and financial issues, like the access to loans. These problems are also highlighted by several authors in literature (Brown et al., 2019; Fan et al., 2013; Munyua et al., 2009; Tihamiyu et al., 2012; Versteeg et al., 2017). As the results suggest, the experience of women smallholder farmers with non-traditional practices and technologies is low. Solving these challenges requires the right **knowledge and skills** from the women smallholder farmers, which, as stated by the participants, can be attained by training if women farmers are given the opportunity. However, merely training in knowledge and skills is not enough. It would also require a change in the mindset of the women and the ability to **plan for tomorrow**, knowing what demand there is in the market and knowing how to position oneself.

Literature suggests that the years of **experience** is highly correlated with smallholder farmers ability to use new technologies and their knowledge & skills (Abdul-Razak & Kruse, 2017). The results of this study suggest that it is not sufficient to look at the number of years of experience in farming, but more at what type of experience is present. Most of the women smallholder farmers in this study have been practicing farming for many years, but do not have sufficient knowledge or skills on how to cope with insects, diseases and heavy rainfall destroying their crops. Moreover, they have only produced crops for their own-consumption and have never produced on a larger scale. Therefore, a suggestion is not to look at the years of experience, but to look at farmers' experience in using technologies in farming, in cultivating different types of crops and in coping with diseases and other threats.

6.2 Her values, attitudes and beliefs

The main motivation of women smallholder farmers to farm is because of the organic farming and the health advantages it brings. Why would you buy the fruits and vegetables that contain chemical from the market, if you can cultivate them yourself in an organic way?

Being a woman smallholder farmer in Kerala entails a lot of **responsibilities** and **commitments**. There are responsibilities associated to the role of the so-called 'housekeeper' or 'homemaker' and has to take care of the family. Others are associated to making sure the crops are growing whilst working outside of the home during the day. These commitments make it hard for a woman smallholder farmer to grow as an entrepreneur, especially as they rarely receive support from their husband or family members in these activities, as Kumari et al. (2018) already argued in their study. This time-constraint is mentioned by several authors in the literature review (Kumari et al., 2018; Potter & Brough, 2004; Versteeg et al., 2017) and is something that should not be overlooked. It constraints the ability of a woman to grow in her farming practices.

What follows from the overall impression of the women smallholder farmers in Kerala is that their main **internal motivation** for doing homestead farming is that they want to cultivate their own, organic crops, for self-consumption. They can be seen as **survivor farmers**, as defined by Berner, Gomez, & Knorringa (2012). They diversify their crops, use the crops for own consumption and are risk averse. They cultivate what they have always cultivated and what their father or mother has taught them. Moreover, the impression from the interviews suggests that they are not very growth-oriented. They work during the day to generate an extra income for their families and farm during the mornings and evenings to provide their families with organic vegetables and fruits. As Wright (1999) describes they do not put all of their eggs in one basket, but diversify their activities to support their families. They do not reflect on their current situation and do not **plan for tomorrow**, nor do they consider a market perspective or plan their farming activities in advance in order to grow. The results suggest that planning for tomorrow is required to grow as a farmer. However, this is something that is not learned in a single training session, or overnight; this is trial and error, learning while doing, and therefore requires long-term commitment. It is something that has to be triggered. That it is not present at the moment, certainly does not mean it is not possible.

As mentioned before, the women smallholder farmers who participated in this study learned their farming practices from their parents. They perform **traditional farming practices**. It is hard for them to switch, since they have been doing what they have always been doing (Scheba, 2017). As Scheba (2017) argues, it is important to meet farmers' expectations when introducing new practices and think about their attitudes towards new practices. It can be that the women smallholder farmers want to stick with their traditional practices, especially if new practices are imposed on them instead of introduced in dialogue.

When women smallholder farmers were asked if they would want to sell some of their extra produce to others, their answer was no. They would give it to the neighbours, as they also do in return. This **sharing-mentality** is deeply rooted in their culture and this attitude might be very hard to overcome. As Kroesen et al. (2015) argue, a change in this value system is a long-term process and not something that can be taught in one training session or imposed to the farmers by other stakeholders. Women smallholder farmers can be taught to produce more, but the question is what they want to do with this produce. They cannot be forced to sell it, because an outsider thinks it would be better for them to do so. It is their own attitude toward this that has to change and changing this attitude takes time. However, the question is if this sharing-mentality is something that should be changed. Only the people of a community can tell this, so it requires careful listening to their needs by project initiators. If the sharing-mentality is valued

as very important, opting for a community that becomes self-sufficient wherein this sharing-mentality is still present is also an option.

It can be hard to take **risks** if there is a lot at stake. A homestead farmer is already exposed to many risks when she invests time, effort and money in cultivating crops, which can be destroyed by insects, diseases or heavy rainfall that they cannot control. Moreover, the women smallholder farmers have to make an income, have to feed their family and state that they cannot just quit their job to become a full-time farmer, if risks are not reduced. In addition, the women did not seem willing to take risks. As Fan et al. (2013) state, risks can lead to smallholder farmers being risk-averse, wherein they have strategies that involve lower-risk and lower-yielding agricultural activities. Eventually, this can trap smallholders in a cycle of having no or little profits, with fewer opportunities to be more productive or innovate (Fan et al., 2013). The ability to take risks by smallholder farmers can increase when they are provided with risk-mitigating tools, such as insured financial support or continuous support in their farming activities (Fan et al., 2013). However, a smallholder farmer would need to be willing to accept this support, which requires trust, the next point of discussion.

Participants stated that **trust** is important for development in line with the literature (Missimer et al., 2017; Rothstein, 2005). Women smallholder farmers need to trust NGOs or initiatives that are willing to assist them in their farming activities. This trust is not initially there and has to be created. Open communication, transparency, repeated face-to-face visits and clear intentions can create this trust. Once trust is there it can always be broken. Trust can also be found in the self-help groups in which women operate. Issues of trust are present in these groups, but are less intrusive as these group are formed by women who already know each other from their neighbourhood, so there can be some trust initially.

Empowerment was also found to be an important aspect that influences a homestead's capacity. The results showed that women in Kerala are less empowered when compared to men, caused by a history of patriarchy and cultural attitudes towards the role of men and women in society. The results suggest that in many cases women do not have any self-worth at the beginning of an intervention, but if an intervention includes a focus on empowerment of women, the women can gain more confidence and are empowered to a certain extent. Interventions made sure that women are being recognised and made important, or that women could have more control over the finances of their household. Some (2014) suggests how empowerment of women farmers can be done. Not only training should take place, but, again, women should believe in themselves and their environment should also start recognising women as farmers instead of merely housekeepers or labourers.

6.3 Her enabling environment

Several points of the discussion above have already pointed towards the enabling environment in which women operate. This enabling environment entails the institutions, both formal (rules, policies, regulations, government connections) and informal (culture, norms, mutual relations). Not only policies influence a woman smallholder farmer's ability to take certain actions, but also the informal institutions and perception towards women strongly influences the things she can and cannot do.

6.3.1 Their values, attitudes and beliefs

Individuals themselves have attitudes and beliefs. The ability of an individual to grow is, however, strongly influence by the values, attitudes and beliefs of their environment. To illustrate, a certain **perception towards women in farming** in Kerala is found. Especially in the past, women were not seen as farmers, but they were seen as labourers in farming. It is hard for women to make decisions regarding selling their produce: that is what men do. Men are recognized as farmers and men are the decision-makers. This is something that is deeply-rooted, something that has been that way for decades

and therefore something that is hard to change. This fact is described in other studies as well (Carnegie et al., 2020; Hillenbrand, 2010).

The results do not give one particular **perception towards farming** in general in Kerala. Some participants argued that it attracts many people because of the lifestyle that comes with, others argued that people aim for jobs in the city. It is therefore hard to draw any conclusions regarding if the perception towards farming in Kerala influences the willingness to change or grow as a farmer there, which is highlighted in literature (Kroesen, Darson, & Ndegwah, 2019; Versteeg et al., 2017).

6.3.2 Available resources & market opportunities

Access to seeds and fertilisers was shown to be very hard for homestead farmers. This is a challenge that has been identified in other cases as well (Mukta et al., 2020; Versteeg et al., 2017; Vorley et al., 2012). Moreover, **access to credits** and loans is a challenge identified both in this study as well as in others (Awuor, Raburu, Onditi, & Rambim, 2016; Brown et al., 2019; Pritchard, 2014). Lastly, **access to market** is a substantial problem for homestead farmers, also both found in this study as well in literature (Abdul-Razak & Kruse, 2017; Brown et al., 2019; Kumari et al., 2018; Versteeg et al., 2017). For women smallholder farmers in India, it can be extra hard to access a market since the results show that the market is male dominated.

6.3.3 The importance of (in)formal institutions

Both formal and informal institutions influence the ability of a homestead farmer to perform certain actions and tasks. The **formal institutions** consist of the rules, policies and regulations homestead farmers have to deal with and the vertical networks of homestead farmers. The latter includes the linkages of homestead farmers with the market, extension services, local government and the state and central government. The policies, regulations and rules fluctuate substantially and change in case a new government is installed. This also entails risks for homestead farmers, since they cannot completely rely on policies that currently in place.

Not only formal institutions are important, the results indicate that **informal institutions** are remarkably important as well. Informal institutions define the **relations between people in a community**, and specifically the relation between **men and women**. The relations between people in this case affect the ability of women to leave the house, to be entrepreneurial and to take initiative. Examples of how these informal institutions affect women include market access and mobility. With respect to the rules and regulations in India, there are not regulations that only men can sell their products at/to the market. However, informally, the market is led by men. Women have fewer if no opportunities to access the market, as they are less accepted. Several participants gave examples of how a woman would be questioned when she went to a market or facility run by men. People would question her intentions and wonder why she would want to sell her produce. A second illustration of such an informal institution influencing the ability of women to grow is the following. The **ability** of homestead women **to travel** is much lower. In the results this is referred to as the mobility factor. In many cases it is the man in the household who is the one travelling places, meeting other men in open gatherings. The results suggest that women have a lower ability to access resources and do not have the access to forms of transportation the way men have. This is in line what can be found in literature (Hillenbrand, 2010; IFAD, 2015; Kumari et al., 2018). Moreover, as Kumari et al. (2018) state, this limitation makes women quite dependent on their husbands should they want to sell products at a physical market, to which they need to travel.

Both examples are not something new. Family support is needed in order for a woman to grow (Kumari et al., 2018), but female smallholder farmers face more family conflicts when compared to men (Kiptot

& Franzel, 2015). Vorley et al. (2012) stated women have less access to goods, land, credits, and extension services, something that can be supported by the results of this study. As discussed earlier, men are seen as the decision-makers. Informal institutions influence the capacity of women to take initiative to a great extent. Formally it is possible for a woman to step up and say, today I want to go out of the house and cultivate more crops, which I am going to sell. However, informal institutions hinder this capacity for taking initiative.

In some cases, informal institutions hinder capacity building, but they can also enhance capability building, especially in horizontal networks. The results show that a **ripple effect** can occur in communities in which positive impacts of initiatives are shared and spread easier. This effect can be used to the advantage of development, for instance by creating a stronger community or by involving more farmers in a project to improve the livelihoods of their own community.

6.3.4 Providing support: merely training is not enough

A common theme found in the interviews is that the **type of support** provided is important. The results suggest that in many cases only giving training is not sufficient, since not only knowledge and skills have to be improved, but also attitudes, values and perceptions have to be overcome. This is not something that is done with merely one training session (FAO, 2010; Kiptot & Franzel, 2015; Kroesen et al., 2015; Pritchard, 2014). Many participants stated that it would be best if farmers received support in different areas and for a longer period of time. This also backs the ongoing debate in literature, that capacity building is not merely about training of capacities, but that it is a long-term process, which requires continued follow-up and external support (Amani, 2016; De Vita et al., 2001; FAO, 2010). Amani (2016) stated that farmers should, besides training of knowledge, be provided with an environment wherein they can apply the learned skills. Moreover, follow-up support is needed for a behavioural and sustained change. Even though the results of this study do not mention this in the exact same words, participants state that they would support the farmers not only in providing trainings and improving their knowledge, but also in other areas like creating market access, giving continuous support and feedback about the cultivation practices and assist in other, more practical issues, like childcare or health services. The **duration of support** given differed among participants, but all participants that discussed this topic stated that being there for a longer period of time, so providing support in the long-term, is more effective to have sustainable development. This in order to support change in lifestyle in communities to become self-sufficient. In addition, the cycle can be closed and communities can be supported in several areas at the same time, thus contributing to sustainable development. This also relates to the need of long time involvement to enable change in mindset and attitudes, as stated by Kroesen et al. (2015). However, it does take a commitment of initiators and support staff to support communities for the long-term.

Within an intervention of capacity building, we are dealing with a complex system, wherein attitudes and informal relations play a big role on the ability of someone to take certain actions. This case study studied women smallholder farmers in Kerala. It became clear that the history of patriarchy and attitudes towards women in farming are hindering women's abilities to acquire resources and take action. Moreover, their own attitudes and confidence are hindering them as well. It is the case here that a woman cannot do certain things without the help of an intervention and the help of her husband (Doss, 2018). Therefore, the question arises whether an intervention for homestead women should merely focus on homestead women, or if it should include their husbands and the community in which they live as well.

6.4 Homestead farming: improving livelihoods or growing big?

One point for further discussion is the level to which women smallholder farmers can grow. With respect to the **size of land**, most of the women smallholder farmers have one acre of land, which is, to visualize

it, around 60% of a soccer court. Some participants stated that a homestead farmer is not going to get rich from one acre of land. However, if approached from another perspective, the perspective of improving livelihoods and creating an extra income for the farmers, it can be an improvement of their quality of life. Hence, initiatives might focus more on having communities being self-sufficient and creating an extra income, instead of these women smallholder farmers becoming farmers of large scale.

Another point worth mentioning is that some participants were pointing out that women might be very dependent on support from an organisation or initiative. They argue that women stay dependent, and this is not what is needed for sustainable growth. There has to be a point in time where they can do it on their own.

6.5 A framework for capacity building of women smallholder farmers

Then there is of course the question: how can women smallholder farmers, who are now merely producing for own consumption, grow and enter the market? The answer to this question is not straightforward, as for many complex systems: it depends. This study provides many insights in components that influence the capacity of women smallholder farmers to take action and grow as farmers. Their own knowledge and skills are important, but equally important are their values, attitudes and beliefs and the environment in which they operate. These components are included in the framework this section presents: the components to consider when developing a strategy for capacity building of smallholder farmers. This framework was initially based on the literature, evaluated by means of the interviews, and revised for the case of women smallholder farmers based on this evaluation. The framework applied to women smallholder farmers is depicted in Figure 6 and elaborated on below.

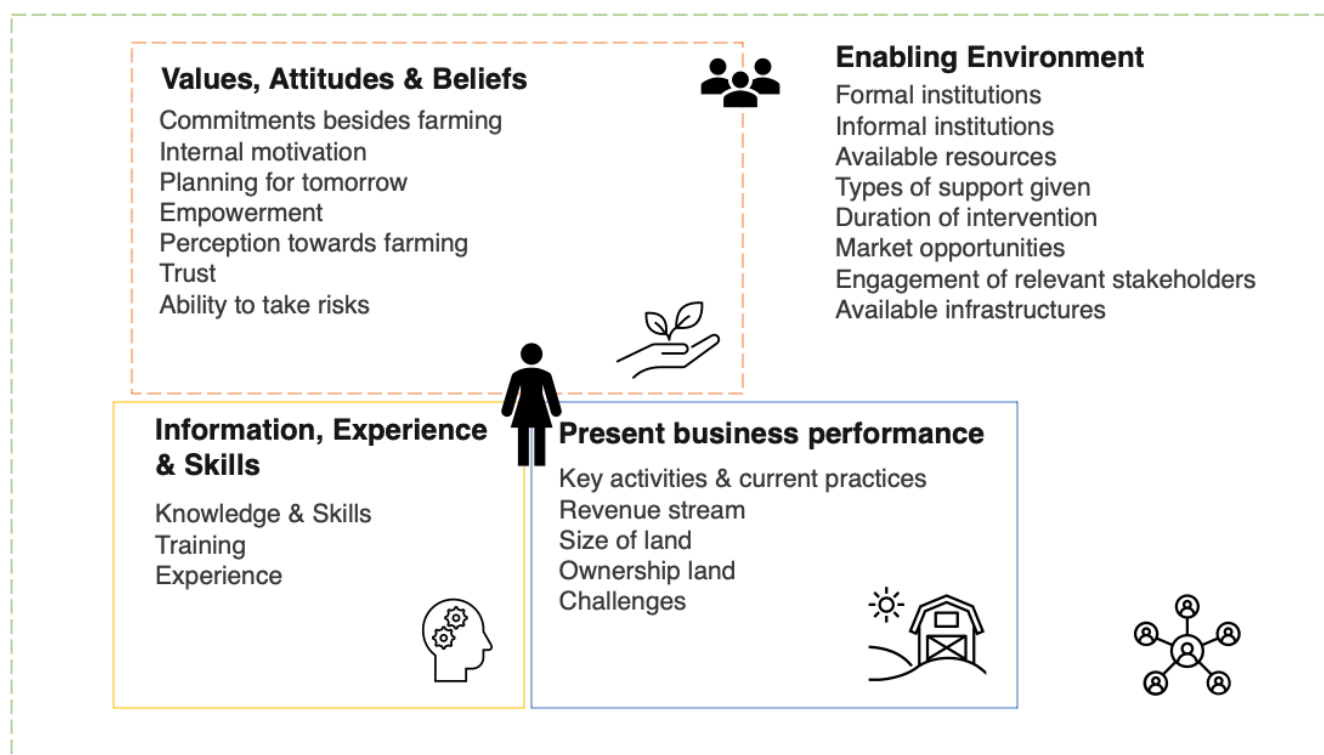


Figure 6 Components to consider when developing a strategy for capacity building of women smallholder farmers

The framework distinguishes four different dimensions that interact and support each other. For instance, possessing the knowledge and skills to do something does not suffice, there is also the need to feel empowered enough to undertake action with this knowledge. Moreover, the environment should

also enable an individual to come forward. For example, through informal institutions, the relation between men and women and the ability of women to acquire certain resources and make decisions.

The dotted line around Values, Attitudes & Beliefs in Figure 6 indicates that VAB pertains to not only the individual herself, but also to her surroundings. For example, the perception towards farming pertains to an individual, but also includes the perceptions towards women in farming as perceived by a community. In the case of the homestead women in Kerala, women were not recognised as farmers for a long period of time, but rather as labourers or housekeepers who help or support their husbands. This inhibits their ability to make decisions or potentially grow as farmers.

The case study focused on women smallholder farmers. Therefore, the conceptual framework developed in chapter 3, which focussed on smallholder farmers in general, is adjusted for capacity building of women smallholder farmers. Challenges a smallholder man face may differ when compared to the challenges a woman faces. To illustrate, the informal institutions in the case study revealed that men are the decision-makers and can go to the market. Therefore, this component is influencing the capacity of women smallholder farmers to a considerable extent and can be of less importance for the capacity of men. For a generalisation of the proposed framework a new study should be considered, focussing on both men and women smallholder farmers.

Table 4 explains the components in more detail.

Table 4 Components of the framework explained

Component	Meaning	Dimension
Key activities and current practices	The key activities are the activities the farmer is currently taking. For instance, what is he or she cultivating at the moment? And what does a typical day of a farmer look like?	Present Business Performance
Revenue stream	Current revenue streams indicate how incomes are generated and if crops are already being sold to the market, or merely kept for self-consumption. Moreover, it indicates the ability of a farmer to invest themselves or not.	
Size of land	The size of land determines how much can be cultivated and to what extent a farmer can grow. If a farmer has one acre of land, the objectives of improving cultivating can be different as if a farmer has ten acres of land available.	
Ownership land	Ownership of land determines the risks involved and the willingness to invest. In general smallholder farmers who cultivate leased land, face more risks than farmers who cultivate their own land.	
Challenges	Smallholder farmers may face challenges already. Knowing these challenges can enhance solution of these challenges.	
Knowledge & skills	This entails that which can be taught: the technical knowledge and skills about certain practices. A question here raised is: Does an individual possess the skills knowledge to perform a certain task? If not, what can be done to increase it?	Information, Experience & Skills

Training	This factor is about the training the farmers receive and about how they have learned their current practices. To illustrate, it can be the case that a smallholder farmer has learned most of the agricultural practices from his/her parents. In that case, the attitude of such a farmer towards new practices initiated can be quite sceptical as compared to a farmer who has already been introduced to other cultivation practices than what their parents would do. Training also has to do with what type of training is given to increase capacity. Training in the form of teaching in a classroom has a lower success rate than on-site practice and learning while doing.	
Experience	If a farmer already has experience with introducing new techniques or crops at the farm, it could be of positive influence on the ability and willingness of a farmer to use new techniques or change their traditional practices.	
Internal motivation	Knowing why a farmer is into farming is important. Farmers who are farming because they want to earn money have different attitudes and objectives as compared to farmers who are farming because they want to provide their household with organic crops.	Values, Attitudes & Beliefs
Local context	Assessing the local context and basic needs of a community; and being aware of the local context is important. Some technologies or practices can be a success in one environment but fail in another. Farmers can learn about new technologies, but if they are not applied to the local context or do not meet their needs, poor implementation can be a consequence.	
Commitments besides farming	A smallholder farmer can have many commitments besides farming, that influence the time available to cultivate crops. It might not be feasible for a smallholder to cultivate more than they are doing at that moment, because of other commitments and practical issues. Commitments can also determine the mindset. A lack of interest in increasing production can be present, since other commitments are more important to him or her.	
Planning for tomorrow	Thinking from a market perspective and planning for what to cultivate when and what impact it has, can help to improve production and improve livelihoods, if the thoughts are put to practice.	
Empowerment	Empowerment is important. A lack of empowerment can undermine the confidence in oneself to learn new things into practice or take action. A lack of empowerment can be expected when working with smallholder women farmers in certain contexts. If an intervention includes empowerment, more confidence can be gained.	

Trust	Trust is essential for smallholder participation in an intervention. Trust in other stakeholders, like farmers in the neighbourhood is important as well. Trust is something that might not be present initially, but it can be created and should continuously be worked on.	
Perception towards farming	A negative attitude towards farming can influence the willingness of smallholder farmers to change, continue farming or grow. Farming can be seen as a last resort. Moreover, the perception towards women in farming, e.g., they are not recognised as farmers but as labourers, can influence their capacity and ability to take action.	
Ability to take risks	A smallholder farmer can be exposed to many risks, which can destroy their cultivated crops and threaten their income. The ability of farmers to take risks and to what level this is possible, strongly influences their farming practice. Maybe, risk-mitigating tools are needed.	
Formal institutions	Formal institutions are the policies, regulations and networks with local government at stake and include the vertical networks with linkages between farmers and local government, extension services and the market to sell produce.	Enabling Environment
Informal institutions	Informal institutions are often based on the norms, values and relations between people in a community. Informal institutions can determine the ability to take action or perform certain tasks.	
Available resources	The availability of resources can be poor for smallholder farmers. They can have low access to high quality seeds and fertilisers, which influences their production. Assistance or improvement of access might be required.	
Types of support given	Different types of support can be given, with different impacts, ranging from only training and transferring knowledge (that is not enough for a sustainable change) to more continuous support, that effects values, attitudes and beliefs.	
Duration of intervention	The duration of an intervention is of importance, especially if values, attitudes and beliefs are to be challenged. Changing attitudes and what one has also done or believed takes time.	
Market opportunities	Market opportunities for smallholder farmers can be poor. They are small, do not produce enough or at the right quality, and on their own they do not have the right bargaining power. Assisting them in awareness and access to the market can help them, but also looking at what the market demands is important.	
Engagement of relevant stakeholders	Engaging all relevant stakeholders, ranging from the homestead farmers to NGOs and the local government, is important. Stakeholder intentions, commitment, needs and	

	wishes should be defined early in the process, to avoid top-down approaches.	
Available infrastructures	The available infrastructures, like water, accessibility of a farm, draining systems etc.. strongly influence daily farming practice. This component also involves infrastructures like internet.	

7. Conclusion and Recommendations

This chapter concludes this study by providing an answer to the research question and sub-questions of this study. The first section of this chapter revisits the sub-questions that jointly lead up to the answer of the main research question. The second section of this chapter will give recommendations for the Kerala project, whereafter the third section answers the research question of this study. The fourth section discusses the limitations of this study. Lastly this chapter concludes with recommendations for future research.

7.1 Answering the sub-questions

In total, seven sub-questions were to be answered in this study. The literature study provided answers to the first three sub-questions, whereby the case study provided answers to the last four sub-questions. Sub-question one is as follows: (1) *What capacity problems are smallholder farmers in developing countries currently facing?* This sub-question is answered in chapter 2. Smallholder farmers face several challenges related to their capacity. They can have challenges related to their human capital, social capital, economic capital, institutional capital or natural capital. Related to their human capital a lack of knowledge and skills, a lack of training, a lack of experience, and a lack of confidence are challenges smallholder farmers face. Related to their social capital poor linkages with important stakeholders, like extension services or the market, are challenging smallholder farmers. Challenges with their economic capital are the financial means to buy certain seeds and fertilisers and the access to loans and credits. Relating to their institutional capital, both formal and informal institutions can hinder their capacity to grow as a farmer. For instance, certain policies do not cover smallholder farmers' needs, and bureaucracy and corruption might affect them. Lastly, smallholder farmers can be vulnerable to climate change relating aspects, like heavy rainfall, which is relevant for their natural capital. All these challenges hinder a smallholder farmer to undertake certain activities and grow as a farmer. The literature study also gave examples for specific challenges women smallholders face. Challenges include no landownership, no recognition as a farmer, mobility restrictions, and fewer access to certain resources, including seeds and fertilizers.

The second sub-question (2) *How do current agricultural projects focussed on smallholder farmers in developing countries include components of capacity?* is answered by examining different approaches of capacity building in agricultural development projects. This is done in section 2.4 of this thesis. Several approaches of capacity building exist, with all different outcomes. An overall finding is that sometimes the needs of smallholder farmers are not taken into account in capacity building initiatives. Training is provided without taking into account what the intended beneficiaries, in this case the smallholder farmers, want and require (e.g. financial assistance, better access to seeds and fertilisers) in order to build their capacity. Moreover, not every agricultural development project provided additional support after main support was given, while some authors suggest that additional support is needed in order to have sustained effects of a programme.

The third sub-question (3) *What are key components for effective capacity building?* is answered by combining the findings of the literature review into a conceptual framework. This proposed framework is established in chapter 3 and is depicted in Table 2. The 23 components in this framework are key components for effective capacity building. The components are designated to one of the dimensions of the capacity model of Kroesen et al. (2015), whereby the dimension of Present Business Performance is added. This results in a conceptual framework, with four dimensions: (1) Present Business Performance; (2) Information, Experience, Skills and Algorithm; (3) Values, Attitudes and Beliefs; and (4) SI: Enabling Environment.

To partially validate and adjust the conceptual framework to women, a case study concerning women smallholder farmers in Kerala, India is executed. Therefore, the fourth sub-question is as follows: (4) *How are current practices of women smallholder farmers in Kerala?* The results of the interviews revealed the current practices of women smallholder farmers. Women smallholder farmers are mostly cultivating crops for own consumption. They have a strong sharing mentality, which is also present among other individuals in their community. Extra produce is given to their neighbours, as they also do in return. Women smallholder farmers in Kerala are already diversifying their crops, but do not produce up to the level where enough produce is left to sell to the market. Moreover, several challenges are constraining their production, including heavy rainfall or insects destroying their crops, no access to high quality seeds and no access to loans. Most of the participating women smallholder farmers are working during the day, so only have time to take care of their crops during the morning and evening. Farming is learned by their parents and organic farming is remarkably important for them, because of the health advantages it brings.

To adjust the proposed framework to the case of women smallholders, it is also important to understand how the different components of capacity are valued by various experts. Therefore, sub-question five is as follows: (5) *How do experts, academia, smallholder women farmers and other important stakeholders in India value the different components of capacity?* Most components of the conceptual framework are applicable for women smallholder farmers in Kerala. Importance is given by participants to knowledge and skills for the capacity of women smallholder farmers. However, other components are valued important for their capacity as well. For instance, some participants highly value the type and duration of support that is given. Suggested is that one training about new cultivation practices will not be sufficient for women smallholder farmers to increase production. Long-term support and support in different areas are important. The latter may vary from increasing knowledge, changing a mindset and attitudes, and assisting in market access. It is about closing the cycle. In addition, components related to the values, attitudes and beliefs are important for capacity building. These include the commitments an individual has besides farming, which can hinder him or her in the farming activities, the perception towards farming, relations of trust, the internal motivation of a smallholder to farm and the ability to take risks. Herein, not only the values, attitudes and beliefs of an individual smallholder are important, also the values, attitudes and beliefs of their environment are essential. To illustrate, participants suggested that the perception of a community towards women in farming could hinder women to grow as farmers. In some cases, women are perceived as homemakers or labourers but not as farmers, which hinders them to undertake certain activities, like accessing markets or travel places.

The literature study did not reveal the importance of informal institutions in great detail. Nonetheless, the importance of informal institutions is highlighted in the case study. The different experts participating in this study gave several examples of how informal institutions hinder women smallholder farmers in their capacity and ability to grow as farmers. For instance, women have fewer possibilities to acquire resources and are in many cases inferior to men. Participants suggest that interventions are needed to break this cycle.

Sub-question six comprises the traditional mindset of women smallholder farmers in building capacity. The sub-question is as follows (6) *How is the traditional mindset of women smallholder farmers in Kerala currently taken into account in building capacity?* It is hard to give a straight answer to this sub-question based on the case-study, since not all experts in the interview have worked with women smallholder farmers in Kerala: some experts worked with women smallholder farmers from other states in India. However, most participants involved in these projects stated that they were looking at the needs of the community. Moreover, many of them recognised the problem of the environment wherein women

operate. Revealed is that women are in many cases not recognised as farmers. Therefore, a change in mindset of both women as well as their environment is needed. The results suggest that this can be done by an intervention if a focus is allocated to this aspect.

In the Kerala project initiated by mByom Consulting it is the case that some women smallholder farmers are introduced to an app wherein they can aggregate their products. Given the findings in this research, women smallholder farmers are currently merely producing for own consumption. Moreover, a surplus of the crops is shared with the neighbours. The results indicate several reasons why production of crops by women smallholder farmers cannot increase from one day to the other. First of all, they have many commitments besides farming. They are working during the day and only have time to take care of their crops during the early morning or evening. Moreover, currently problems like insects or heavy rainfall destroying their crops are undermining their production. It can be risky to invest in more seeds and invest more time in farming practices if the women are not sure about the outcomes of it. It would therefore not be enough to provide the women with an app to create market access or support them with a loan to invest in their farming activities: support in other areas is needed as well. Therefore, several recommendations in the Kerala project are made, which are discussed in the next section.

7.2 Recommendations for the Kerala project

The last sub-question of this study refers to the implications of the results of this study for the Kerala project and was as follows: (7) *What recommendations can be made in the Kerala project, in order to have a strategy for effective capacity building?* The case study showed that market access was not the only challenge women smallholder farmers in Kerala face. For instance, heavy rainfall and insects are destroying their crops, women smallholders have little access to good quality seeds and fertilisers and women have other commitments as well. Therefore, a recommendation for the Kerala project is to not only provide the women smallholder farmers with an app wherein they can sell their produce, but also go beyond. If the objective of the Kerala project is to improve the livelihoods of women smallholder farmers by selling their produce to the market, the project should develop a strategy to build the capacity of the homestead women themselves for increasing their production. The women are now producing merely for self-consumption, so increasing their productivity requires a change in their current practices. The proposed framework can help in the development of a strategy for capacity building by taking into account all components of the framework.

The results of this study provide a comprehensive overview of what all components of the framework for women smallholder farmers in Kerala comprise and what challenges currently occur. A first suggestion in the Kerala project is to support the women in improving their skills and knowledge, since they are challenged by heavy rainfall and insects destroying their crops. However, women have many commitments besides their farming work, so chances are they are not be able to scale-up their production from one day to another. Therefore, a second suggestion in the Kerala project is to look at what can be done in the aspect of time constraints. If women are to be expected to invest more time in the farming work, there should be accounted for their commitments. Another important recommendation for the Kerala project is to know that one has to cope with different attitudes of both individuals and their surroundings. With women smallholder farmers it is the case that they are often seen as labourer instead of farmer and are often inferior to men, which makes it is hard for them to come forward. It cannot be expected that women can come forward by just one simple intervention. Perceptions of communities should change, wherein women are more welcomed and perceived as farmers and decision-makers, wherein they have the ability to travel and wherein men dominating the market accept women coming forward. Interventions can help in this, but only when the components important for capacity building are considered. Moreover, if a new community is approached to participate in an intervention, a relation

of trust should be built. If an app is introduced, but no one knows who the initiator is, chances are that intended users will refuse to make use of this app.

Building the capacity of women smallholder farmers is a complicated process, since many components should be considered. However, once all components are considered and a strategy for capacity building is designed and executed correctly, it can bring many benefits for homestead farmers and improve their quality of life. Not only in the short-term, but also in the long run.

7.3 Answering the research question

The main research question of this study is as follows: *Can capacity building be included in agricultural projects focussed on smallholder farmers in developing countries, and if so, how?*

By performing a literature study and case study, which resulted in a proposed framework with components to consider when developing a strategy for capacity building of women smallholder farmers, this research question is answered. Capacity building in agricultural development projects can be included in a way that the components found important are considered when developing a strategy for capacity building. The components relate to the dimensions: (1) the present business performance of a smallholder farmer; (2) the information, experience and skills of a smallholder farmer; (3) the values, attitudes and beliefs of both a smallholder farmer as well as the community they live in; and (4) the enabling environment. The dimensions interact and support each other.

The case study revealed that the type of support and duration of it is important for capacity building of women smallholder farmers. Since values, attitudes and beliefs are important for capacity building, a long-term intervention can enhance sustained benefits. Moreover, support in several areas, so not only in the knowledge and skills, but also in for instance empowerment and changing attitudes towards women in farming, can enhance sustained benefits as well.

Besides this, the case study illustrated the importance of informal institutions for capacity building. Building the capacity of women smallholder farmers to increase production in a way by providing only training would be useless, if they would not be accepted at the market or are not allowed to get access to certain seeds and fertilisers. In many cases, attitudes of communities and individuals should change. This requires time and the right type of intervention. Moreover, it cannot be expected that intended beneficiaries will accept assistance from an NGO right away. A relation of trust should be built. One should follow the rhythm of the local community and listen to their needs, instead of imposing initiatives from top-down.

This study suggested several recommendations, that are summarized below:

1. Building capacity is a long-term process, since it not only requires the training of knowledge and skills, but also includes values, attitudes and beliefs.
2. This study indicates that the duration and type of support are important: long-term support is needed for a self-sufficient community to evolve.
3. The enabling environment wherein a woman smallholder farmer operates influences her capacity to grow. Therefore, a recommendation is to not only focus on an individual woman farmer, but also consider her surrounding community (i.e. enabling environment).
4. The importance of informal institutions should not be underestimated. This study shows that informal institutions, like the relationship between men and women, are strongly influencing the capacity of a woman smallholder farmer to grow.
5. When starting to work with a community, a relation of trust should be built. It cannot be expected that this trust is there from the start onwards.

As simple as it sounds, building capacity, it is the opposite. It is a complicated process, wherein one has to think about many components that are important for the capacity of a smallholder farmer to grow. It

cannot be expected that one training about ways to increase a smallholder farmer's production will result in actual increased production: there are many more elements affecting this. This has to do with the fact that not only knowledge has to be increased, but that a change of mindset is required. A change of this mindset or attitude of a farmer and its surrounding is not completed in one day. This asks for time and long-term involvement. However, long-term involvement can be hard. It does require considerable commitment of project initiators to be present for the long-term and available funding. This is hard, but when it is possible it can have a positive impact on the livelihoods of many.

7.4 Limitations

This study has several limitations. The first limitation is the influence of the COVID-19 pandemic, which made it impossible for the researcher to travel to India to conduct the case study. Travelling to India would give the researcher the opportunity to get an even better understanding of the local context in India and would provide more in-depth information about the situation of the women smallholder farmers. In some cases, the information of the interviews did not reveal any shortcomings, but it can be the case that these shortcomings are present and would have been identified during real field observations. However, the design of the interview did give a comprehensive impression of the situation of the women smallholder farmers in Kerala and their main challenges.

A second limitation in this study is the language barrier. The researcher does not speak any Malayalam, the language of the women smallholder farmers. Therefore, a student from LEAD College of Management was recruited to act as a translator during the interviews with the women smallholder farmers. This was very helpful, however, it is the case that some information the women smallholder farmers provided got lost during the translation. Adding to this, women smallholder farmers in Kerala turned out to be quite shy to talk in front of a camera with a Western student. First of all, this made it hard for the student from LEAD College of Management to find women who were willing to participate in an interview. Moreover, this can have an influence on the collected data. The women smallholder farmers who participated in the interviews are already quite empowered when compared to others. As discussed in the proposed framework, this can have an influence on their capacity to grow as a farmer. Moreover, it could have given an optimistic impression of the women smallholder farmers, so it can be the case that other women smallholder farmers face other problems besides the ones found.

A fourth limitation is also in regard to the data collection. All data was collected by means of interviews via Zoom. For most people working from home these days and having meetings online, it is no surprise that this comes with some technical issues sometimes. In four interviews it was the case that the internet connection was unstable. In three of these interviews this problem was solved by turning off the video connection via Zoom. However, in one interview this did not solve the unstable connection, so some parts of the answers by the participant got lost. This made it sometimes hard to analyse this interview, because it was not always clear what exactly was said.

A fifth limitation is in regard to the data analysis. Since this study is a case study with a qualitative research approach, some limitations could not have been avoided. The findings cannot be generalised since only a small sample (N=20) was used to collect data. However, since this is an exploratory research, generalisation of the data was not one of the research objectives. To validate the proposed framework even better, it should therefore be applied to other cases as well. A last limitation can be found in the framework itself. Reality is that building capacity is complex. When applying the framework, this complexity should be considered. Capacity building interventions have to deal with many stakeholders and individuals, who all have their own challenges, opinions and needs. This complex reality cannot be captured in one simple framework that proposes several components.

7.5 Future research

Several suggestions for future research can be given. Since the proposed framework was validated by means of a case study of women smallholder farmers in India, a suggestion for future research is that the proposed framework is validated in other developing countries as well. For instance, maybe it is found that in an Africa or South American context other components are important for women smallholder farmers that were not important for capacity building in an Indian context. This can validate and improve the proposed framework. A second suggestion for future research is to validate the proposed framework by project developers of agricultural development projects who have conducted multiple capacity building initiatives. Their experience can be of high value. Thirdly, a suggestion for future research is to validate the framework for male smallholder farmers. It would be interesting to see which components are included in the framework specifically for men, and how the importance of the components differs when compared to the proposed framework for women. Having a clear overview of the differences can also help project initiators to become more aware of specific components that are more important in the context of women smallholder farmers when compared to the context of men smallholder farmers.

A fourth suggestion for future research is to further elaborate on the mismatch of agricultural development projects and the (non-)sustained outcomes of them. The literature study suggested that there are still many cases wherein an attempt for capacity building is made, but wherein the effects of these initiatives (e.g. farmers actually improving their production for a longer period of time) after the intervention are hard to see. Therefore, a suggestion is to research what requirements an agricultural development project focussed on capacity building of smallholder farmers should meet in order to have sustained effects.

The proposed framework suggests that long-term involvement is required in order to build capacity in a way that effects are sustained and smallholder farmers can grow. However, this long-term involvement does ask for substantial commitment by project executors and a substantial amount of funding that is available. It is the case, however, that many projects are funded for a certain amount of time, for example for three to five years. Therefore, a suggestion for future research is to look at opportunities if funding could be available for a longer period of time and research how some projects that are involved for the long-term are funded. Moreover, there could be discovered if there are other solutions to cope with this funding problem.

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A close-up photograph of a branch with green and yellowing leaves and clusters of small, round, red and white berries. The berries are in various stages of ripeness, with some being bright red and others pale yellow or white. The leaves are elongated and have serrated edges, with some showing signs of aging or damage. The background is a soft, out-of-focus green, suggesting a dense foliage.

Appendices

Appendix A Scientific article

Capacity building in a developing context

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Abstract: In the last decade many development projects focused on agricultural development, wherein smallholder farmers are challenged to change their traditional practices and make use of new technologies and techniques. However, it is seen that smallholder farmers are not able or willing to apply learned practices or increase production. One reason for this is that interventions focus on capacity building in a way that they include training in knowledge and skills, but they do not take into account the values, attitudes and beliefs of farmers and their surroundings. Therefore, this research answers the following research question: *How can capacity building be included in agricultural projects focused on smallholder farmers in developing countries?* A case study about women smallholder farmers in Kerala, India, is conducted. Findings show that not only the knowledge and skills are hindering a woman smallholder farmer's capacity to grow, but also her internal motivation, level of empowerment, ability to take risks, the perception towards farming and informal institutions are important for her capacity. Hence, this study proposes a framework with components to consider when developing a strategy for capacity building of women smallholder farmers. This study provides a better understanding of the importance of certain components for capacity building and can help project initiators when they are to include capacity building in agricultural development projects to develop sustainable projects.

Keywords: capacity building, women smallholder farmers, agricultural development projects, sustained interventions, homestead farming

1. Introduction

Agriculture is important for all of us and in many developing countries an important tool to end extreme poverty and improve livelihoods. Growth in this sector can raise incomes among the poorest two to four times more effectively as compared to other sectors (Townsend, 2015). However, agricultural growth, food security and poverty reduction are challenged by climate change, competition between smallholder farmers and commercial farmers and other threats.

In the last decade many development projects in developing countries have focussed on agricultural development, including improvement of agricultural productivity, in order to generate income for local farmers, contribute to food security for a region or country and improve the quality of life (Pretty, 1999). Farmers can be introduced to new techniques and technologies, which in turn can help improve their production. However, farmers should be able and willing to make use of those technologies. This is highly related with the capacity of smallholder farmers to do so.

Different scholars argue that capacity building within agricultural development projects is a crucial factor for success (Dollar & Pritchett, 1998; J. O. Kroesen et al., 2015). It can help to increase the capabilities of a community to continue practices learned in an intervention and increase trust in other stakeholders. When introducing smallholder farmers to new technologies, it is simply not enough to provide them with equipment and a manual: they should be willing and able to make use of them themselves (Morrison et al., 2008). Hence, capacity building is not only about training local stakeholders to obtain the needed skills and competencies, also the social environment, institutions, cultural values, beliefs and attitudes of an individual and its' community should be considered (Carl Folke et al., 2005; J. O. Kroesen et al., 2015). The focus on these values, attitudes and beliefs is not always accounted for in agricultural development projects. Smallholder farmers might be able to learn the technical skills, but if it goes against their traditions or values to make use of them, or if there is no sufficient level of trust, capacity building of the technical skills will be useless (J. O. Kroesen et al., 2015). Moreover, if farmers are not provided with an environment wherein they can apply the learned skills, training alone would be ineffective (Amani, 2016). This might explain why many projects or initiatives in the past failed to deliver successful outcomes on the long-term (Iwuchukwu & Beeior, 2018; Matthew & Olatunji, 2016; Mignouna et al., 2011). With respect to the causes of failure of these projects, common reasons found are: the needs of the local community are not heard or met (Feder et al., 2010; Ramukumbasup et al.,

2011; Scheba, 2017); a top-down approach is used (Baloch & Thapa, 2018; Mafukata, 2016); the environment does not provide any room to apply the learned practices (Potter & Brough, 2004; Scheba, 2017); or no long-term support and merely a training is provided (Alpízar et al., 2019; Djagba et al., 2014).

Given the complex situation outlined above, the question arises how smallholder farmers can be introduced to new technologies and practices, in a way that they are able to grow and continue themselves, instead of stagnating. It is known that capacity building is important for the success of agricultural development projects. Projects focus on the capacity training of knowledge & skills, but taking the cultural values, beliefs and attitudes of an individual and its' community in mind is sometimes forgotten. There is fragmented research about how project executors deal with these parts of capacity building in the context of smallholder farmers. Therefore, this research aims to answer the following research question: *Can capacity building be included in agricultural projects focussed on smallholder farmers in developing countries, and if so, how?*

2. Approach

While capacity building is often an important element in agricultural development projects, failures to build capacity of smallholder farmers still exist. This paper starts with a literature review exploring the challenges smallholder farmers in developing countries face, how capacity building is applied in different contexts and which components are found to be important. This results in a conceptual framework, which is validated and adjusted for women smallholder farmers in the second part of this paper by means of a case study. The case study focusses on women smallholder farmers in Kerala, India, who are now mostly producing for self-consumption. In order for them to grow, capacity building is needed. Interviews with several experts, including women smallholder farmers, academics and employees or founders of NGOs in India, are conducted to partially validate the framework. The results are presented in section 5, whereafter the implications of the results are discussed in section 6.

3. Conceptual framework

Capacity is a broad concept and interpreted in many ways (Cornforth & Mordaunt, 2011). It is seen as a crucial component for the success of sustainable development projects (Dollar & Pritchett, 1998; World Bank, 1996). Several authors argue that capacity not only consists of the skills and knowledge of an individual to do things, but that values, capabilities, attitudes and motivations are important as well (James & Hailey, 2008; J. O. Kroesen et al., 2015; O'Rafferty et al., 2014). Capacity building can be seen as the external interventions or support that build capacity in order to facilitate change (Cornforth & Mordaunt, 2011). It is argued that promoting capacity building demands for long-term investment and commitment (Bingen et al., 2003; FAO, 2010). In order to build capacity, it is important to know more about capacity problems smallholder farmers face.

3.1 Capacity problems of smallholder farmers

Smallholder farmers can be seen as survivor farmers: they do not start their business by choice, but want to increase security and generate an income (Berner et al., 2012). Therefore, they do not specialize but diversify their activities, are not growth oriented, avoid risks and the main motivation to do business is to maintain their families. Challenges smallholder farmers face are versatile. They can have a lack of knowledge and skills (Brown et al., 2019; Tiarniyu et al., 2012), which can be caused due to a lack of training (Brown et al., 2019). Insecurities, risks related to the new practices, no trust or confidence in oneself and the willingness to change are reasons for non-practice of learned skills (Duveskog et al., 2011; Scheba, 2017; van den Berg et al., 2020). There is a negative perception towards the work of farmers in some communities or areas, which influences the willingness to change or grow as a farmer (O. Kroesen & Ndegwah, 2019; Versteeg et al., 2017). Smallholder farmers usually have a high social capital, in a way that they are committed to their communities and families (Chepkoech et al., 2020). However, this brings a lot of commitments (Versteeg et al., 2017). Vertical relations with important stakeholders are often lacking (Abdul-Razak & Kruse, 2017; Tiarniyu et al., 2012). Smallholders might not own the land on which they cultivating, which brings even more insecurities (Vorley et al., 2012). The economic situation of many smallholder farmers is also a problem. Often smallholders do not have the financial means to invest in new seeds, fertilisers or technologies (Pritchard, 2014). The institutions

in place in a country often do not cover the needs of smallholder farmers, and bureaucracy and corruption can affect them (Berner et al., 2012; Munyua et al., 2009). Moreover, smallholder farmers on their own have small bargaining power, which makes it hard to access the market (Versteeg et al., 2017). Aggregation with other smallholders might be an option, however the question here rises how potential competitors can be trusted (Berner et al., 2012). Related to natural aspects, smallholder farmers can be vulnerable to climate change, like drought and heavy rainfall (Munyua et al., 2009). Moreover the condition of for instance the soil can increase or decrease a smallholder farmer's performance or ability to adapt to certain circumstances (Brown et al., 2019). Access to physical infrastructures, like water, solid waste management and transportation are constraints as well (De Vita et al., 2001; Munyua et al., 2009). Besides these challenges, women smallholder farmers have to deal with inequalities (Vorley et al., 2012). They have lower access to basic services, like education and health, and lower access to goods, like land, credits and extension services and training when compared to men (Doss, 2018; Kumari et al., 2018; Vorley et al., 2012). Moreover, they are often not recognized as farmer (Carnegie et al., 2020) and have many responsibilities, including taking care of the household (Kumari et al., 2018).

3.2 Current capacity building approaches

Several approaches to capacity building exist. A common finding is that capacity building takes place on three different levels: the individual level; the organizational level; and the enabling environment (Amani, 2016; FAO, 2010; Fukuda-Parr & Lopes, 2013; Morgan & Baser, 2008). The three levels are interdependent and need each other to grow. Moreover, several authors suggest that for capacity training to be effective, it must be combined with other modalities of capacity building as well: so capacity building is not merely the training of knowledge and skills, but goes beyond (FAO, 2010; Fukuda-Parr & Lopes, 2013; O'Rafferty et al., 2014; Potter & Brough, 2004). Capacity building is also seen as a long-term process, which requires continuous support (Amani, 2016; FAO, 2010).

The literature study revealed that in current capacity building approaches of smallholder farmers in developing countries, sometimes the needs of smallholder farmers are not taken into account (Brabben & Cornish, 2005; Kiptot & Franzel, 2015; Pritchard, 2014). Moreover, some authors suggest that additional support is needed in order to have sustained effects of a programme (Kiptot & Franzel, 2015; Lukuyu et al., 2012; Pritchard, 2014).

Following from the findings in literature, a conceptual framework with components to consider when developing a strategy for capacity building is proposed. This framework consists of several component that are found the be important for capacity building.

3.3 The conceptual framework: components to consider when developing a strategy for capacity building

The proposed conceptual framework combines the findings of the literature review into one framework. The framework consists of four dimensions, based on the model for capacity by Kroesen et al. (2015). They formulated capacity as follows:

$$C = f[(IESA) + (VAB) + (SI)]$$

Herein, IESA stands for Information, Experience, Skills and Algorithm; VAB stands for Values, Attitudes and Beliefs, and SI stands for Social Institutions, which in the framework is referred to as Enabling Environment. The components found in literature are allocated to the different dimensions, whereby the dimension present business performance is added. The conceptual framework is depicted found in Figure 7.

4. Case study

The conceptual framework is partly validated and adjusted to women smallholder farmers by means of a case study. The case study is centralized around the feasibility of increasing their production and the components that are influencing their capacity to grow. Herein, their current practices, the challenges they face, their motivation to farm, and their enabling environment are examined.

4.1 Data collection

Data is collected by means of the case study, that aims to gain an understanding of the phenomenon of capacity building in a real-life setting (R.K. Yin, 2012). Semi-structured interviews were held, in which participants can elaborate on their answers and follow-up questions can be asked by the researched.

Chosen is to conduct semi-structured interviews instead of fully structured interview or surveys to not hinder the depth and richness of the answers (Bryman, 2016). A drawback of a case study is that results are hard to generalize and can be very specific for the local context (R.K. Yin, 1994). Moreover, conducting interviews is quite time-consuming and the research might interpret that what is said by the interviewee in a different way than that is meant by the interviewee (Alsaawi, 2014).

Interviews were conducted in November and December 2020. The participants were recruited via an online search for experts who have worked with women smallholder farmers in India and contacted via email, phone or LinkedIn. Moreover, a collaboration was established with LEAD College of Management, by mByom, whereby a student helped arranging interviews with women smallholder farmers in Kerala. In total 20 interviews were conducted. Table 5 shows expertise of the participants. Saturation was achieved as very little new information was gathered in the last few interviews (Alsaawi, 2014).

Component	Dimension
C20. Ownership land	Present business performance
C21. Size of land	
C22. Key activities and current practices	
C23. Revenue stream	
C1. Knowledge & skills	IESA
C2. Training	
C3. Experience	
C5. Internal motivation	VAB
C4. Local context	
C12. Commitments besides farming	
C13. Critical thinking / planning for the future	
C14. Empowerment	
C15. Trust	
C18. Perception towards farming	
C6. Available resources	SI (Enabling environment)
C7. Vertical networks	
C8. Horizontal networks	
C9. Regulations, legislation and policies	
C10. Monitoring and evaluation	
C11. Support services	
C16. Market opportunities	
C17. Involvement of relevant stakeholder early in process	
C19. Available infrastructures	

Figure 7 Conceptual framework with components of capacity building

Table 5 Expertise of the participants

Participant	Type of expert	Participant	Type of expert
P1	Worked with women smallholder farmers	P11	Marginal farmer in Kerala
P2a & P2b	Worked with women smallholder farmers	P12	Woman smallholder farmer
P3	Academic	P13	Worked with women smallholder farmers
P4	Worked with women smallholder farmers	P14	Woman smallholder farmer
P5a & P5b	Worked with women smallholder farmers	P15	Woman smallholder farmer

P6	Academic	P16	Woman smallholder farmer
P7	Marginal farmer in Kerala	P17	Woman smallholder farmer
P8	Worked with women smallholder farmers	P18	Woman smallholder farmer
P9	Marginal farmer in Kerala	P19	Academic
P10	Woman smallholder farmer	P20	Worked with women smallholder farmers

4.2 Data analysis

The interviews were audio recorded and transcribed. Before the interview started, the participants were verbally asked an informed consent. All participants gave their informed consent. The researcher made notes during the interview, which were translated in a summary of the interview right after it had finished. The audio recordings were transcribed in the form of a verbatim by the researcher word-by-word. This verbatim, however, contains only the information that is relevant for this case study for reasons of efficiency. The qualitative data is analysed using Atlas.ti, an analysis and research tool for qualitative data analysis. The interviews were analysed and coded, using pre-determined codes linked to the components of the conceptual framework and emerging codes, identified during analysis of the data (Friese, 2019). First all interviews were read and references to the components were highlighted. Once this was done, the second round of analysis was to link codes to highlighted information. The last round entailed reading all interviews again, checking the codes and whether any relevant information was not captured in the first two rounds. The results are presented in the next section.

5. Results

The results highlight challenges that women smallholder farmers face and components of capacity building that are important in the case of women smallholder farmers. They are discussed referring to the four dimensions of the conceptual framework. The bold text highlights the corresponding components and are substantiated with quotes from participants. Due to reasons of readability, some quotes are slightly modified preserving the essence of the quote.

5.1 Present business performance

Women smallholder farmers in Kerala cultivate a variety of crops. Their **key activities and current practices** consist of cultivation for own consumption. Decisions on crops are mostly very practical: they cultivate crops that are easy to maintain or that are used for own consumption. They will wake up in the morning and water the plants, go to work during the day and come back to their farmlands again in the evening. Cultivation in the homesteads is done completely organically. Since crops are used for self-consumption, no **revenue stream** currently exists. The participating women **own land** themselves, but it can also be the case that women smallholder farmers are cultivating on leased land. The **size of the land** is around one acre, which has implications for the potential growth some participants argue. The main **challenges** the woman smallholders face are heavy rainfall, insects and diseases destroying their crops, the bad quality of seeds they get and their lack of time to farm. As one woman smallholder farmer (P10) stated: *“We get bad seeds. We want to get the government or the manufacturer to ensure that we are getting the best seeds.”*. Other participants argue that market access, financial issues and the dependence on assistance are challenges women smallholder farmers face.

5.2 Information, experience, skills and algorithm

The **knowledge and skills** of women smallholder farmers is sometimes lacking. However, participants argue that this is something that can be taught. *“I can give you one example. With one crop I have shown them that this is the cultivation of vegetables. Prior to my visit to the village, they did not know how to grow vegetables. Now they are growing vegetables.”* (P1, worked with women smallholder farmers). **Training** can therefore help, however not everyone has access to training. Moreover, most women have learned their practices from their parents. How effective training is depends on the type of training that is given. *“The women are given a 7-day training, to give them a broader understanding of how this business should work. But with 7 days, that is just a qualification criterion to get the loan. When it comes to actually running the business you will fail.”* (P4, worked with women smallholder farmers).

In terms of **experience**, the women smallholder farmers have been practicing farming for a long time. However, their experience with the use of technology is minor, because their farm sizes are small and because it would be a big financial investment for them.

5.3 Values, attitudes and beliefs

The **internal motivation** of women smallholder farmers to farm varies. They can farm out of passion, because their parents did it as well or because of the health advantages organic farming brings. Argued is that women smallholder farmers are not highly motivated to make a full living out of farming. Some participants state that creating incentives within an intervention can increase the motivation of farmers to grow and continue new learned practices. This includes economic incentives, by creating a better price for high quality crops, or by organizing village competitions wherein the best farmer is rewarded with farming equipment. Most of the project initiators consider the **local context** and needs of the local community when planning and executing an intervention and state this is important.

Being a woman smallholder farmer comes with a lot of **commitments besides farming**. She had to make sure that the family functions, she has to work a part-time or full-time job and she has to take care of the crops. One woman smallholder farmer stated (P14) *“I am busy in the business and all the activities, so I may lack the time. I am having two children and my own shop. I have a lot of side activities besides farming. It is hard to manage all.”*. Saving practical issues can help women to start farming. The level of **empowerment** is an important factor for women smallholder farmers in India to grow. Participants state that women have a lack of confidence and do not feel self-worthy. Before interventions, women had never left their house or travelled, but because of interventions women became more empowered and were able to come forward. Moreover, it can be quite hard for the women to **take risks**, which makes them risk averse. Putting time and money into something whereof they do not know what the outcomes are is risky. Moreover, **planning for tomorrow** can help women, wherein they learn to think from a market perspective and make records of their activities. **Trust** is also an issue when NGOs first approach farmers to participate in a project. Trust is something that should be built, but once it is there and benefits are reaped by main beneficiaries, a ripple effect can originate: *“The farmers in the village who are not involved, will also follow if they see that the farmers involved in the project are making progress.”* (P1, worked with women smallholder farmers). The **perception towards farming** was found to be important as well. Especially the way women in farming are perceived influences their ability to take certain actions. Women are in many cases recognised as labourers instead of farmers.

5.4 The enabling environment

The last dimension is the enabling environment, which consists of ten codes. **Available resources** concern the access to seeds and fertilizers, but also the access to loans. Overall, the access to resources is harder for women in Kerala when compared to men. Moreover, women smallholder farmers do not have many connections with local governments and markets. This is a challenge, since **vertical networks** can help farmers to grow. Participants argue that vertical networks can be created via interventions. **Horizontal networks** are present at the household level and community level. A strong sharing mentality is important for women smallholder farmers. Horizontal networks can hinder women smallholder farmers in a way that patriarchy is exceedingly present: women are often inferior to men. Men are the decision-makers and the ones that can travel. As one participant states (P3, academic): *“If the decisions are more strategic, like the market, they are mostly made by the men. But if the decisions are more of operational kind, for instance, if these plants will need irrigation at 3 pm today, that is where the role of women becomes prominent.”*. **Regulations, legislation and policies** are changing continuously. **Monitoring and evaluation** was not discussed in detail, however NGOs stated they would give continuous feedback to the farmers. Relating to this are the **support services** given. It is argued that support should be provided not just in one area, like the training of knowledge and skills, but that support should be given in all areas. For example, support after training should be given. Moreover, some participants argued that long-term involvement provides the opportunity to create a sustainable intervention. This does require substantial commitment, from both project initiators as well as intended beneficiaries. Support should also be given in terms of creating **market opportunities**. Women smallholder farmers have a lack of access to markets, and markets are often male dominated. Several participants argue that aggregation can be a solution to create market opportunities. However,

trust should be present. The **involvement of relevant stakeholders** was not discussed in depth, but the interviews suggest that farmers are included early in the process and there is really listened to their needs when an intervention is designed. This is not always the case one participant argues. The **available infrastructures** are also important for the ability to grow as a farmer. Most women smallholder farmers had access to water and internet. Important to note is that some experts who have worked with women smallholder farmers state that they would **select beneficiaries** only when sufficient infrastructures are already present and when intended beneficiaries were motivated to participate.

The implications of these results are discussed in the next section.

6. Discussion

The results indicate that building the capacity of women smallholder farmers does not only require improving knowledge and skills. Nearly all of the NGOs interviewed provide women smallholder farmers not only with training, but also assist women with other challenges they face, like the practical challenge of having many responsibilities and having to take care of the household; creating opportunities for market access; and increasing the ability to access credits. They stated that it is better to be there for the long-term, to support a sort of lifestyle and to create a self-sufficient community. This also indicates that a change is required in the values, attitudes and beliefs of a woman smallholder farmer and her surroundings, so merely training in knowledge and skills is not enough.

Challenges women smallholder farmers face found in this study were also highlighted in literature. (Brown et al., 2019; Fan et al., 2013; Munyua et al., 2009; Tiamiyu et al., 2012; Versteeg et al., 2017). Solving these challenges requires the right knowledge and skills, but also requires a change in the mindset of the women and the ability to plan for tomorrow, knowing what demand there is and knowing how to position oneself.

The conceptual framework suggested that the years of experience is highly correlated with smallholder farmers ability to use new technologies and their knowledge & skills (Abdul-Razak & Kruse, 2017). The results of this research suggest that it is better to consider what type of experience is present. For instance, have the farmers worked with new techniques already, or have they cultivated a variety of crops?

Women smallholder farmers are not only hindered in their ability to grow by their knowledge and skills, but also by their other responsibilities, their ability to take risks and their enabling environment. The results indicate that the informal institutions, i.e. the relations between people in the community, are very important. This is in line with what is written in literature (Hillenbrand, 2010; Kumari et al., 2018), however, not many studies about capacity building put strong emphasis to this aspect.

The type of support and the duration support that is given are both important as well. The results suggest that in many cases only giving training is not sufficient, since not only knowledge and skills have to be improved, but also attitudes, values and perceptions have to be overcome. This is not something that is done with merely one training session (FAO, 2010; Kiptot & Franzel, 2015; J. O. Kroesen et al., 2015; Pritchard, 2014).

The conceptual framework is adjusted by means of the results. The proposed framework is depicted in Figure 8. The framework suggests four different dimensions, which require support from each other. For instance, a farmer can possess the knowledge and skills to do something, but feeling empowered enough to undertake action with this knowledge is also needed. Moreover, the environment one is operating in should also enable an individual to come forward. This includes the informal institutions, the relation between men and women and the ability of women to acquire resources and make certain decisions.

The dotted line around Values, Attitudes & Beliefs in Figure 8 indicates that VAB pertains to not only the individual herself, but also to her surroundings. For example, the perception towards farming pertains to an individual, but also includes the perceptions towards women in farming as perceived by a community. In the case of the homestead women in Kerala, women were not recognised as farmers for a long period of time, but rather as labourers or housekeepers who help or support their husbands. This inhibits their ability to make decisions or potentially grow as farmers.

The case study focused on women smallholder farmers. The proposed framework is therefore applicable for capacity building of women smallholder farmers. Challenges a man may face may differ when compared to the challenges a woman faces. To illustrate, the informal institutions in the case study revealed that men are the decision-makers and can go to the market. Therefore, this component is influencing the capacity of women smallholder farmers to a considerable extent and can be of less importance for the capacity of men. For a generalisation of the proposed framework a new study should be considered, focussing on both men and women smallholder farmers.

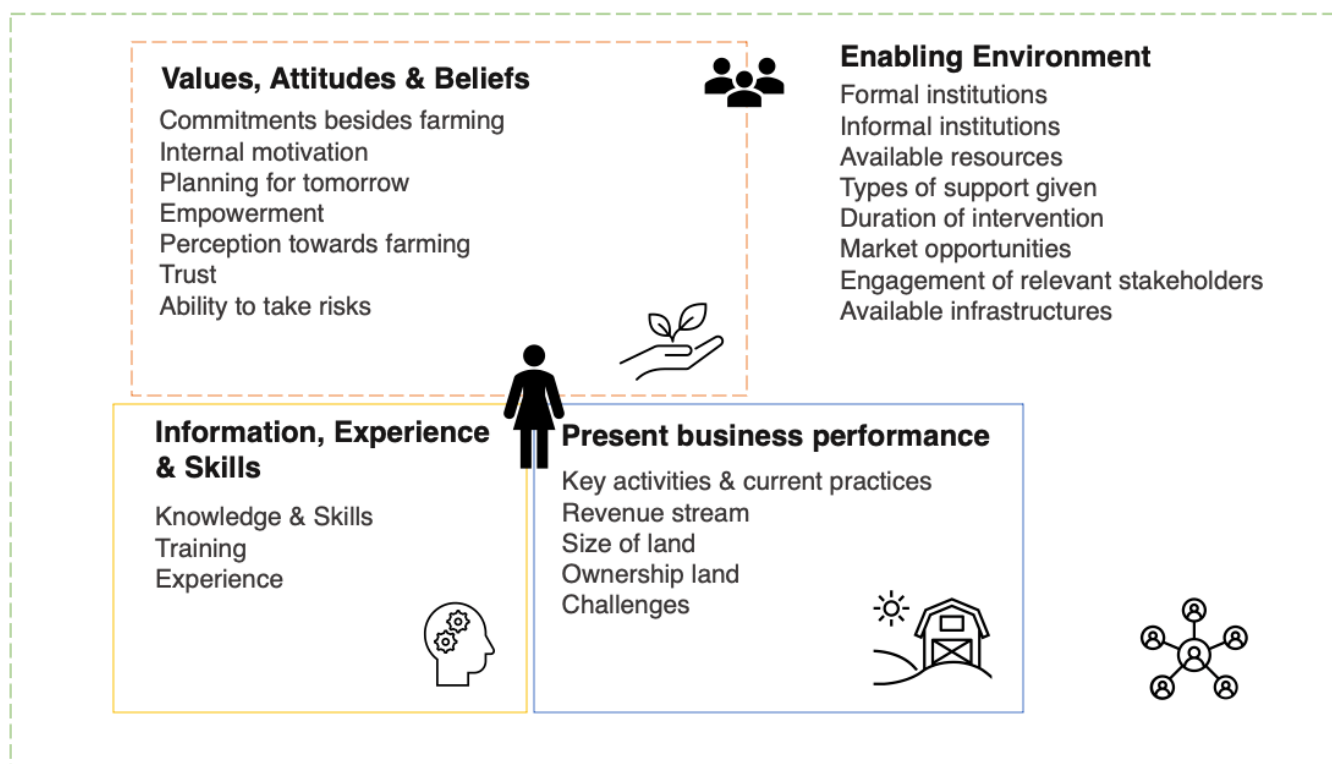


Figure 8 Components to consider when developing a strategy for capacity building of women smallholder farmers

7. Conclusion

As simple as it sounds, building capacity, it is the opposite. Capacity building is a complicated process, wherein many components are to be considered to enable a smallholder farmer to grow. It cannot be expected that one training session about ways to increase a smallholder farmer's production will result in increased production: there are many more components affecting this. Following from this study, several recommendations are made, that are summarized below:

1. Building capacity is a long-term process, since it not only requires the training of knowledge and skills, but also includes values, attitudes and beliefs.
2. This study indicates that the duration and type of support are important: long-term support is needed for a self-sufficient community to evolve.
3. The enabling environment wherein a woman smallholder farmer operates influences her capacity to grow. Therefore, a recommendation is to not only focus on an individual woman farmer, but also consider her surrounding community (i.e. enabling environment).
4. The importance of informal institutions should not be underestimated. This study shows that informal institutions, like the relationship between men and women, are strongly influencing the capacity of a woman smallholder farmer to grow.
5. When starting to work with a community, a relation of trust should be built. It cannot be expected that this trust is there from the start onwards.

A change of mindset of a woman farmer and her surrounding is not completed in one day. This takes time and requires long-term involvement. However, long-term is a challenge. It requires frequent commitment of project initiators to be present for the long-term and funding. Therefore, a recommendation for future research is to conduct research about factors that influence funding to understand how funding can be achieved for longer periods of time. A second recommendation for future research is to validate the framework in other developing countries, where other components might be important. A third suggestion for future research is to adjust and validate the framework for the case of men smallholder farmers. Components found important can differ when compared to the framework this study proposes. Lastly, future research can focus on the mismatch of agricultural development projects and the sustained outcomes. What causes that outcomes are non-sustained? And of what factors should a capacity initiative consist to have guaranteed sustained effects?

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Appendix B Topic list of interviews

First of all, thank you for your willingness to participate in an interview for my research about capacity building of homestead women farmers in Kerala. The interview will last around one hour and will be a semi-structured format. Below you can find the topic list. If you have any questions before the interview, feel free to contact me.

Introduction

Introduction of oneself, professional experience, involvement in homestead farmers.

Present business performance

History & activities

- **History:** Starting of the farming / project
- **Key activities and current practices:** quantity, diversification etc.
- **Revenue stream:** Are products sold to a market? Are profits made? Is farming used to generate income, or are there other sources of income?

The land

- **Ownership land**
- **Size of land**

IESA Information, Experience, Skills, Algorithm

- **Knowledge & skills:** Does an individual possess the skills & knowledge to change current practices or use new techniques? Has it been introduced to new farming techniques or a new environment before?
- **Experience:** Years of experience of farmers and experience with other crops
- **Training:** Is there already training provided to the farmers (currently or in the past)? If yes, what sorts of training? Teaching, learning while doing, other?

VAB Values, Attitudes, Beliefs

Of farmer itself

- **Internal motivation:** Drivers for farmers to farm
- **Critical thinking / planning for the future:** Willingness to continue farming
- **Confidence:** level of confidence of farmers
- **Commitments besides farming:** Role of community, religious activities

The local context

- **Local context:** Application to local context; specific needs of community
- **Trust:** Relations of trust between farmers, civil servants, extension workers
- **Perception towards farming:** How is farming perceived within the region? Is it an honorable job? Is it something the new generation (e.g. youth) would do?

SI Social institutions; Enabling Environment

Networks

- **Vertical networks:** E.g. linkages between civil servants, market and farmers
- **Horizontal network:** Linkages within community
- **Involvement of relevant stakeholders early in process**

Outside support

- **Available resources:** Resources available, purchased by whom?

- **Available infrastructures:** Roads, water network, internet access
- **Monitoring and evaluation**
- **Support services:** Which support services do currently exist?

Institutions

- **Regulations, legislation and policies**
- **Market opportunities:** How does the market look like where farmers can sell their goods? Do they have access to those markets?

Appendix C Interview questions

Interview questions – experts who have worked with homestead women farmer; academics; marginal farmers

Introduction

1. Could you tell me something about yourself? What is your job, what are your main activities in your job?
2. How have you been introduced to work with the homestead women farmers in Kerala?
3. What were your main activities there? Were you involved in a programme/project? Could you tell me more about that?

Present business performance

History & activities

1. How would you describe a typical female farmer in Kerala?
2. Is it mostly men or women who are farming? What is the reason for this?
3. What are the female farmers' main activities? What are they cultivating?
4. How long have they been farming (years of experience)?
5. How did farming practices change over time?
6. What are does female farmers doing with the cultivated goods? Are they selling it to the market, or is it used for own consumption?
 - a. What is the ratio of this?
7. To whom are they selling the goods to the market?
8. Are the female farmers making a good living out of the farming? Or are they working other jobs?
9. What are the biggest challenges the female farmers in Kerala face?

The land

1. On which land are homestead farmers mostly cultivating?
2. What is the size of this land?
3. Do they pay rent for this land?
4. How long are they cultivating on this land, before they leave to cultivate on other land?
5. Do you see some sort of depletion of the land?

IESA Information, Experience, Skills, Algorithm

1. How would you describe the level of knowledge & skills of women farming in Kerala?
 - a. Do they diversify in crops?
 - b. Have they diversified over the years?
2. What would you say is the balance between conventional farming practices and the use of technology?
3. Do you think they are capable of coping with new farming techniques or a new environment? Why (not)?
4. Have they received some sort of training in the past or are currently trained? E.g. by means of the Neighbourhood groups of the Kudumbashree Society?
 - a. If yes, what kind of training?
 - b. What is the impact of this training?

Extra questions for experts/NGOs that have supported female farmers in Kerala

1. In what way have you supported the female farmers?
 - a. Could you maybe send me more details on that via e-mail?
2. How was this support received?
3. What impact did this support have?

4. What is the impact on the long-term?
5. If you would support the female farmers in the future, what would you change as compared to the support that has been given before?

VAB Values, Attitudes, Beliefs

Of farmer itself

1. What do you think drives a female farmer in Kerala to farm?
2. Do you think that there is a desire to change or grow by the female farmers?
 - a. Why (not)?
3. Do you think the female farmers want to continue farming in the future? Or are they open for other opportunities as well?
4. What do you think happens if the farmers would feel be introduced to new techniques or practices?
 - a. Why do you think that?
 - b. Have they put new practices into practice already?
5. Do you think the women farmers are able to aggregate their products to sell to the market by the help of a mobile app?
 - a. Why do you think this?
6. Are the women farmers committed to some sort of community?
 - a. If yes, how would you describe them?
 - b. How much time do they spend on it?
 - c. What does this community mean to them?

The local context

1. How is farming perceived within Kerala?
 - a. Is it an honorable job?
 - b. Is it something the new generation (e.g. youth) would do?
2. How are women in farming perceived in Kerala?
3. Do you feel there is a level of trust from farmers towards for instance the government or help they receive?
4. Would you say that women farmers in Kerala have been disappointed in the past?
 - a. If so, in what way?

SI Social institutions; Enabling Environment

Networks

1. How would you describe the linkages between women farmers and civil servants, the government, extension workers or other organisations?
2. How would you describe the linkages between farmers, and the different Neighbourhood groups?
3. In what way do you think the linkages between farmers and between farmers & other stakeholders can help the farmers?
4. What improvements do you think are possible in the linkages, and how?
5. When planning for a new project or program, which stakeholders are involved and how? Why them?

Outside support

1. Do the female farmers in Kerala receive support from the Government, extension workers or NGOs a lot?
2. Do you think they need outside support?
 - a. If so, why?
3. Are they able to invest themselves in new resources if needed?
 - a. If not, how would think they would get access to resources if needed?
4. What infrastructures are available for the farmers?
 - a. Is there water access everywhere in Kerala?

- b. How accessible are the farms?
 - c. Do farmers have access to internet, mobile phone, etc.?
- 5. Which support services currently exist for the female farmers?
- 6. How have they been supportive?
- 7. Are activities of the women farmers being monitored?
- 8. Do they receive feedback from anyone about their farming activities?

Institutions

- 1. What does the market look like where farmers can sell their goods?
- 2. Do they have access to those markets?
 - a. Why (not)?
 - b. Where do you see improvements?
- 3. Which regulations and policies currently exist related to farming in Kerala?
- 4. How are they beneficial for smallholder farmers?
- 5. Would you say the legislation and policies are stable, or fluctuating (i.e. changing a lot) over time?

Interview questions – Homestead women farmers

Introduction & Present Business performance

History & activities

1. Why did you get into farming?
2. How long have you been involved in farming?
3. With what farming activities did you start?
4. What crops are you cultivating now? And how do you decide on those crops?
5. What crops are specific for your area?
6. What determines that you choose producing a certain crop over another?
 - a. *E.g. experience previous years, other farmers do it as well, work pressure*
7. How did those farming activities change over time? What are you cultivating now?
 - a. If a change was made in farming activities, why did you change?
8. Do you use crops for self-consumption?
9. Are there crops remaining to sell? If so, to whom do you sell them?
10. Through whom do you sell your products to the market?
11. Do you think the price you get for your crops/produce is fair?
12. What else do you do besides farming? Are there any other jobs you are working on? Are you busy with the household?
13. What are the biggest challenges you face?

The land

1. Who owns the land you are cultivating on?
 - a. If you do not own the land, how much rent do you pay?
 - b. Do you have to share the land with other farmers?
2. How big or small is the land?
 - a. Can you expand your agricultural activities on the land you are currently using?
3. Is the land you are cultivating on fragmented? I.e. do you have several parts of land where you are cultivating on?
 - a. If yes, what impact does this has on you?

IESA Information, Experience, Skills, Algorithm

1. Are there any other crops you would like to cultivate in the future?
 - a. If so, what crops do you think of? And why?
2. Have changes occurred in your way of farming/ cultivation of the crops? If so, could you tell me about that?
 - a. Have you tried cultivating new crops over the past years?
 - i. How did that go?
 - b. Have you tried using new technologies or equipment in this?
 - i. What did you think of that?
 - ii. Are you still using those technologies?
3. Could you tell me about your way of treating your crops?
 - a. How do you do that?
 - b. What do you use for that? (e.g. fertilizers, nutrition of the soil)
4. What would you say is the balance between conventional practices and the use of technology in your farming?
5. Are you farming alone? Or are people helping you with your farming activities?
6. Have you received trainings in new agricultural practices or cultivation of new crops/the use of fertilizers?
 - a. If so, what form? Did you like that? Why yes/not?
7. How do you mitigate risks in your farming practices?

VAB Values, Attitudes, Beliefs

Of farmer itself

1. What drives you to farm?

2. Do you have a desire to change your farming practices?
 - a. If so, what opportunities do you see to change?
3. Do you want to continue farming in the future?
 - a. If so, why and how?
4. If you would be introduced to a new practice of farming (e.g. a new type of crop, an app that monitors what you have cultivated, or diversification of crops) what would you do?
5. Do you have any other commitments besides farming?
6. How would you describe your village/neighborhood you are living in?
 - a. Are you involved in a strong community, e.g. a Neighbourhood group or religious activities?
 - b. Is there a strong community feeling?
 - c. Are you helping each other? Do you have a lot of contact with one another?
 - d. What impact does this community have on your daily life?
 - e. Are you spending a lot of time on this community?
 - f. What does this community mean to you?
 - g. What has this community brought you?

The local context

1. What would you say is very specific for your way of farming? What is something you really demand?
2. How is farming perceived within Kerala?
 - a. Is it an honorable job?
 - b. Is it something the new generation (e.g. youth) would do?
3. How are women in farming perceived in Kerala?
4. How would you describe your relation with the government, or other extension workers etc.?
5. Do you feel your needs are being heard by for instance the government?
6. Do you have trust in the government for helping you in your farming practices?

SI Social institutions; Enabling Environment

Networks

1. How would you describe your linkages with civil servants, the government, extension workers or other organisations?
2. What role does the Kudumbashree Society play in this? And the Neighbourhood groups?
3. What linkages do you have with other women farmers? Do you cooperate a lot?
4. In what way do those linkages help you in your farming practices?
5. What improvements do you think are possible in the linkages you have?

Infrastructure

1. How do you get new seeds or fertilizers or other resources that you need? (e.g. do you buy them, is someone giving them to you, do you exchange them with other people in your village?)
2. How accessible is your farm?
3. Do you have access to water?
4. Do you have access to internet, a mobile phone?
 - a. How would you feel to register your produces in a mobile app, and sell it to the market via this app?
5. Do you make records of your current farming activities?
6. Do you receive any feedback on your farming activities from someone else?
 - a. Do you think feedback would be helpful?

Institutions

1. Could you give an example on how regulations or policies by the (local) government has influenced your farming practices? Is this beneficial for you or not?
2. Would you say the legislation and policies are stable or changing a lot over time?
3. Do you see any market opportunities to sell your goods?

