INNOVATIVE PRACTICES OF CACAO FARMERS IN INDONESIA

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Abstract

Msc Thesis Final Report by Riza Kamal Shadiq

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Innovative Practices of Cacao Farmers in Indonesia

Most of small holder cacao farmers in West Sulawesi live under the poverty line. Innovation through local business development is believed to be potential answer for this problem since it has important roles to alleviate poverty while preserve the natural environment at the same time. In order to incite other farmers to do innovation, the decision making process in existing innovation needs to be assessed through the lens of the effectuation theory by Sarasvathy (2001). To understand the process of the existing innovations, the idea journey concept by Perry-Smith and Mannucci (2017) was adopted to trace back the innovations process until the beginning. However, the contextual embeddedness in impoverished area influences their economic activity, which makes the theories about innovation built in developed countries not applicable as they are in this context. Therefore, this research employed qualitative methods aiming at theory building under important contextual elements: socioeconomic, geographic position, and institutions context.

The empirical data were gathered from two weeks in-depth field ethnography where I stayed and explored the villages in West Sulawesi to find innovative farmers. In total, five innovative farming practices were found throughout this field work. During the farm visit, I spent around half day to observe each innovations and collect the data. The data were gathered through semi-structured interviews and informal conversations. These data were analysed using informant-centric terms and researcher-centric themes resulting in data structure. The decision making model was proposed based on dynamic relationships between the dimensions in this data structure.

This research proposed comprehensive model of the early stages of the innovative farming practices in cacao farmers. Even though some of the effectuation theory sub-constructs were reflected here, this model introduces the sequences and some modified dimensions: pre-innovation, begin with set given means, needs to be collective, affordable loss more than expected return, cooperation, high flexibility, and managing unpredictable situations. This developed model is suitable to study decision making process in emerging economies since it takes into account the influences of contextual embeddedness, which are not considered in the entrepreneurship and innovations theory from developed country.

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1. INTRODUCTION

1.1 Introduction/Problem Statement

Indonesia is the third biggest cocoa producer in the world which produces around 350,000 tones cocoa, while the global production of cocoa in 2015 was 3.97 million tones. Cacao farming is the main source of income for more than one million small holder farmers in Indonesia. Indonesian government realized that this farming sector is very important for the economic growth of the country as it contributes to 14% of Indonesia's GDP (Subiyantoro & Ariyanto, 2015).

However, most small holder cacao farmers live under the poverty line. For example, in 2015, the average income of cacao farmers in West Sulawesi region (which is responsible for more than 50% of total cocoa production in Indonesia) was only less than $1.20 per day (Yanuardi, 2014). The most updated international poverty line reported by the World Bank (2016) is equal to $1.90 per day. This condition also put most of the cacao farmers are in the Bottom of Pyramid (BoP) category, which was defined as billions of people living on less than $2 per day (Prahalad & Hart, 1999). Furthermore, the average farmer salary is still far below the minimum wage in West Sulawesi which is $192 per month or $6.40 per day.

Since West Sulawesi is the region with largest cacao farming area per square meter in Indonesia (Subiyantoro & Ariyanto 2015), cacao farming in that area is decisive in the economy of the country. However, due to the low incomes, West Sulawesi farmers feel the need to find other sources of income next to their farming activity or may leave there farms completely and look for other jobs in order to get away from their miserable condition (Yanuardi, 2014). This may results in the decrease of cacao production which will have an impact on other related industries which can, in turn, affect the economy of the country because of the influence of cacao production on Indonesian GDP.

Innovation and entrepreneurship are believed to be potential answers for these problems. Innovation through local business development plays a crucial role in alleviating the poverty and preserving the natural environment (Peredo & Chrisman, 2006). For instance technological innovation in the farming sector could stimulate the development of new solution to existing problems and as a result increase the income of the farmers while sustaining and/or improving the agricultural sector. The contribution of innovation to national economic growth has been well established in the economic literature, both theoretically and empirically (Wong, Ho, & Autio, 2005).

Innovation, though, does not happen by itself, it requires entrepreneurial individuals who do so. Schumpeter's theory predicts that an increase in the number of entrepreneurs leads to an increase in economic growth (Schumpeter, 2013). Local entrepreneurs, in this case entrepreneurial farmers who innovate their farming practices, could play again crucial role in stimulating innovation among other farmers (Bruton, Filatotchev, Si, & Wright, 2013).

However, the economic conditions in the emerging countries are different in comparison with the developed countries. Therefore, theories about innovation and entrepreneurship already well established in developed countries cannot be simply replicated in developing countries. Diverse macro-environmental conditions, societal arrangements, and cultural values are known to play a role in fostering entrepreneurial activities (Peterson, 1988). Another previous study about innovation also mentions that innovation in one cultural setting may be differently invented, developed or implemented in a different setting (Van de Ven, 2004). Peredo and Chrisman (2006) said that there were many initiatives coming from the developed country with the goal of decreasing poverty in the emerging country through the mean of innovation and entrepreneurship. However, almost all of them failed. The reason behind their failure is that the knowledge built and applied in the developed countries was brought in the emerging countries as it was. In entrepreneurship theory from the developed countries, there is a general assumption that ventures are created by an entrepreneur acting solely or as part of a small team of individuals. This is already a significant distinction, since in the rural area there are socio-environmental factors that need to be considered: community culture, natural and social capital are integral and could not be separated from economic considerations. These aspects transform the community into an entrepreneur, which is known as community-based entrepreneurship (Peredo and Chrisman 2016). In this research, the study will be conducted in a rural area in Indonesia that shows a great difference with developed countries in the aspects of vital roles in fostering innovation and entrepreneurial activities. The biggest contrast can be seen from the Hofstede 6 Cultural Dimensions that Indonesia is very collectivist (14 in individualism score) country compare to the country that developed many theories about innovation and entrepreneurship, the United States of America (91 in individualism score) (Hofstede, 2010). Thus, before promoting innovation and entrepreneurship, a field research is needed in order to know at what degree is the existing innovation and at what extend the theory could be applied in rural areas in developing countries like Indonesia.

This research will make use of two theories to explore the actual innovation in cacao farming: the idea journey concept by Perry-Smith and Mannucci (2017) and the effectuation theory by Sarasvathy (2001).

The concept of idea journey will be used as a guideline because this concept explains all the steps of innovation and the need of each step. Since cultural complexity affects the earlier stages of the innovation process (Lingelbach, Sriram, Mersha, & Saffu, 2015), in the process of exploring the innovation on farmers level, it is crucial to bring back the existing innovation to the earliest step in order to know the important decision making to make the innovation successful. The idea journey concept could help to trace back the farmers innovation process until the first step that is the idea generation. The theory consists of four phases: idea generation, elaboration, championing, and implementation (Perry-Smith & Mannucci, 2017). Understanding each phase in the innovative farming practices could help to determine the important decision making theories to make a successful innovation in the cacao farmers in West Sulawesi. The first two steps are more related to the farmers' idea and their own

community, whereas the last two steps are more related to other stakeholders such as financial or political institutions (Howell and Higgins 1990). This research will focus on the first two steps since the aim of this research is to focus on farmers level.

The effectuation theory will support the idea journey concept to find out the most relevant decision-making processes since the journey of the innovation process could be very dynamic and involves a lot of changes. In a context close to the innovation process, attempting a new business, Sarasvathy (2001) believed that the effectual logic is emphasized in the earlier stages of venture creation with a transition to more causal strategies as the new firm and market emerge out of uncertainty into a more predictable situation. Moreover, she noted that effectual logic is likely to be more effective in settings characterized by greater levels of uncertainty. Effectuation theory is integrated with the innovation process literature, which emphasizes resource constraints. The effectuation theory seems promising to be used in this research, because the focus area is on the rural area in developing countries, which has greater resource constraints compared to developed countries.

Furthermore, former study of the innovation process under resource constraints (in the context of small enterprise in developed country) found that effectuation theory has a significant impact on how the innovation process unfolded (Berends, Jelinek, Reymen, & Stultiëns, 2014). Another similar result was also found by Lingelbach, Sriram et al. (2016) who conducted the effectuation theory in the context of innovation in emerging economy. Even though there is a research of effectuation in the emerging economy context, the research is still scarce, so this research will make a contribution to effectuation theory research in the context of emerging economy countries.

1.2. Objective

The aim of this research is to study the characteristics of the early stages in the innovation process of cacao farmers in West Sulawesi province in Indonesia. This aim is a pivotal step in order to make the new innovation that is introduced by the external parties be accepted by the farmers. When the new innovation has been accepted, there will be a bigger chance to empower the farmers to be an entrepreneur. This entrepreneurial activity is expected to increase the income of the farmers while at the same time they preserve their farming activities, just like the background of this research.

1.3. Research Questions

Main research questions:
To what extent are entrepreneurship decision making theories, in particular idea journey and effectuation theory, applicable to the context of emerging economies?

Sub Research Questions for Research Question 1:

1. What are the innovative farming practices?
2. What role do effectuation theory principles play in the idea generation and idea elaboration step in the innovative farming practices in the cacao farmers in West Sulawesi?
3. Did the innovative farmers begin with a given goal or a set of given means?
4. Did the innovative farmers more focus on expected returns or affordable loss?
5. Did the innovative farmers emphasize more competitive analysis or strategic alliances and pre-commitments?
6. Did the innovative farmers exploit preexisting knowledge or leveraging environmental contingencies?
7. Did the innovative farmers try to predict a risky future or seeking to control an unpredictable future?

The main research question shows that the main focus of this research is to find out the decision making process of the innovation in cacao farmers through the lens of idea journey and effectuation theory. Thus, the objective of this research which is to understand the important steps in the early stages of the innovation process will be covered here.
The sub research questions provide the necessary information to help the researcher answering the main research question. The first sub-research question is to explain which type of innovation we will include in this research. The answer of this sub-research question will also be explained with the examples of the innovation. The second sub-research question is to understand the early stages of the journey of the farmers' innovation. Which consists of idea generation and idea elaboration. The third until the seventh sub-research questions explain all the sub-constructs of the effectuation theory. These sub-constructs show until what extent the effectuation theory plays a role in explaining the early stages of the innovation in farmers in West Sulawesi.

1.4. Structure of The Report

The research framework is used to provide a guideline to find the answer to the objective and research question. The next chapter represents the literature review, which explains the four phases of the idea journey, the effectuation theory, and other theories related to innovation and entrepreneurship in emerging economies and its contextual embeddedness. The conceptual framework is illustrated in this section. Once understood the theoretical framework, the following chapter is about methodology. This chapter explains the method to conduct this research and the method of collecting the empirical data from two weeks in-depth field ethnography is illustrated. The data analysis method, which is Gioia methodology (2004), is also explained. The next chapter is the result chapter, where the findings of the field work are reported and analysed through the selected theoretical frameworks to generate data structure. The data structure is converted to the theory model by explaining the dynamic relationship of each dimension. After explaining the results, there is the discussion chapter to compare the finding of the results with the theoretical frameworks. Then, the conclusion chapter based on this research follows. Lastly, the limitation and future research chapter shows the limitations that I encountered during the research process and the possible future research.

1. LITERATURE REVIEW

Since there is no specific theory that can extensively cover the decision making process of the innovation in emerging economies, this research will develop a theory based on the selected theoretical frameworks. The selected theories are used to address the research objective which is understanding the early stages of innovative farming practices in West Sulawesi. The four phases of the idea journey guide me to understand the innovation starting from the final product until the beginning of the innovation. Then, the effectuation theory perspective is used to understand the decision making process along the early stages of the innovation process. Even though I used these two theories, the literature reviews about them are not thorough, since grounded theory research presumes some suspension of belief in the received wisdom of prior work (Gioia, 2013).
Furthermore, there is contextual embeddedness in the emerging economies which is distinct from the developed countries. Since the two adopted theories were also developed and commonly conducted in the developed countries, they need to be reviewed from the context of this research. Thus, in this literature review chapter, besides the two theories, there is also the section of entrepreneurship and innovation in emerging economy context.

2.1. The Four Phases of the Idea Journey

The four phases of the journey of an idea consist of the journey from conception to completion: idea generation, idea elaboration, idea championing, and idea implementation. The idea creator is believed to have distinct primary needs in each phase: cognitive flexibility, support, influence, and shared vision, respectively (Perry-Smith & Mannucci, 2017).

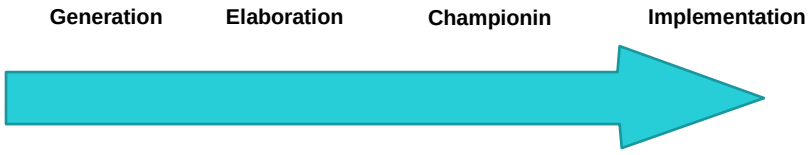


Figure 1. Continuum of the Idea Journey

The idea generation phase is the process of generating a novel and useful idea. When the idea creator selects a single, novel idea that is more promising than others, this phase is concluded (Woodman, Sawyer, & Griffin, 1993). It is important to note that this phase is different from brainstorming, which has the goal to generate a high number of novel ideas that may or may not be useful. (Sutton & Hargadon, 1996). Idea generation initiates within the creator's mind yet is indirectly influenced by the social context (Mueller & Kamdar, 2011).

Perry-Smith and Mannuci (2017) gave an example that additional knowledge may introduce more rigid cognitive pathways. This makes individuals less likely connect to previously disconnected elements. These rigid pathways becomes the limitation to the extent to which one is ready to integrate new knowledge. Therefore, at the idea generation phase, the fundamental requisite is cognitive flexibility which is defined as the ability to shift schemas and cognitive categories.

The next phase is elaboration phase, which is defined as the process of systematically evaluating a novel idea's potential and further clarifying and developing the idea (Perry-Smith & Mannucci, 2017). The importance of elaboration for the creative process both explicitly (Mainemelis, 2010) and implicitly (Torrance, 1988) were recognized by creativity theorists.

In the elaboration phase, creators need two types of support from others. Emotional support is needed in order to reduce uncertainty and to be motivated to push the idea further and not abandon it (Madjar, Oldham, & Pratt, 2002). Idea creators also need constructive feedback and suggestions to help them identify ways to improve and expand their ideas (Harrison & Rouse, 2015). The feedback has to be delivered in an informational way in order to have a positive effect on creativity. Idea creators who get feedback that helps them develop and grow are more likely to perceive it as constructive and supportive, increasing their intrinsic motivation toward tasks and their sense of self-determination (Ryan, 1982). On the other hand, controlling feedback, more critical and evaluative in nature, can undermine intrinsic motivation and creativity (Shalley & Perry-Smith, 2001).

After the elaboration phase, the idea goes to the championing phase as the active promotion of a novel idea (Perry-Smith & Mannucci, 2017), aimed at obtaining approval to push the idea forward and also obtaining money, talent, time, or political cover (Howell & Higgins, 1990). Highly novel ideas have a high risk of rejection, these are not easy tasks because at the end of the championing phase, the idea either is abandoned or will be further developed and implemented (Markham, 2000). Championing phase needs to possess influence to be successful. Influence is important to protect ideas from criticism, and persuading decision makers to get their approval for implementation the idea (Anand, Gardner, & Morris, 2007).

The last phase is the idea implementation, which is divided into two subphases: production and impact. The idea is turned into something tangible during the production subphase. In this step, there is a change from the core concept into a "blueprint" with detailed steps to follow as the idea is converted into a finished product. During the impact subphase, the innovation is accepted, recognized, and used by the field. If an idea changes industry standards and becomes a new creative reference point for the field, the idea has successfully affected the field. Shared vision defined as a common understanding of a valued outcome that is perceived as a higher-order goal (Cardinal, 2001). During the production subphase, a shared vision facilitates high commitment,

better information sharing, and enhanced helping behaviors (Hargadon & Bechky, 2006) that results in an enhanced motivation to work together and more efficient collective production process. During the impact subphase, a shared vision is needed to overcome the potential resistance from field members. Without fully understanding the idea and buying into its creative potential, field members may see the idea as simply a threat to their power, or they might just discard it as crazy or nonsensical (Perry-Smith & Mannucci, 2017). Shared vision and understanding are important to overcome interpretive problems, creates a common language that ensures that the idea is correctly communicated, and guarantees its successful interpretation and acceptance (Carlile, 2004).

The last two phases show the needs to give influence and to have a shared vision, which involve external actors. Furthermore, based on Perry-Smith and Mannucci (2017), these other actors can be investors or other successors who can help the implementation of the idea. Since this research aims to understand the innovation process on the farmers' level, it will only focus in the first two phases.

2.2. Effectuation Theory

Effectuation is a logic of thinking that uniquely serves entrepreneurs in starting businesses that provides a way to control a future that is inherently unpredictable (Sarasvathy, 2003). Effectuation has been found as a theoretical perspective that is relevant with the innovation study (Berends et al., 2014). It is relevant to the areas of entrepreneurship research and teaching because it questions the universal applicability of causation-based models of entrepreneurship to the entrepreneurial process (Morris, Kuratko, & Covin, 2010). Effectuation processes take a set of means as given and focus on selecting between possible effects that can be created with that set of means which is contrasts to causation processes, which is taking a particular effect as given and focus on selecting between means to create that effect (Sarasvathy, 2001). In the process of starting new businesses, Sarasvathy (2001) investigated that effectual logic is applied in the earlier stages of venture creation with a transition to more causal strategies as the new firm and market changes from the uncertainty into a more predictable situation. She noted that effectual logic is more likely to be effective in the greater levels of uncertainty.

Effectuation and causation fundamentally refer to cognitive processes, even though Sarasvathy (2001) stated that there are behaviors that are typical of effectuation and causation. Sarasvathy (1998) did a research using think-aloud protocols in which she asked experimental subjects to continually talk aloud and describe what they are thinking as they were faced with problems and decisions. The experts' underlying logic was extracted from their thinking aloud about the actual problem presented to them.

Sarasvathy developed five behavioral principles or sub-constructs that relate to effectuation and causation based on relationships that she found between her subjects' thinking aloud and the behavior that they took in reaction to the problems they encountered. The five sub-constructs include: (1) beginning with a given goal or a set of given means (bird-in-hand); (2) focusing on expected returns or affordable loss; (3) emphasizing competitive analysis or strategic alliances and pre-commitments (patchwork quilt); (4) exploiting preexisting knowledge or leveraging environmental contingencies (lemonade); and (5) trying to predict a risky future or seeking to control an unpredictable future. Causal logic will begin with a given goal, focus on expected returns, emphasize competitive analyses, exploit preexisting knowledge, and try to predict an uncertain future. On contrary, effectual logic will begin with a given set of means, focus on affordable loss, emphasize strategic alliances, exploit contingencies, and seek to control an unpredictable future. Thus, in predictable environments, causation processes are more likely to be seen while effectuation process are more likely in uncertain environments (Fisher, 2012).

The distinguishing characteristic in the beginning of an innovation is to start with a given goal or with given means (Sarasvathy, 2001). In causal way of thinking, the innovator starts with selecting between given means to achieve a pre-determined goal. This way of thinking is considered to be more managerial rather than entrepreneurial behavior. On the other hand, the innovator is considered to have an effectuation way of thinking when he/she starts imagining a possible new end with a given set of means. This behavior shows a more entrepreneurial way of thinking rather than managerial way. To conclude, effectuation theory promotes entrepreneurs to start taking actions based on what he/she has and to not wait for the perfect opportunity (Westhead & Wright, 2013). Figure 2 shows the difference between causal thinking and effectual reasoning: the circles show the focus of the entrepreneurs when they start their innovations, while the arrows show whether the means will result in given goal (causative) or imagined ends (effectual).

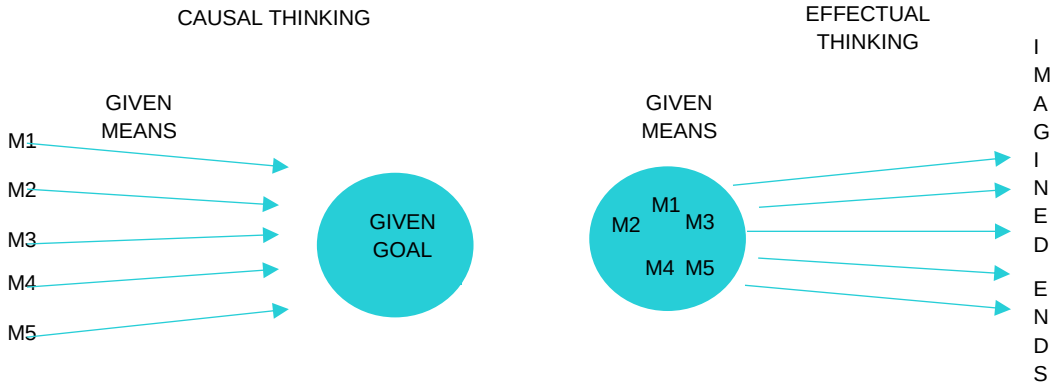


Figure 2. Causal Thinking versus Effectual Reasoning

Entrepreneurs who follow effectual thinking are assumed to focus on the downside, and determine how much they are willing to lose. In contrary, the causal entrepreneurs focus

on maximizing returns by selecting optimal strategies. They calculate in advance how much money they need to start the venture and invest time, effort and energy in raising that money (Dew & Sarasvathy, 2009). In conclusion, the effectuator evaluates opportunities based on whether the downside is still acceptable, rather than on the attractiveness of the prediction of upside.

Causation model, for example Porter model, emphasizes detailed competitive analyses (Porter, 2008). In contrast, effectuation models emphasize strategic alliances and pre-commitments from stakeholders as a way to reduce or eliminate uncertainty and to build stronger entry barriers (Sarasvathy, 2001). This sub-construct is known as "Patchwork Quilt". Entrepreneurs who follow effectuation theory build partnerships with self-selecting stakeholders and obtain pre-commitments from these partners to reduce uncertainty and co-create the new market.

When the competitive advantage is formed from preexisting knowledge, such as expertise in a particular new technology, the causation model might be preferable. However, effectuation would be better for exploiting contingencies that arise unexpectedly over time (Sarasvathy, 2001). This principle is also known as "Lemonade Principle". Surprises, which can be detours and mistakes are inevitable elements of entrepreneurship processes, and the entrepreneur must learn to work with them and identify the opportunities for development that can arise in these situations. Effectual entrepreneurs interpret surprises as potential clues to create new markets instead of making scenarios to deal with surprises or focus on exploiting preexisting knowledge.

Where the causation process focuses on the predictable aspects of an uncertain future, the effectuation process focuses on controllable aspects of an uncertain future. In effectuation, the logic is: *To the extent that future can be controlled, we do not need to predict it.* On the contrary, in causation, the logic is: *To the extent that the future can be predicted, we can control it.* Effectual worldview believes that future is made, instead of found or predicted. Thus, by focusing on activities which they can control, effectual entrepreneurs will get the desired outcomes (Sarasvathy, 2001)

2.3. Entrepreneurship and Innovation in Emerging Economy Context

Entrepreneurship has been described as the study of sources of opportunities, including the processes of discovery, evaluation, and exploitation of opportunities; and also the set of individuals who discover, evaluate and exploit them (Shane & Venkataraman, 2000).

The concept of "Entrepreneur as innovator" was established as a key figure in driving economic development. The innovative activity of entrepreneurs feeds a creative "destruction process" by causing constant disturbances to an economic system in equilibrium, creating opportunities for economic rent. In adjusting the equilibrium, other innovations are spun-off and more entrepreneurs enter the economic system. This way,

Schumpeter's theory predicts that an increase in the number of entrepreneurs leads to an increase in economic growth (Schumpeter, 2013).

Innovation is the development and implementation of new ideas by people who over time engage in transactions with others within an institutional order. This definition focuses on four basic factors: new ideas, people, transactions, and institutional context (Van de Ven et al, 1999).

The innovation process starts with the invention process (the emergence of a novel idea), continues with the development (the elaboration of that idea) and concludes with the implementation (the widespread acceptance of that idea) (Van de Ven, Polley, & Garud, 2008).

Unlike in the developed economies, in the emerging economies there is a contextual embeddedness which is not included in the concept of innovation and entrepreneurship from the developed country. These embeddedness contexts can play important roles in shaping the entrepreneurial process (Jack & Anderson, 2002). Thus, embeddedness can influence the innovation process in emerging economy to have non-linear type of process like the one that is described in the idea journey concept. This probability was already predicted by the effectuation theory that shows a more complicated innovation process under resource constraints. However, in the emerging economy context, in addition to resource constraints there are more limitations that can interfere with the innovation process, which is not described in effectuation theory. The emerging economies context has three important aspects that need to be considered: socioeconomic conditions, geographic positions, and institutional environment (Yessoufou, Blok, & Omta, 2018). Each aspect shows a big contrast in comparison with the one of the countries where the mainstream entrepreneurial theories were made. Besides showing a big contrast, these aspects which are not related with economic institution also constrain the economic activity in emerging economies. Therefore, in this research these three aspects become the focus of the contextual embeddedness.

2.3.1. Socioeconomic Conditions

he socioeconomic in Indonesia does not really show a good atmosphere for entrepreneur to set up a business since the rank for ease of doing business in Indonesia is number 91 (WorldBank, 2016). Indonesia also represents one of the country where doing business is relatively difficult among ASEAN countries when comparing to its neighbours, Singapore or Malaysia, which respectively have rank 1 and 18 (GEM, 2016). However, in terms of entrepreneurial behaviour and attitudes, people from Indonesia show that they have higher self-perception rate (perceived opportunities, perceived capabilities, and entrepreneurial intentions) in comparison with global average and region (ASEAN) average (GEM,2016).

Inequality distribution of the development in Indonesia gives the high economy gap between people who lives in the city and in the rural area (Yanuardi, 2014). As this research is conducted to understand the innovation of cacao farmers in West Sulawesi, the focus of this research is the rural area. In terms of socioeconomic conditions, rural area in emerging economies have a lot of constraints. Besides having an extremely low revenue (Prahalad & Hart, 1999), they also have limited access to important factors supporting entrepreneurship such as technology, information, capital and knowledge (Henriques & Herr 2007). In this case, farmers in West Sulawesi show these limitations: living under the poverty line, limited access to information e.g. no internet signal, and also low education level: the average education is only elementary school (Yanuardi, 2014)

Zooming into the social condition, the social environment influences the performance of individuals creating a sense of social control via a complex culture. Cultural complexity could be the main issue for innovations in this research since the culture in Indonesia highly differs from the culture of the countries that developed innovation and entrepreneurship theories. Cultural complexity is defined as different cultural contexts having their own practices, values, and discourses that drive innovation (Garud, Tuertscher, & Van de Ven, 2013). Cultural complexity, which plays a big influence in the innovation process in emerging economies, affects the earlier stages of the innovation process (Lingelbach et al., 2015). Generally, innovations in one cultural setting are invented, developed or implemented differently than in another setting (Van de Ven et al., 2008).

2.3.2. Geographic Positions

West Sulawesi is one of the newest province in Indonesia. The province was established in 2004, after the splitting from South Sulawesi province. In 1983, Indonesia set up the Transmigration Department in order to equally distribute the population in all the territory. One target of the transmigration was the area in South Sulawesi province which is currently known as West Sulawesi province. (Setiawan, 2015).

Since it is considered as new province, the infrastructures in the village in West Sulawesi are still underdeveloped. These poor infrastructure conditions make the access to the cacao farms really challenging. Considering that almost all farmers live near their farms, this disadvantage in their geographic position makes a lot of limitations for the farmers and family. Those limitations result in the difficulties to get information access, infrastructures that facilitate production (roads, communication networks and transportation) and access to the market which

represents a disadvantage for farmers and their family (London, Anupindi, & Sheth, 2010).

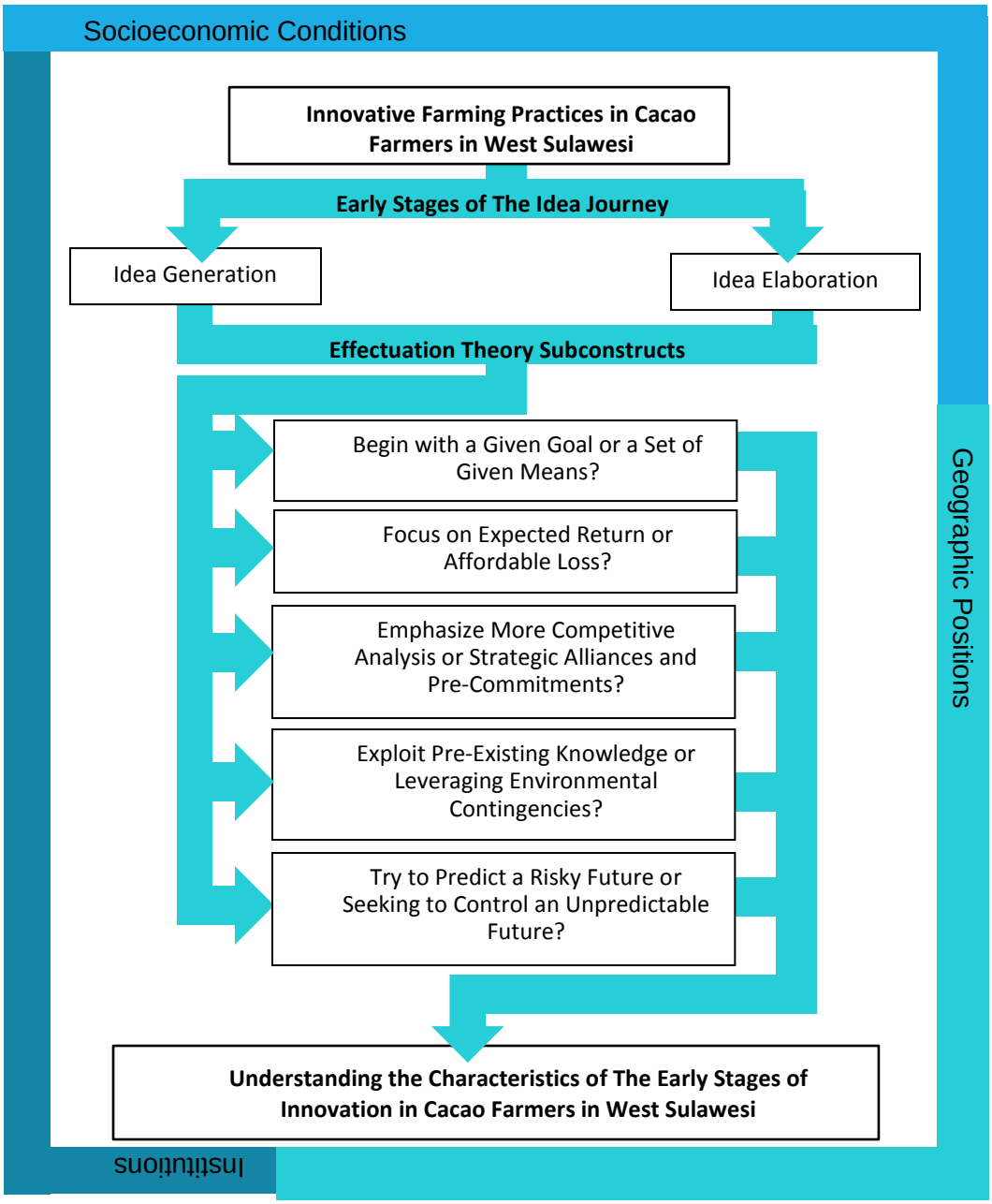
2.3.3. Institutions

Considering socioeconomic environment and geographic positions in impoverished settings that are very different from the assumptions that form the foundation of most management theories, the condition of institutional settings is also affected by these differences. In terms of the institutional environment, entrepreneurship in emerging economies is embedded in the informal institutional environment because of the scarcity of formal institutions, which refer to the existence of legally valid and enforceable norms, status, and regulations (Webb, Bruton, Tihanyi, & Ireland, 2013). This inadequate institutional environment gives a dissimilar experience in the development of business activities, since the activities are based on trust. The entrepreneurs in the impoverished context need to build legitimacy and trust which can be a challenge that cannot be found in most management theories in developed countries. In an impoverished setting, informal institutions such as the family household has an important influence on firm performance (Nason, Gras, & Lumpkin, 2014). The aspect of the institutional environment has been the focus of many studies in more mature economies, therefore it needs to be considered in the results of this research (Bruton, Ahlstrom, & Li, 2010).

2.4. Conceptual Framework

The conceptual framework explains the effectuation theory perspective in the early stages of the idea journey. Five effectuation theory sub-constructs are used to analyze idea generation and idea elaboration phase. All of these theoretical frameworks are analyzed under the selected contextual embeddedness: socioeconomic, geographic, and institutions. The visualization of these interrelated theoretical frameworks and the contextual embeddedness can be seen in Figure 3.

Figure 3. Conceptual framework



The arrows explain the flow of the theories that I used to understand innovative practices in cacao farmers in Sulawesi. It can be seen that the first theory is the idea journey concept which helps to trace back the processes of the innovative farming practices since the beginning. Then the arrows point at the effectuation theory sub-constructs in order to understand the decision making process along the early stages of the innovation. The contextual embeddedness is placed in the outer part of conceptual frameworks to show that I take into account these contexts when analyzing the collected data.

2. METHODOLOGY

The aim of this study is to find out the innovative farming practices among the cacao farmers in West Sulawesi province in Indonesia. The qualitative study method is selected because the aim of this study is suitable with the main focus on qualitative research based on Kumar (2011), which is to understand, explain, explore, discover and clarify situations, feelings, perceptions, attitudes, values, beliefs and experiences of a group of people. Moreover, study designs in qualitative research are more appropriate for exploring the variation and diversity in any aspect of social life, whereas quantitative researches are more suited to find out the extent of this variation and diversity. This study will be conducted in deductive logic since it will be flexible and emergent in nature.

The type of qualitative study design that will be conducted is case study design. In case study design, the selected case is the basis of a thorough, holistic and in-depth exploration of the aspect(s) that the researcher wants to find out. This case study design is very suitable when the focus of a study is on extensively exploring and understanding rather than confirming and quantifying. Overview and in-depth understanding of a case(s), process and interactional dynamics will be provided within a unit of study (Kumar, 2011). Therefore, the case study design is suitable to be used in the case of exploring the innovative farming practices in selected innovative farmers.

This research methodology was operated inductively, departing from existing theories to build the most suitable theory for the context of this research. However, the theory-building research ideally starts without theory under consideration (Eisenhardt, 1989). Since it is almost impossible to start a research without theory at all, I followed Gioia methodology in coding and analyzing the data, which keeps in balance the informant-centric terms and researcher-centric concepts. This method allowed not only a qualitatively rigorous demonstration of the links between the data and the induction of the new concept, but also allowed for an insight that define high-quality qualitative research (Gioia, 2013). By performing this method, the researcher chose an existing theoretical framework (not extensively) and, at the same time, the collected data was reviewed, coded, and grouped into concepts and then categories. Later, the grounded theory was generated from the dynamic interrelation between them.

The important process of innovation in cacao farmers, which is found through the concept of idea journey will be explained together with the effectuation theory to understand the innovation in cacao farmers in the emerging economy context. Understanding the innovation in cacao farmers systematically could help to promote innovation among other cacao farmers who have not done innovation yet in order to improve their economic condition.

3.1. Method of Data Collection

The empirical data were gathered from two weeks in-depth field ethnography where I stayed and explored the villages in West Sulawesi to find innovative farmers. In total, five innovative farming practices were found. The visit of each farm took around half day in order to observe each innovation and collect the data. The data were gathered through semi-structured interviews and informal conversations.

In this research, innovative farmers are defined as any farmer who is doing any kind of innovation (invention, development, and implementation) related with their farming activity in order to increase their income.

Samples are selected through the snowball sampling. This sampling method helps the researcher to ask a member in the group to identify other people and the selected people become part of the sample (Kumar, 2011:190). This is the most suitable method in the context of this research since the innovative farmers are most known by other farmers or trainers in the same region.

Like in most good qualitative research, multiple data sources (statistic reports, field observations, media documentations, etc.) were employed, but the semi-structured interview is the core of data collection. The semi-structured interview obtains both retrospective and real-time accounts by those people experiencing the phenomenon of theoretical interest (Gioia, Corley, & Hamilton, 2013). It provides a framework, which allows the interviewer to set specific topics to be examined and in the same time provides the interviewee with freedom to deviate from the topic (Bryman, 2007). Hence, we are able to address the discussion towards the earlier stage of innovation.

The information to access the innovative farmers and the related stakeholders in West Sulawesi were not easy to find since the beginning. Without the first informant, it would have been very difficult to find farmers who develop innovation because of the communication barrier and the little knowledge about farming activities in the city. In the village area, there are a lot of cacao farmers, but not all farmers are interested in innovation and they do not know other farmers who do innovation. Moreover, there is not enough data about innovation in cacao farmers from the agricultural department or other related organizations therefore governments' archive could not really help in the process of finding innovative farmers. In the context of this research, the first field visit from the researcher's relative was needed to get the first contact of the informants. The informant that was found is a trainer from BPTP and then the other innovative farmers were found based on his suggestions.

Five innovative farmers were found in two months of search. It began with the contact of the trainer from Indonesia Assessment Institute for Agricultural Technology - Balai Pengkajian Teknologi Pertanian (BPTP), who suggested the name of two innovative farmers. Those two farmers recommended the names of three other innovative farmers.

Even though the contacts of the farmers were already found before doing the field research, there were still some challenges when the researcher arrived on the field. It was not easy to access the location. First, there is no public transport from the city to the village. Car or motorcycle hire is the only option to access the farmers. Second, the phone signal in farmers' villages is very low. Some farmers need to go out from their village to get the phone signal. Third, the trip to each village takes more than two hours driving, and this research was conducted in three different villages. Fourth, the infrastructure of the road is still very little developed. Moreover, since some parts of the journey almost have no road (only rocky and steep path), the researcher was using the rented four-wheel drive car. And since the names of the streets are also not well organized, the GPS could not help. The best solution was to wait for the informants to have some spare time to accompany the researcher to visit the farmers.

The five interviews were conducted in thirteen days of field work. While conducting the semi-structured interview on the field, the conversation developed from the casual informal conversations until the semi-structured interview based on the protocol that I made (see Appendix 1). I also observed their innovations and their cacao plantations. The interviews were conducted in Indonesian language mixed with native Sulawesi language. The interviews were recorded and then transcribed. After coming back from the field, the transcripts of the interview were translated in English (see Appendix 2). However, since the interactions were informal, each conversation took up to two hours. During the visit of the farms I engaged informal conversations with the farmers in order to gather more information that I would have not collected following only the interview protocol. Even though I referred to the interview protocol to make sure that the important questions were answered, there were also many insights from the informal interview which was not recorded since it happened outside the semi-structured interview sections. These insights were also taken into account in the discussion chapter to support my argument about the resulted theory.

3.2. Data Analysis

The results of the semi-structured interview were analyzed through Gioia methodology (2014). The analysis begins with identifying initial concepts in the data and grouping them into categories (open coding). The interview results are coded and analyzed through 1st order analysis and 2nd order analysis to get the model of the research. In the 1st-order analysis, informant terms are adhered faithfully with little attempt to distill categories. This analysis gives such a number of 1st-order categories that could make many researchers feel that they are lost. According to the author of this method, this "get lost" feeling is completely fine. Moreover, the author of this method said that researches have to get lost before they can get found (Gioia, 2004).

The research then is continued to the 2nd-order analysis where similarities and differences among the categories are sought. This step reduces abundant categories to a more manageable number and the researcher needs to give those categories labels or phrasal descriptors. When workable set of themes and concepts are in hand, the themes are investigated whether it is possible to distill those themes into 2nd-order aggregate dimensions.

The example of making the informant-centric terms (1st-order) coding, the researcher-centric themes (2nd-order) coding, and the aggregate dimensions can be seen in Table 1. In this table, it can be seen that from the interview answers, I provide the first order code where I keep informant-centric terms and then, using my knowledge to think multiple level simultaneously (the level of informant terms and the theoretical level of themes) I generate the second order code. After having the 2nd order code, I look for the possibility to distill these emergent codes even further into aggregate dimensions.

Table 1. Examples of coding with Gioia methodology (2014)

Interview Answers	1st Order Code (informant-centric terms)	2nd Order Code (researcher-centric terms)	Aggregate Dimension
"We made a hole from concrete and stirred it frequently"	Started with Concrete hole and stirred periodically	Affordable Loss	Emphasizing affordable loss without expected return
"And in the end, while I am smoking, I put the fire of my cigarettes to the plastic and it stuck. but cigarette does not have the fire for long time, instead the anti mosquito can takes one full day even two days"	Anti mosquito, cigarettes		
"He built everything himself, he controlled the watering activity regularly without water pump"	Watering manually		
We have not made use of other training we attended because our human resources (in the cooperation) are already occupied, we only focus in making simple cage	Start with simple cage		
"We use only things we had to make the cage which can collect the urine "	Using existing materials to build the integrated cage		
"No, I did not borrow money, I use only simple tools"	Not borrowing resources	No vision to maximize profit	
"I have no idea, I did not count. Because as you can see, we are commit to what we had" "We are commit (with available resources)"	Commit with the things they have		

Once we have the 1st-order terms, 2nd-order themes and aggregate dimensions, we have the basis for building a data structure which is considered a pivotal step in the entire research approach (Gioia et al., 2013). The data structure helps the researcher to configure their data into a sensible visual aid. It also provides a graphic representation while conducting the analysis of how raw data are progressed to 1st-order terms and 2nd-order themes, which is a key component of demonstrating rigor in qualitative research (Pratt, 2006; Tracey, 2010). The full structure from the 1st order codes until the aggregate dimensions can be seen in the data structure in Figure 4.

To obtain the final result of the research, the static data structure needs to have dynamic relationship. The dynamic relationship is developed based on the first two stages of the idea journey concept, which are idea generation and idea elaboration stage, that are used to analyze the data in the context of this research. As it was predicted in the theoretical framework, the latter stages of the idea journey such as idea championing and idea implementation are not used since they are not suitable in emerging economy context.
The dynamic relationship among the emergent concepts which show the phenomenon of interests is described by the resulting grounded theory model. This theory also explains relevant data-to-theory connections (Gioia, Corley et al.2013).

3.3. Reliability of Data

The reliability of data analysis is supported with the Gioia Methodology, which retains the informant terms. Therefore, the coding runs in more transparent conditions. The documentation of semi-structured interview protocol is also provided in this report thus the research can be replicated if there is any necessity to do further research related to this topic. The interviews are documented with transcripts and pictures. Furthermore, audio file recording also provide access to the raw interview data.

4. RESULTS

Before illustrating the results of this research, the five innovation practices are explained in the first section of this chapter. Even though these practices do not represent the real results, the field work experience had been valuable since it helped me to find some phenomena that I could look at to answer the research questions. After explaining the innovative practices, the next sub-chapter presents the result of data analysis in the form of data structure. In the last sub-chapter, the resulting theory model is presented and all the dimensions are explained.

4.1. Innovative Practices

Five innovative farmers were selected through the snowball sampling which resulted in five innovation topics: automatic circulation to make urine fertilizer, cacao fruit slipcover, cacao nursery for budding technology, integrated goat cage to make fecal fertilizer, and cage installation to make urine pesticide. All the interviews were conducted on the site with the innovative farmers, except for the nursery for budding technology, which was conducted through the informants (BPTP).

4.1.1. Automatic Circulation to Make Urine Fertilizer

This innovation focuses on the manufacture of urine fertilizer. This innovation makes use of goats' urine which contains very high amount of nitrogen to improve the condition of the soil. However, urine needs to be fermented to reduce the smell of urine and to kill the disadvantageous bacteria. This fermentation process also reduces the ammonia and increases the content of nitrogen that is bound by advantageous bacteria.

The journey of this innovation is not as simple as making the installation. It is common practice for farmers in the village in Indonesia to breed goats that are traded in bigger cities. At the beginning of the innovation process, these innovative farmers used feces to produce the fertilizer after attending the training from BPTP in Mamuju, the capital of West Sulawesi province. This training is provided by BPTP for selected cooperatives. Each cooperative generally collects the money from all the members and send one or two representatives to attend the training. Together with the cooperative members, the innovative farmer ceased to use the chemical fertilizer after they knew that it was not good for their plantation. Instead, they started collecting feces from their goats and using them as fertilizer. This way, they were also saving their money since they got them for free. However, because of the insufficient number of goats, they also collected and fermented urine in a concrete hole. While the fermentation process is conducted, periodically stirring is needed to reduce the ammonia content. Along the process of making fertilizer, the innovative farmer found a lot of unexpected

situations that forced him to do collaboration and change the original plan. For example, the farmer found that in busy periods like harvesting time, they could not manage to stir the urine. This situation ended up in a waste of urine since the fermentation was not successful. When a BPTP agent visited their plantation, he checked the condition of the urine and said that unfermented urine cannot be used as a fertilizer. This event made the farmers to get more in contact with BPTP. They also found out that they could work together to build an automatic installation. Along this innovation process, the farmers also showed that they were adapting to the possible condition. They could not follow all the plans that BPTP gave since they did not have enough money to buy the suggested equipment such as a water tank to perform circulation. However, they found out that ex drinking water bottle could be a useful substitute for the water tank.

The final installation process as shown in Picture 1 has been operated for almost one year and already produced some urine fertilizer. At the moment, the usage of the urine fertilizer is only for internal cooperative members since the demand for the fertilizer is still high.

Picture 1. The Automatic Circulation of Goat's Urine Fertilizer

4.1.2. Cacao Fruit Slipcover

Covering the fruit is needed to avoid the attack from the pod borer. The innovator found a simple but very effective way to protect cacao fruit from pod borer. He started the process of covering the fruit with a cylinder slipcover that received from one Agricultural Department Agent. He noticed the improvement of the cacao fruits quality that were covered with the cylinder compared to those which were not covered. However, along this practice, he realized that covering the fruits with cylinders required long time and human resources to help. After the harvesting period, he made a calculation with his cooperative members to find out if this covering cacao fruit practice was giving profit or not. The calculation showed that even though he needed to pay some workers to cover all the fruit, they still could gain 40% more profit, which could cover all the expenses to pay workers to help them covering all the fruits. Many other farmers did not think about this increase in profit and just thought that the practice of covering the fruits was a waste of time. While the other farmers left this practice, the innovative farmer kept doing it together with the cooperative members.
At a certain point, he realized that his need was increasing so he had either to produce more or reduce his expenses. He thought about reducing the workers that were helping him covering the fruit, but, at the same time, he needed them. This situation forced him to find an easier and more efficient way to cover to fruit. In the end, after trying some affordable equipment like paper and candle, he found out that he could make use of cigarettes to stick the plastic. Thus he started to apply this method, which is covering the fruit with the plastic stuck together by the fire of the cigarettes. This method can be 10 times faster than using a cylinder. But since he needed to spend few hours per day to cover the fruit, he could not waste his cigarettes just to stick the plastics. This innovative farmer ended up by using plastic to make a slipcover and stuck the plastic with the heat coming from the anti-mosquito coil. The fire in the anti-mosquito coil lasts very long time, thus one anti mosquito can be used for more than four days to cover the fruit. By applying this latest slipcover method, the innovative farmers had some benefits: an increase of the harvesting since the fruits were covered from the pod borer, a reduction in the costs to buy the cylinder, and a decrease in the expenses for workers since the work duration is lower.

Picture 2. Cacao fruit slipcover

4.1.3. Cacao Nursery for Budding Technology

The nursery was built to plant the high quality cacao plants. The idea came up when the innovative farmer started doing the budding technology. Agriculture Department Agent gave some high quality plants to the selected farmers in order to promote budding technology. Along the process, he found out that he needed to put more cacao plants in his cooperative's farms but the stock in the department of agriculture was limited. He noticed that he could allocate a small part of his land to make a nursery to plant high quality seeds. Later, he asked the high quality seeds from the agriculture department agent and planted them. By planting cacao seeds in the nursery, the innovator could provide the branches to apply the budding technology in order to harvest more often and to increase the productivity of the cacao farming. This innovative farmer is different from the other farmers because, besides watching out his plantation, he also took care of his nursery.

Picture 3. The Cacao Nursery

4.1.4. Integrated Goat Cage to Make Fecal Fertilizer

The organic fertilizer from goats' feces is made in this innovation. It was started when the farmers traded the goats for Idul Adha festive, the big day of the Moslem to celebrate the willingness for Abraham to obey the order of God to sacrifice his son. Since it is believed that God provided a male goat and changed his son with that goat to be sacrificed, in every Idul Adha holiday, Moslem people buy male goat and slaughter it and give the meat to the poor. Farmers in West Sulawesi look after male goats and trade them every year to the East Kalimantan which can buy them at a higher price. It is common practice in Indonesia to keep the goats in the cage to shelter them from the tropical rain and drought. Knowing that goat feces can be used as organic fertilizer, the innovative farmer started to process the goat feces and using them as fertilizer for the cooperative. They started from their own individual cage, where each farmers generally has only between two and four goats. Picture 4 shows an old cage.
In the journey of the innovation process, they started to develop an integrated collective cage (Picture 5) for all the members of the cooperative who have goats. They also made the fertilizer together in the central processing goat feces (Picture 6). Thus they have an improved cage with a 10° angle in the bottom of the structure which

can help the feces going out automatically. They also made a schedule for each member to look after the cage.

The product is mainly used by the cooperative members. When there is extra stock, they sell the organic fertilizer to other farmers from different cooperatives. They also sell it to BPTP.

Picture 4. First goat cage

Picture 5. Improved goat cage

Picture 6. Central processing area of fecal fertilizer

4.1.5. Cage Installation to Make Urine Pesticide

Organic urine pesticide is produced for the daily use of the farmers. This innovation started when one of the member of the cooperative realized that cacao tree which was located close to the goat cage had better fruit than the tree that was far from the cage. Thus they realized that goat's urine was working as a natural pesticide. Consequently, they started to apply the urine as pesticide and they saw the positive result. In order to make the urine collection easier, the cage was installed with a pipe that made all water coming in the cage to flow through the pipe into a hole. This system can be visualized in Picture 7. They put the small container inside the hole and they moved the urine every day and stored it into the big tank.

In general, the resulted product is only for the internal members of the cooperative. However, this natural pesticide has been bought a couple of times by the Agricultural Department Agency to show it in Indonesian Agricultural Expo.

Picture 7. The hole to collect the urine

Picture 8. The Storage Tank for the Goat's Urine Pesticide

4.1.6. Characteristics of The Interviewees

The culture and habit of the farmers in West Sulawesi are very different compared to the context of the innovator in the country where the innovation or entrepreneurship theories were born. Therefore, it is important to make some notes about the characteristics of the interviewee to help the reader and future researchers understand the conditions of the interviewee. Characteristics of the interviewees can be seen in the Table 3.

One out of four innovative farmers can be considered as internet friendly, but they do not use internet to access the information related to farming activities. Instead they use it as an entertainment, such as to keep updated about the news. On the contrary, the trainer from BPTP which becomes the informant of the nursery innovation is internet friendly and make use of the internet to gain knowledge about farming activities.

The limited access to useful information makes almost all innovative farmers rely on middle man without willingness to find the real price in the cacao market.

In summary, even though they live in isolated area, they are very communicative and passionate when talking about cacao plantation. They are also willing to answer all the questions related to their farming activities, as a matter of fact the information needed in this research were not difficult to collect.

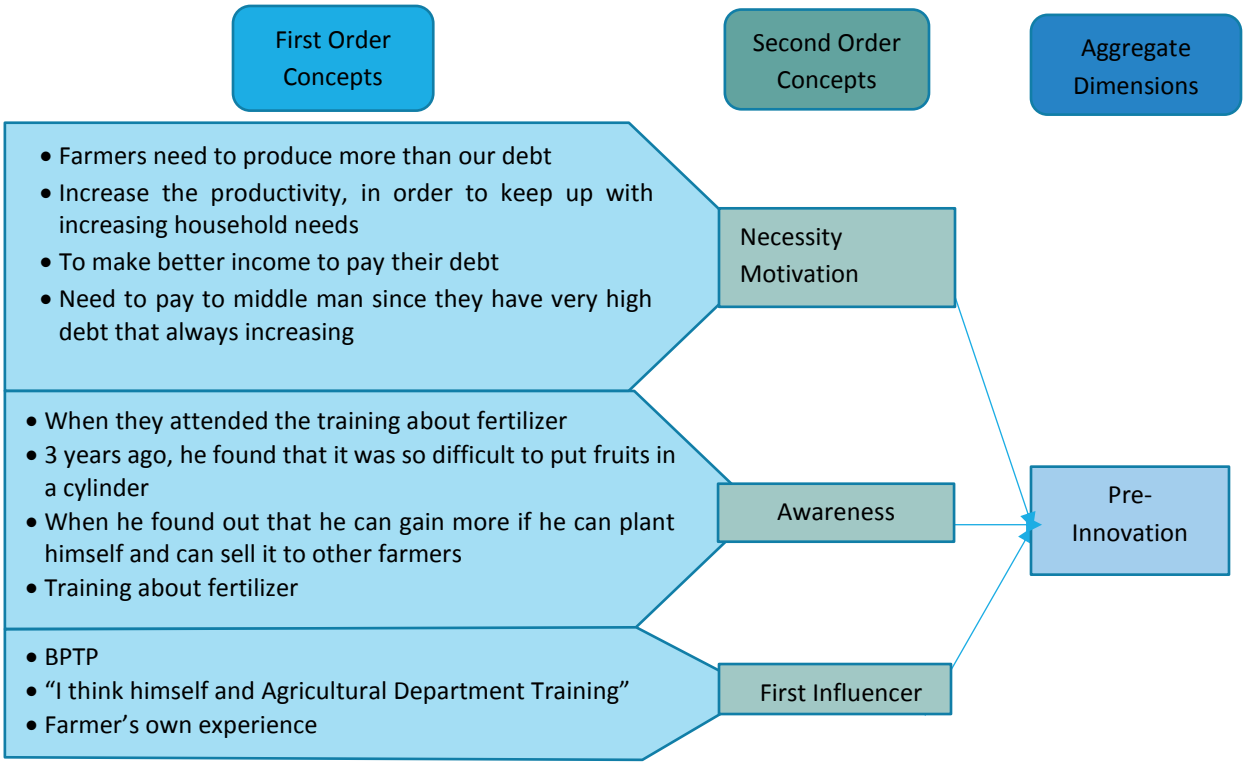
Table 3. The role and characteristics of the interviewee

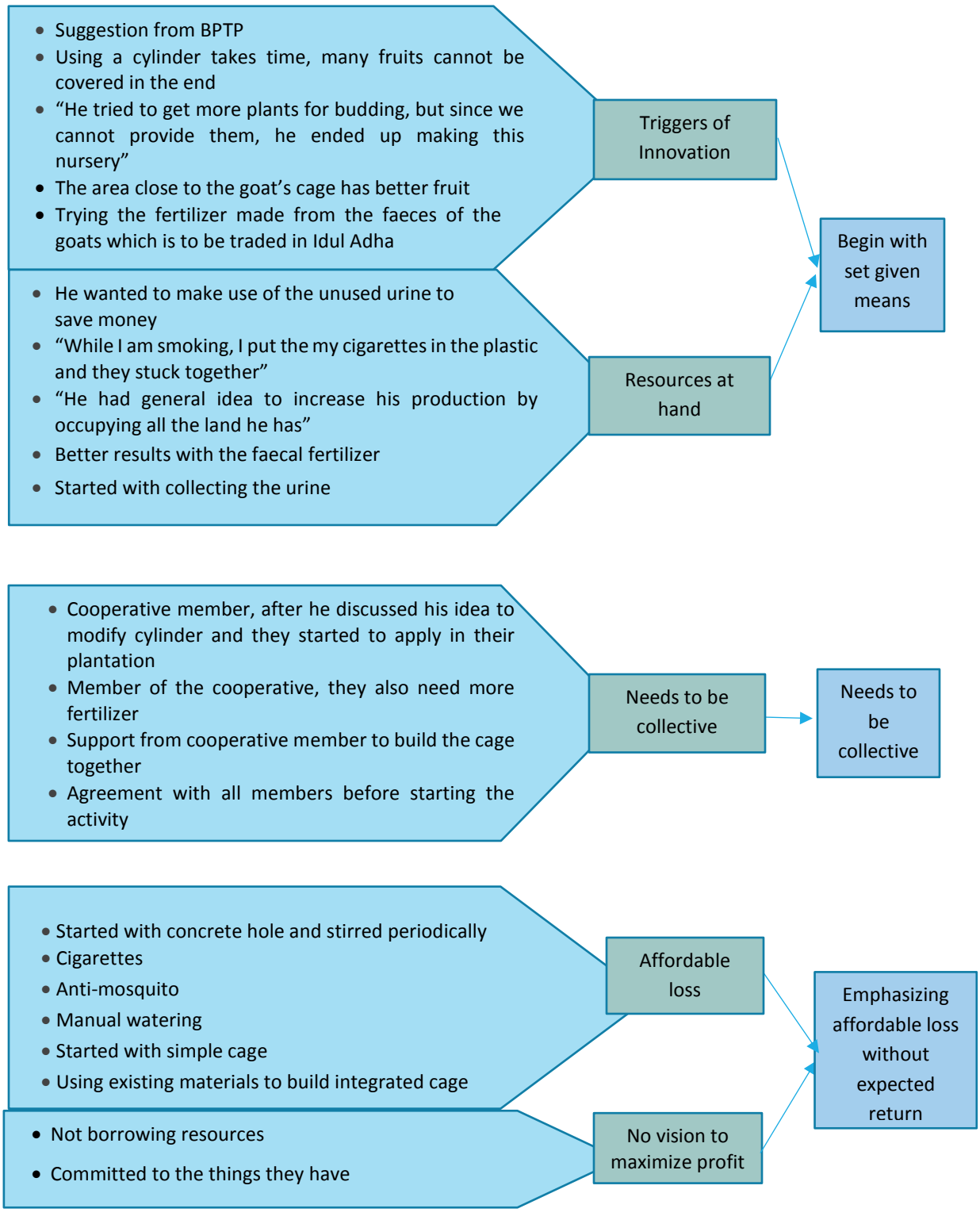
No.	Innovation Name	Role of Interviewee	Characteristics and Backgrounds of Interviewee
1	Automatic circulation to make urine fertilizer	Owner of idea, Innovative farmer	35 years old Introvert Passionate about his innovation Uncommunicative, need questions before sharing Not internet friendly Middle man customer
2	Cacao fruit slipcover	Owner of idea, Innovative farmer	58 years old Extrovert Passionate about his innovation Communicative Not internet friendly Not middle man customer
3	Cacao nursery for budding technology	Owner of idea, Innovative farmer	30 years old Extrovert Passionate about his job Communicative Internet friendly Middle man customer
4	Integrated goat cage to make fecal fertilizer	Owner of idea, Innovative farmers	49 years old Introvert Passionate about his innovation Uncommunicative, need questions Not internet friendly Middle man customer
5	Cage installation to make urine pesticide	Owner of idea, Innovative farmers	48 years old Extrovert Passionate about his innovation Communicative Internet friendly Middle man customer

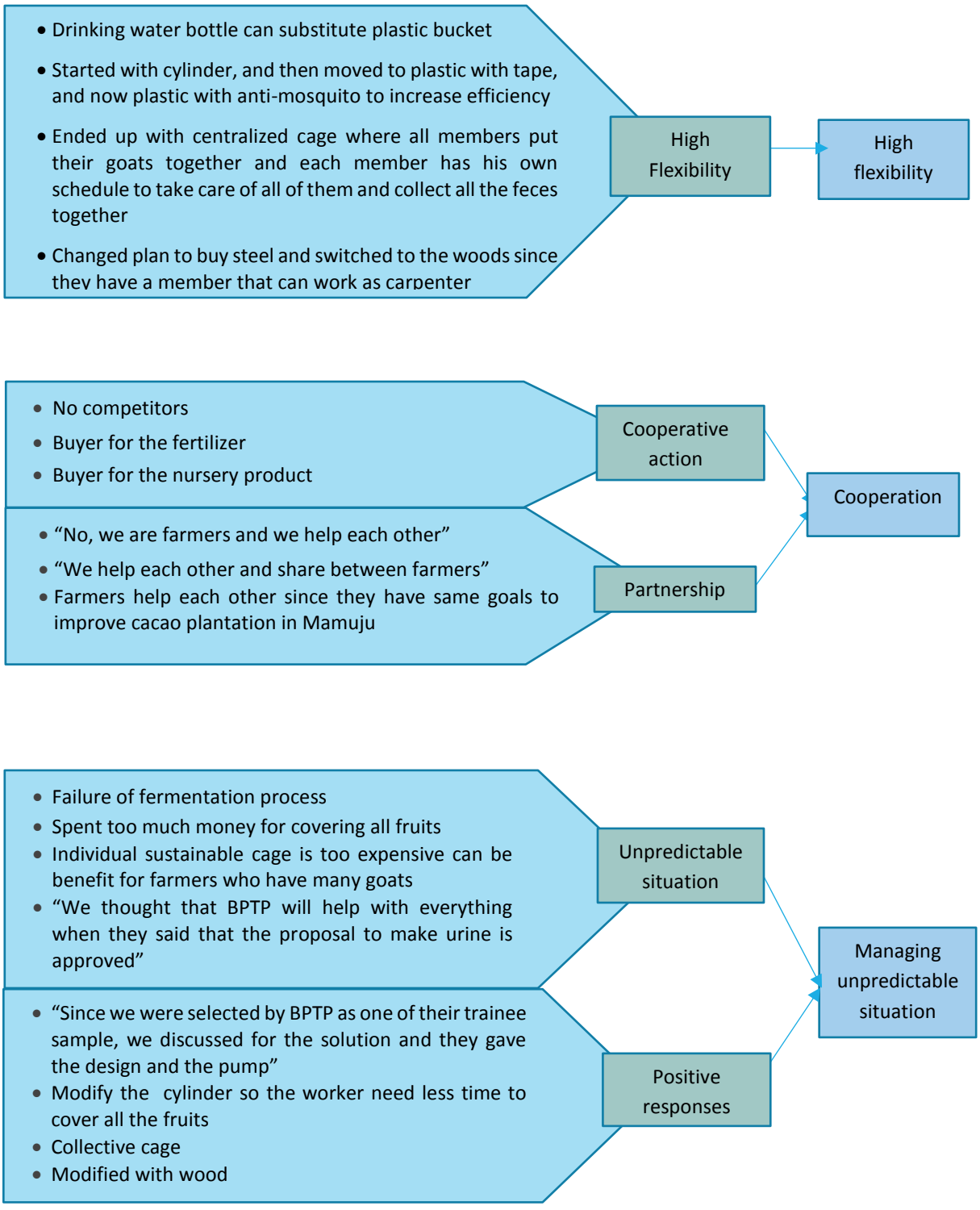
4.2. Result of Data Analysis

Data analysis from the raw data resulted in fifty 1st-order categories. These informant-centric categories were distilled with the theoretical realm into thirteen 2nd-order themes and into six aggregate dimensions. The data structure is illustrated in the Figure 4, which summarizes the second-order themes on which the model of the decision making process was built.

Figure 4. Data Structure



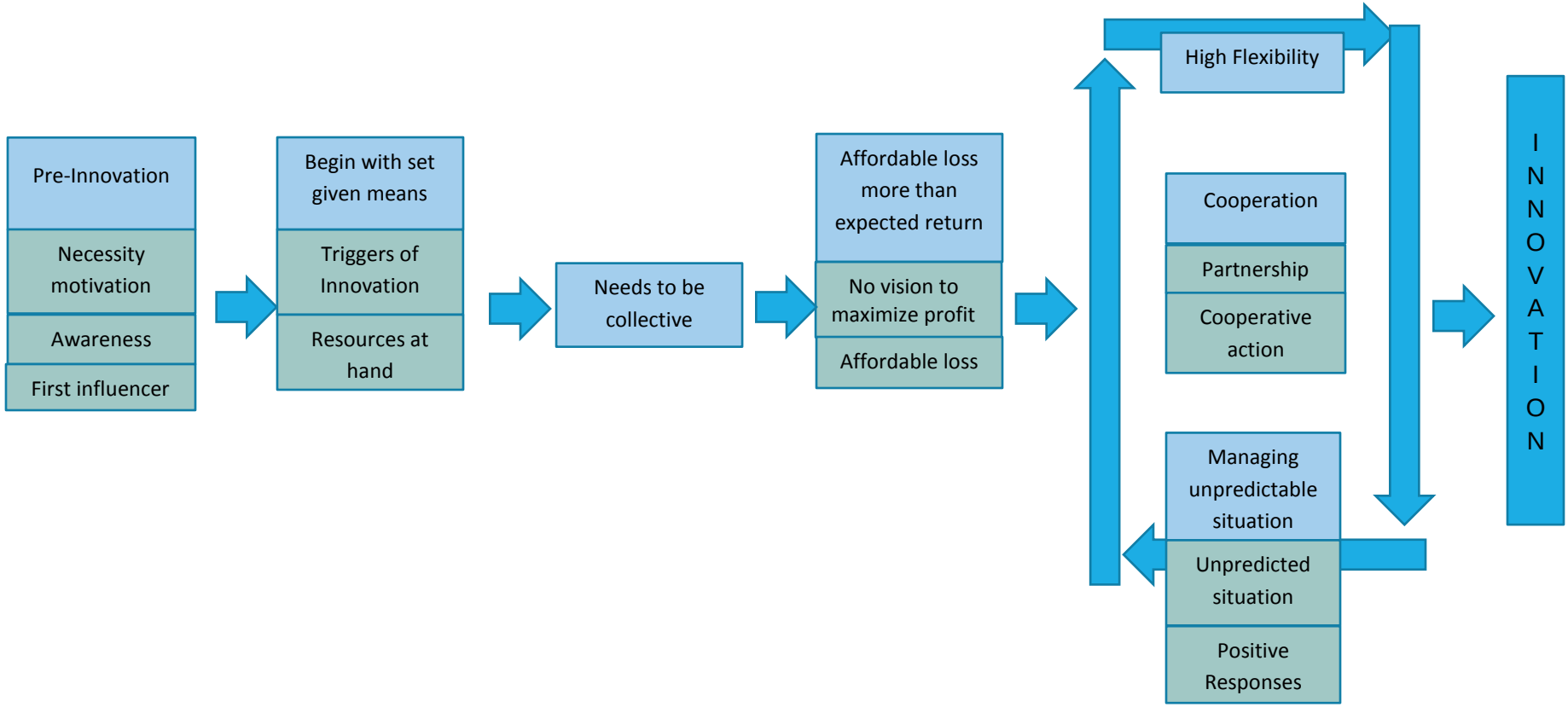

Suggestion from BPTP
Using a cylinder takes time, many fruits cannot be covered in the end
"He tried to get more plants for budding, but since we cannot provide them, he ended up making this nursery"
The area close to the goat's cage has better fruit
Trying the fertilizer made from the faeces of the goats which is to be traded in Idul Adha
Triggers of Innovation
He wanted to make use of the unused urine to save money
"While I am smoking, I put the my cigarettes in the plastic and they stuck together"
"He had general idea to increase his production by occupying all the land he has"
Better results with the faecal fertilizer
Started with collecting the urine
Resources at hand
Begin with set given means
Cooperative member, after he discussed his idea to modify cylinder and they started to apply in their plantation
Member of the cooperative, they also need more fertilizer
Support from cooperative member to build the cage together
Agreement with all members before starting the activity
Needs to be collective
Needs to be collective
Started with concrete hole and stirred periodically
Cigarettes
Anti-mosquito
Manual watering
Started with simple cage
Using existing materials to build integrated cage
Affordable loss
Not borrowing resources
Committed to the things they have
No vision to maximize profit
Emphasizing affordable loss without expected return


Drinking water bottle can substitute plastic bucket
Started with cylinder, and then moved to plastic with tape, and now plastic with anti-mosquito to increase efficiency
Ended up with centralized cage where all members put their goats together and each member has his own schedule to take care of all of them and collect all the feces together
Changed plan to buy steel and switched to the woods since they have a member that can work as carpenter
High Flexibility
High flexibility
No competitors
Buyer for the fertilizer
Buyer for the nursery product
Cooperative action
"No, we are farmers and we help each other"
"We help each other and share between farmers"
Farmers help each other since they have same goals to improve cacao plantation in Mamuju
Partnership
Cooperation
Failure of fermentation process
Spent too much money for covering all fruits
Individual sustainable cage is too expensive can be benefit for farmers who have many goats
"We thought that BPTP will help with everything when they said that the proposal to make urine is approved"
Unpredictable situation
"Since we were selected by BPTP as one of their trainee sample, we discussed for the solution and they gave the design and the pump"
Modify the cylinder so the worker need less time to cover all the fruits
Collective cage
Modified with wood
Positive responses
Managing unpredictable situation

4.3. The Theory Model

The dynamic relationship among the emerging concepts is described in the theory model of decision making process in Figure 5. The following decision making process of innovative farming practices in cacao farmers in West Sulawesi consists of six main dimensions. The sequence of the process is given in the following figure.

Figure 5. The Theory Model of Decision Making Process in The Early Stages in Innovative Farming Practices



The sequence of the model in Figure 5 shows the sequence which is adapted from the idea journey. The idea journey concept explains the innovation, which starts with a set goal, aims to get the approval from the investment in order to get the capital to implement the idea (Perry-Smith and Manucci, 2017). This type of innovation is not flexible enough in the context of this research, because the idea journey concept begins with set goals which are a more causative way of thinking.

Due to the influences of contextual embeddedness in impoverished areas, the new model was developed for the innovative farming practices in cacao farmers in West Sulawesi. The new model is needed when entrepreneurship is taught in settings where prevailing assumptions cannot be applied (Peredo and Chrisman, 2006). The new model in this research was generated from the combination of the early stages in the idea journey concept, which gives the sequence of the ideas, the effectuation theory which is more flexible in terms of the order of the process, and the influences of social embeddedness.

The pre-innovation and the needs to be collective dimensions, which do not exist in the sub-constructs of effectuation theory, were put in order as it is showed in the model of decision making process in the early stages of the innovation. Then, the substitution of strategic alliance with partnership is shown in the developed model. Lastly, the circular arrow in the last three dimensions reflects the complex process which can make the result of innovation different from the first idea. These practices could involve a lot of changes leading to an end product which can be different from the idea in the first instance.

4.3.1. Pre-Innovation

Innovative farming practice begins with the pre-innovation dimension. This dimension showed the important steps before farmers decided to do innovation, which consists of necessity motivation, awareness of innovation, and first influencer.

Strong necessity motivation can be seen through the interview results. The following reasons show that they have the necessity to escape from their debt with the middle man:

"We need to produce more than our debt."
"To make better income to pay our debt."
"We owe the middle man too much money so we need to give the money back".

Another farmer that does not have debts with the middle man shows the necessity motivation as well, which can be seen from his answer:

"To increase the productivity, because my children need to go to school, get married and many other needs that force me to increase my income".

The strong necessity motivations drive them to do innovation.
The awareness of innovation could emerge because of various factors such as insights from BPTP training or their own needs.
Influencers of the idea also contribute in pre-innovation. Farmers can consider themselves or an organization which they trust (like BPTP and Agricultural Department Agent) as the influencer of their idea.

4.3.2. Begin with Resources at Hand

The innovation process continued the next dimension, which is "begin with resources at hand". This dimension represents the first action from the farmers to do innovation, which consists of two themes, trigger of innovation and resources that they have.
After getting aware of the innovation in pre-innovation dimension, farmers started to respond to the conditions that they experience as a trigger of innovation.
The condition that they consider as a trigger for the innovation is unique for each farmer. For instance, for the farmer with slipcover innovation the trigger to make innovation was the moment in which he started thinking that the use of the cylinder required too much time, as it is showed in the quote:

"Using a cylinder takes time, many fruits cannot be covered in the end"

The trigger for the farmer with the nursery innovation was the limited stock of plants, even if his land still needed a lot of plants. This can be seen from the explanation of the informant:

"He tried to get more plants for budding, but since we cannot provide them, he ended up making this nursery"

For the farmer with fecal fertilizer innovation, the trigger was the moment in which he started trading goats and realized that he could collect their feces and used them as fertilizer. For the farmer with urine pesticide innovation the trigger was the moment in which he noticed that the plants close to the cage had better fruits.
At the start of the innovation, the innovator can set the goal or focus on given means (imagined ends). Innovative farmers began with unique action, such as using unused goat urine as an extra fertilizer, trying cigarettes to stick the plastic in order to cover the fruit, occupying all the unused land by starting the nursery, comparing goat fecal with chemical fertilizer, and started to collect urine to spread on his plantation. From this starting point, it can be seen that all innovative farmers started their innovation without trying to visualize the complicated ending, but using their given means instead.

4.3.3. Need to be Collective

After recognizing the trigger to do innovation and developing the awareness of the set given means, the innovative farmers did not continue individually to the next sub-constructs of effectuation theory, but they shared their idea to the cooperative members. This sharing generated the agreement to start the idea together. All the innovative farmers showed this need to be collective in the very early stage, even before they started to apply their idea. The following reasons proved the need of this dimension:

" We (cooperative members and the innovative famer) discussed my idea and we started to apply it in all our plantation"
"Support from all the members of the cooperative, they also need more fertilizer"
"We built the cage together"
"We made agreement with all the members before starting the activity"

4.3.4. Affordable Loss without Expected Return

After moving to a collective level, they started the innovation together by using resources that they considered affordable. For example, before ending up with the installation to make urine fertilizer, the innovative farmer started with collecting the urine in a concrete hole and stirred it frequently to remove ammonia, which is showed from his answer:

"We made a hole from concrete and stirred it frequently"

The following answers from farmers also showed that they started with affordable loss:

"We have not made use of other training we attended because our human resources (in the cooperation) are already occupied, we only focus in making simple cage
"We used all the things we had to make the cage which can collect the urine"

Besides starting with affordable loss, all farmers also did not consider to borrow any resources to maximize their profit. Instead, they made use of what they had at that time. The following reasons showed this effect:

"We are committed to the things we have"
"We do not want to borrow money to make anything"

In other words, they focused on "affordable loss" and they did not consider the "expected return" in the beginning, which shows strong effectuation logic sub-construct. Thus, these practices can be distilled as an aggregate dimension which is "affordable loss without expected return".

4.3.5. High Flexibility

After starting the innovation with their affordable loss, the linear process at the beginning changes to be full of uncertainties. When unexpected conditions arose, innovative farmers were flexible rather than anchored to the goal. For example, it can be clearly seen from the sentence:

"We ended up with centralized cage, so we put our goats together and each member has his own schedule to take care of all of them and collect all the feces together"

Because of farmers' collectivism culture, when they discussed about the idea of one member, they ended up making centralized cages for the cooperative and making a schedule for all the members in order to control it.
Another example, farmers find solution to save their expenses by using ex-plastic drinking water bottles to conduct the circulation. Innovative farmers thus showed flexible attitudes rather than just exploiting their pre-existing knowledge. This flexibility is a bit different than leveraging environmental contingencies which is also known as "Lemonade Principle" from the sub-constructs of effectuation theory, since this sub-construct emphasizes the opportunities that can be developed from the unexpected condition.

4.3.6. Cooperation

The next decision-making dimension is cooperation, which is not a part of effectuation theory. Farmers do not see any rivalry since partnership and cooperative action are decisive factors. As I mentioned in the collectivism dimension, farmers in the same cooperative act collectively to build the innovation together such as: automatic installations, the nursery place, and the cage together. Farmers also do not show the rivalry between different cooperatives, instead they develop actions to meet mutual benefit through cooperative action, such as trading the innovative products.
The following statements show that they do not focus on their competitive advantages, instead, they develop cooperative action (trading):

"sometimes they buy our product when we got enough"

"So far as I know, he prioritized the nursery results for his plantation and his cooperative member. After that he can sell to the other cooperative if there is any extra"

Besides developing mutual economic activity, they also develop non-economic activity together. I called this activity "partnership". However, this "partnership" is different from the partnership concept in the "patchwork quilt" sub-construct from the effectuation theory, which emphasizes some entrepreneurs working together and forming a strategic alliance. In this case, they see other cooperatives as partners in sharing and exchanging information, but they do not make new innovation together like it is explained in effectuation theory perspective. The following answers show that they consider other farmers as their sharing partner:

"we are farmers and we help each other"
"we help each other and share between farmers"

Farmers showed that they developed cooperative action and built partnership between different cooperatives. Since the combination between cooperative action and partnership can be explained in one bigger dimension, I distilled these two 2nd order code and I considered this combination as "cooperation" dimension.

4.3.7. Managing Unpredictable Situations

When farmers face unpredictable situations, they try to manage them by the time they happen rather than trying to predict those situations from the beginning. Unpredictable situations exist. It is illustrated in the following sentence:

"And when BPTP came and test our product, we found out the product cannot be used anymore, because we did not stir the product enough"

The innovative farmer who wants to make use of urine as fertilizer experienced that his collection of goat urine was not fermented properly because of not enough stirring. As a response of this situation, he started to make a urine installation so that he did not need to stir the urine and let the urine flowing with the help of the pump, which is illustrated in the farmer's answer:

"Since we were selected by BPTP as one of their trainee sample, we discussed for the solution and they gave the design and the pump"

All the innovative farmers experienced unpredictable responses and they did not try to foresee them, but they controlled the situation once it occurred instead.

5. DISCUSSION

5.1. The Role of The Effectuation Theory in Decision Making Process

The decision-making process dimensions show the correlation with effectuation logics rather than causation logics. However, there are three findings from this research which show different reflections from the literature and previous research about effectuation logics. These three findings are the need of influence, which can be biased with set goals, and the absence of two sub-constructs of effectuation which are the strategic alliances and leveraging environmental contingencies.

5.1.1. Pre-innovation Dimension for The Farmers in West Sulawesi

In the literature on effectuation theory, the first sub-construct is to begin with set given means. Whereas in the result of this research, the farmers' need of influence and help from BPTP and the Agricultural Department Agent in pre-innovation showed that the innovations were not only started with set given means, but they also needed an external influencer. These influences can easily be confused as causation sub-constructs, which begin with set given goals. For example, in three innovations related with feces and urine from the goat, the cage was built based on the model given by BPTP. In the urine pesticide innovator, even though the cage was built based on the model received from BPTP, he claimed that he had inspiration from his own experience: when he realized that the area close to the goat cage has better fruit, he concluded that it was because the effect of the feces of the goat. Since the core of the innovations that they made is not the cage, but the product from the feces and urine of their goats, I also do not consider this influence (to make the integrated cage) as a goal that is set by the farmers. Another example is in the cacao nursery for budding technology. The concept is similar to the one from the Agricultural Department agent, which is growing the tree to be used in budding technology. In this case, the farmer is considered as innovative because he can manage to keep his role as a traditional farmers and, at the same time, he can manage his own nursery. In this case, I consider that this farmer started with his means, which is his small land, and then his goal was influenced by the agricultural department nursery. Lastly, the slipcover innovator claimed that he was not influenced by anybody else because the modification of the cover for the fruit came from his own experience when he was calculating the profit and loss while he was applying the cylinder cover received from Agriculture Department Agency. Since this farmer had the idea that developed based on the tools that they knew from the agricultural department agent, I can consider the Agricultural Department Agency as his

influencer. The process of being influenced can be easily confused as more causative process, since it seemed like starting with the set goals rather than with the given means. However, all the influences from the agencies are not the core of the farmers innovation, rather than just an extra input for the farmers in order to upgrade their innovation or to make them aware of what they have. Therefore I put this 2nd order concept of influence in the dimension called Pre-Innovation, as it happened before the first effectuation theory sub-constructs started.

This different reflection from the effectuation theory happened because the contextual embeddedness plays a role in shaping distinctive innovation process that is not considered by the existing theory. It results in the necessity motivation, the need of influence, and the need of awareness which are categorized as the pre-innovation aggregate dimension. Farmers need someone who can influence them to do innovation and someone who can make them aware about their potential means. These needs exist because of limitations in socioeconomic embeddedness in impoverished area which make farmers to have very limited access in technology, information, capital and knowledge (Henriques and Herr 2007). The need of influence in the pre-innovation phase is also the result of geographic disadvantages of villages in West Sulawesi. Their position "isolates" them from the access that is needed by entrepreneurs like transportation and access to market. Besides the socioeconomic and geographic embeddedness, this need of influence is also due to the lack of formal educational institution in West Sulawesi, especially in the area close to the farmers. The lack of formal educational institutions can be seen also from the data of BPS which shows that more than 50% of people in West Sulawesi do not go to high school (BPS, 2010). The samples on this research also showed that their academic background are only elementary school (four out of five samples) and middle school (one out of five samples). This lack of educational institutions also makes the farmers only rely their basic education and knowledge about common farming practices from informal institutions, like their own family and community. This condition also promotes the needs of the influencers to make better innovation which in this research context are BPTP and Agricultural Department Agency.

5.1.2. Elimination of Strategic Alliances Sub-Construct

The absence of strategic alliance (also known as "Patchwork Quilt") sub-constructs from the effectuation sub-constructs can be seen in the result of this research. This absence does not mean that the form of entrepreneurship focuses on competitive advantages like in causative process. As a description in the result chapter, farmers showed partnership and cooperative attitude among different cooperatives, without thinking about competition. From the socioeconomic point of view, the low competitive atmosphere happens because of the high collectivism culture in Indonesia, which reduces the individualism

characteristics and thus the competitiveness (Hofstede, 2010) among farmers in West Sulawesi. However, there was no advance innovation which requires the farmers to make strategic alliance as it is proposed in the effectuation theory sub-construct. In the context of innovation in developed country, to make a new idea grows bigger, there is a championing phase which involves the formal institutions such as idea incubator, investor or many other related stakeholders in order to make the innovation bigger. Strategic alliance is built from these involvement of other stakeholders in creating partnership to work in one innovation. Nevertheless, these formal institutions do not exist in the rural area. Therefore, in this research the existing innovations do not need to perform strategic alliance since it is difficult to make the idea bigger and to get noticed from the institutions that focus on the growing of the innovation. This is very different from the mainstream theories about innovation and entrepreneurship which emphasize disruptive process. Moreover, the disadvantage in their geographical position makes even more difficult the access to other stakeholders in order to promote their innovations. Hence, even though there is no competitive advantage as it is proposed by causation perspective, I do not consider the partnership and cooperative attitudes in the proposed model as strategic alliance, instead as a new concept of aggregate dimension called "cooperation".

5.1.3. High Flexibility Instead of Leveraging Environmental Contingencies

When facing surprises, innovative farmers demonstrated high flexibility. They can adjust their plan immediately, such as changing their idea about making an individual cage to a collective cage. They also utilized affordable things that they had when they were facing problem with the suggested resources, such as transforming the materials of the cage from steel to the wood and using used drinking bottles rather than spending their money to buy plastic buckets to perform urine circulation. These flexible responses show that innovative farmers in West Sulawesi did not follow the causal sub-construct which emphasizes exploitation of preexisting knowledge. However this flexibility cannot be considered as effectual sub-constructs which underlines leveraging environmental contingencies, since the surprises that are proposed by the effectuation have different interpretation than the surprises that are found in this research. In the effectuation theory, leveraging contingencies means embracing unexpected events and turning them into profitable opportunities, thereby generating unanticipated outcomes as opposed to achieving a predefined goal (Fisher, 2012). Instead in this research, surprises that I captured are more unconsidered actions that emerge in the middle of the process because farmers did not plan in advance. Thus, in the innovations found in West Sulawesi, there is no such unexpected condition which can be turned into profitable opportunities like the definition of surprise by the effectuation theory. The geographical and socioeconomic limitations of the rural area make the conditions of the environment less influenced by the new issues, since generally the conditions in the "isolated" area have negligible changes. To conclude,

instead of labelling these stages as leveraging environmental contingencies, I consider them as high flexibility dimension.

5.2. Influence of The Contextual Embeddedness in Innovative Practices

Besides comparing the effectuation theory, this research also gives some interesting findings in addition to the decision making process. First, based on the result, we can see that the emerging ideas moved quickly to the group level. Second, the important role of middle man in farming activities.

5.2.1. From Individual Idea to Collective Idea

Before having a concrete idea, each farmer needs support from the other farmers, in the form of discussion or agreement. After that, the farmers can start applying the idea together. For example, when one farmer started to think about making the integrated cage, he brought the topic to other cooperative members and he received a response Also, if a farmer wants to attend farming related training, he needs to be a member of the cooperative. Based on the interview with the trainer from BPTP, all the traineeships do not accept individual farmers because it is easier for the trainer just to visit the cooperative and to do an assessment at this level. This way he does not have to visit all the individual registered trainees. It can be seen that collectivism is strongly rooted in Indonesia, both on the government's side and also on farmers' side. This strong culture of collectivism is also supported by other contextual embeddedness. Since it is difficult to go out from the village, the "isolated" location forces the farmers to gather more often with their neighbors, which generally are their partners from their cooperative. This cooperative forum also acts as informal institution where the farmers can share the knowledge and experience, which makes a stronger tie between farmers which are promoting collectivism. This phenomenon is crucial for future research about innovation processes in Indonesian farmers because the decision making process will involve all the members of a corporation. Thus, I highlighted this activity as a new aggregate dimension. In addition, this finding about the importance of collectivism is also in synergy with the research from Hofstede (2010) about national cultural dimension which shows the high level of collectivism in Indonesia.

5.2.2. The Role of Middle Man in Farming Activities

The next interesting finding is that cultural complexity plays a decisive role in the context of this research. Cultural complexity is defined as different cultural contexts having their own practices, values, and discourses, which drive the innovation (Garud et al, 2013, p 797). This socioeconomic embeddedness brought the involvement of the middle man in West Sulawesi. Since generally the middle man is someone who has higher social status and has more money, almost all farmers turn to him every time they are in need of money. In turn, they have to sell their cacao beans with the price set by the middle man. Unfortunately, this price is generally lower than the average cacao bean price (20% lower based on the interview with the trainer from BPTP). This practice was already rooted in their parents' generation. Moreover, they do not want to sell their product directly to the trader because the social norm shaped their mind that they have to thank and respect the middle man's family that helped them and their ancestors. This cultural complexity has both a negative and a positive impact on the innovation process. The negative impact is that, when they can increase the productivity of the cacao, they have to sell them to the middle man again until they can pay all their debt. If the farmers want to escape from the poverty, they need to stop borrowing the money from the middle man therefore they can escape from his debt. However, this is not an easy task since doing transactions with the middle man was already rooted in the culture. Further comprehensive study would be necessary to find a solution. The positive impact from this socioeconomic embeddedness is that, with the increase of necessity, motivation to do innovation also increases. This necessity motivation was also found based on the result of this research. When farmers are willing to do innovation, they can have the chance to produce more cacao beans and, consequently, pay all their debts. Moreover, if farmers are following the innovation that can produce a new product at industrial level from the waste, they can start selling this new product without the involvement of a middle man.

6. CONCLUSION

This thesis is written to understand the early stages of the innovation process in farmers in West Sulawesi. The context of this research is categorized as emerging economies, which shows high constraints. This context is suitable for the effectuation theory perspective since effectuation emphasizes resource constraints. However, the research of the effectuation theory in emerging economies is still scarce. Therefore, this research gives a contribution in the research about effectuation theory in the emerging economy countries.

Since this research aims to study the decision-making process, it accommodates not only the effectuation perspective, but also the process of the idea journey and the contextual embeddedness which can alter the early stages of the innovation process. The sequence that is introduced in the early stages of the idea journey could help to make the proposed model in this research.

Even though the effectuation theory is believed to take place in a context with resources constraints, the samples of this research have also other limitations which are described in the contextual embeddedness but they are not considered in the effectuation theory perspective. This embeddedness makes other limitations to arise in the context of this research and cannot be tackled only with the effectuation theory perspective. Therefore, the comprehensive model of the early stages of the innovative farming practices in cacao farmers was proposed based on the influences of this embeddedness, which consist of important dimensions: pre-innovation, begin with set given means, needs to be collective, affordable loss more than expected return, cooperation, high flexibility, and managing unpredictable situations.

To conclude, this research takes into account the influences of contextual embeddedness which are not considered in the entrepreneurship and innovations theory from developed countries. Therefore, the proposed theory model from this research is suitable to be used in researches related to entrepreneurship and innovation in emerging economies.

7. LIMITATIONS AND FUTURE RESEARCH

In the process of conducting this research, I realized some limitations and also the possibilities to conduct future research related with the objective of this research. This chapter is organized with the limitations sub-chapter and then recommendation for future research.

7.1. Limitations

The target of this research is the community of farmers in West Sulawesi which is the province in Indonesia with the highest cacao production per meter square of the area. However, Indonesia has 34 provinces in total and the area of cacao plantation in West Sulawesi is only 10% of the whole cacao plantation area in Indonesia. Since population in Indonesia is very high in diversity, there is probability of selection bias. Moreover, some areas which are also known as cacao producers like Java, is already more developed, so the contextual embeddedness can be very different than in West Sulawesi. Since the high diversity in culture and also development state of every province, a further research with more samples in different provinces is needed to understand in general the innovation in cacao farming in Indonesia.

The sampling method of this research can be another limitation. The samples were selected based on the suggestion from one BPTP trainer. This can make selection bias, since I only rely on him and there is a possibility that trainer from BPTP suggest only the farmers that are part of BPTP traineeship. However, as it will be impossible to visit all villages in West Sulawesi, this limitation is not a problem, since to deal with this kind of field, the best choice is to have trusted informant. I considered BPTP trainer as a trusted informant since he is one of the most expert on this field that know a lot of farmers in West Sulawesi.

Another limitation exists in the data collection process where the interviews were conducted in semi-structure way based on the developed protocol. All the interviews that are recorded and transcribed gave only information that were written in the interview protocol. However, while the casual conversation takes part, the farmers shared many interesting stories that gave some insights for this research, like the transmigration process, the journey from planting corn and converted to cacao, and the involvement of middle man. Therefore, these non-transcribed data were also used to help me to understand better the contextual embeddedness in this research.

Still in data collection process, there is also another potential limitation which is answers bias. Since I need to make farmers recall their innovation steps in order to collect all important information, there is possibility for farmers to polish up the story in order to give interesting answer to my questions. Nevertheless, I cannot check this

potential bias but I can check the correlations of all the stories so that I can conclude whether the answers were proven to be true or not.
Lastly, there is also limitation in coding process. Ideally, another coder is needed to check the result of the coding. However, since there was a limitation of time in conducting the thesis and a limitation of time from potential coder, I could not provide the extra coder. To minimize this bias, I gave some examples of coding process to generate 1st order and 2nd order codes which refer to Gioia Methodology.

7.2. Recommendations for Future Research

This research provides a pivotal step to understand the early stages of the farming practices. Since this research is a qualitative study, the findings cannot be generalized. However, I believe that these findings can be helpful tools to conduct other researches related to entrepreneurship in rural area since the context of emerging economies was used while analyzing the phenomena found in the field work. Thus, future quantitative study would help to make generalization of the findings of this research.
Further research is also needed to solve the problem which is written in the background of this research: promoting innovation in order to make farmers escape from poverty, while preserving their farming activities. Since this thesis only focuses on the decision making process of the early stages of the innovation, the further research about the next stage to solve the problem is needed. The further research can be the implementation of the findings from this research with farmers which have not experienced innovation. Another further research which can support the problem that is highlighted in this research is about the inclusive business model (UNDP, 2008). Inclusive business model focuses on low-income communities and can supplement this thesis to move to the next action in alleviating poverty of cacao farmers in West Sulawesi. Another helpful further research can be about introducing community based entrepreneurship (Peredo and Chrisman 2006) to promote enterprise activity. It could be very potential tool while introducing innovation in West Sulawesi because of the very high collectivism culture over there. Together with this thesis, these possible further researches could help to understand the problem and find suitable methods to solve that problem.

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Appendix 1. The Interview Protocol

Interview Questionnaires

Target Interviewer:

Background Questions

What is your daily farming activity?

Are you member of an agricultural cooperative?

How big is the cooperative?

What are the benefits by joining that cooperative?

How big is your farm?

Did you buy all the area or you work for someone else?

What is your educational background?

How much is your salary per month? (Maybe they can give the range if they have difficulties in answering this)

How many people are there in your family?What are their occupations?

What are their educational backgrounds?

Is one of them helping you with farming? (either suggestion or real actual work)?

What type kind of help?

Are there any other relatives or staff that help you in farming?

How many are there?

What kind of help?

Do you have internet on your mobile phone or home?

Does any member of your family, (relatives), or staff use internet?

For what purpose in general? What are the websites that you use?

Do you use internet to help your farming practices?

Do you know about the pricing of cacao beans in each type of quality? (If yes, ask for the details of the price)

How do you know it?

Why you dont know it?

Do you also use internet to check the buying price or the general price of cacao bean? (If not, why, if yes, ask about the middle man price and the reason why they rely on the middle man)

Innovation Process Questions

Idea implementation - need for shared vision and understanding from other stakeholders

When was this innovation successfully implemented?

Who are the other actors that support you implementing this idea?

What are their supports?

Idea championing – need for influence and legitimacy

Moving back slightly before you implemented your idea, how do you influence the other actors to believe in your idea?

Idea elaboration – need for support

Before you try to approach the other actor, who is supporting your idea?

How much is the cost of your installation (or cost of the other innovative system)?

Idea generation - need for cognitive flexibility

When was this idea coming to your mind?

Who did influence your idea?

Starting the effectuation theory five sub-constructs

Subconstruct 1 (begin with set given means?)

How did you come up with this idea at the beginning? Did you see the opportunities? What were the opportunities that you saw? (goal or resources?)

Did you develop variations (of idea) before focusing on this idea?

At the beginning of your innovation process, did you have any specific goals, or you just developed the idea from what you had?

Subconstruct 2 (affordable loss?)

Did you borrow resources from someone in order to maximize the profit?

In the beginning, do you think you are only committed with resources available (state the resources) or you put more effort to get the resources needed to maximize your return from your goal (state the goal)?

Subconstruct 3 (leveraging environmental contingencies?)

Did you respond to unplanned opportunities as they arose?

Did you adapt what you were doing to the resources at hand?

Subconstruct 4 (competitive analysis or strategic alliances?)

Did you think about someone that can be related with your idea (state the idea)?

Could you see one of them be your competitor or your partner?

In case they see competitor: What was your plan to keep on winning your possible competitors?

In case they see partner: how did you expect them to be your partner?

Subconstruct 5 (predict a risky future (cannot predict: control) or try to predict an uncertain future (plan. Predict to control)?)

Did you try to predict what will happen in the future, so you were prepared to face it?

Have you found something that is going not as smooth as your plan?

Did you predict it before?

What was your response?

Appendix 2. Translated Transcript of The Interview with The Innovative Farmers

1. Automatic circulation to make urine fertilizer

1.1.Background Questions

Riza (R): What is your daily farming activity?

Farmer (F): Managing the plantation

R: Are you member of an agricultural cooperative?

F: yes

R: How big is the cooperative?

F: 20

R: What are the benefits by joining that cooperative?

F: Facilitate the access to the government and other helpful agent

R: How big is your farm?

F: total 2 hectare area but only one that is planted

R: Did you buy all the area or you work for someone else?

F: Mine, from transmigration program

R: What is your educational background?

F: elementary

R: How much is your salary per month?

F: 50,000 rupiah per day (3 euro per day)

R: How many people are there in your family?

F: 2 children

R: What are their occupations?

F: elementary school students

R: Is one of them helping you with farming? (either suggestion or real actual work)?

F: no

R: Are there any other relatives or staff that help you in farming?

F: No. We work together with other farmers

R: How many are there?

F: All of member

R: What kind of help?

F: Controlling the installation

R: Do you have internet on your mobile phone or home?

F: Yes, in mobile phone, but no access

R: Does any member of your family, (relatives), or staff use internet?

F: yes

R: For what purpose in general? What are the websites that you use?

F: News (entertainment news in general)

R: Do you use internet to help your farming practices?

F: no

R: Do you know about the price of cacao beans in each type of quality? (If yes, ask for the details of the price)

F: Not really

R: Where do you sell your beans?

F: to tengkulak (middle man)

R: is it always like that?

F: Yes

1.2.Innovation Process Questions

R: When was this installation successfully implemented?

F: This year, 2017

R: Since this is very new, have you made the product already?

F: Yes, we already produced some batches of urine fertilizers

R: Did you sell the product?

F: No. until now only use it for the cooperative farms.

R: But if there are other farmers who wants to buy it, will you sell it?

F: Maybe yes, but we prioritize our member, since the reason why we built it is for our needs

R: Who are the other actors that support you implementing this idea?

F: Pak Ketut, from BPTP

R: What was his support?

F: He gave the idea how to make it circulate automatically, because in the beginning I work manually, stirred and fermented the urine

R: How did you influence BPTP to believe in your idea and then support your idea?

F: I made the urine separation and fermentation, and I used the urine to make fertilizer and show better results. Bptp liked my work because urine is higher in nutrition that is needed by soil, in comparison to faecal

R: Before you try to approach BPTP, who is supporting your idea?

F: Member of the cooperative, they also need more fertilizer. We experienced the same problem with our land.

R: How much many did you spend to make urine fertilizer?

F: No cost. At the beginning we used only jerigen (Indonesian word for big plastic bottle) to run fermentation. And then when we started to change our model to make the installation, BPTP support us with the frame and pump. we just provide water bottle (galoon)

R: When was this idea coming to your mind?

F: When I attended the training about fertilizer, I heard that urine from goat can be a good source of fertilizer. So I just wanted to make use of unused urine to save money for the fertilizer.

R: Did you have influencer or someone give you suggestion to make urine fertilizer?

F: It came from myself (first). I felt the need to have a better soil. And then I brought my concern about the soil condition to cooperative. And then from BPTP training (second), we understand that we can try our goat's feces and urine.

R: Why do you think it is important to make fertilizer?

F: At the beginning our farm could produce almost two times higher than the last 2 years. the trees were not productive anymore, even the new trees were not as good as it was. We think it was because the chemical substances, so we need to make our soil good again.

R: What was the main reason or moment that make you feel that you need to increase your productivity by doing this innovation?

F: I've never had money. Every harvesting period, we needed to give our product to pengepul (middle man). It is always like that, so we need to produce more than our debt.

R: Did you develop variations (of idea) before focusing on this idea?

F: Well, at the beginning we just wanted to make urine fertilizer, and try to stir urine frequently while waiting for the fermentation

R: At the beginning of your innovation process, did you already know that you want to build this installation, or you just developed the idea from what you had?

F: Firstly, I used faeces as fertilizer only, and since it was not enough and I did not want to spend my money, I wanted to make use of the unused urine. And then it is developing with the help of BPTP until we have this installation

R: Did you borrow resources from someone in order to maximize the profit?

F: no

R: In the beginning, do you think you are only committed with resources available or you put more effort to get the resources needed to maximize your return from your goal, like start borrowing money to buy a pump in the beginning?

F: We just made the hole from concrete and stirred it frequently

R: Did you adapt the opportunities when they arose or you just focused with what you wanted to make?

F: I adapted a lot. Together with bptp, use material as cheapest as possible, for example, the usage of drinking water bottle can substitute plastic bucket

R: Could you see one of people around you be your competitor or your partner?

F: partner, we help each other because we have same goals to improve cacao plantation in Mamuju

R: how did you expect them to be your partner?

F: Sometimes they buy our product after we got enough

R: Have you found something that is going not as smooth as your plan?

F: At the beginning we always shake the urine periodically. But when we are busy, we could not do it. And when BPTP come and test our product, we found out the product cannot be used anymore, because we did not stirred the product enough

R: Did you predict it before?

F: No

R: What was your response?

F: Since we were selected by BPTP as one of their trainee sample, we discussed for the solution and they gave the design and the pump. So we ended up with this installation

2. Cacao Nursery to Perform Budding Technology

He is outside of town, in the last 7 days when I was there, because he went to join the training from swisscontact in Makassar South Sulawesi for 10 days. The wife helped during that period but did not know about the innovation process. So the interview was performed with BPTP trainer

2.1. Innovation Process Questions

Riza (R): When did he build this nursery?

Informants (I) : 2014

R: Who are the other actors that support this innovative farmer implementing this idea?

I: I think Agriculture Department supported him (the seeds were from them)

R: What are their supports?

I: Provide the seeds and training

R: Moving back slightly before he implemented his idea, how did he influence the BPTP and Agriculture Department to believe in his idea to do this innovation?

I: Generally, Agricultural department used to provide all the budding tree, but Pak Kama came to us and said that the number is not enough because he has more than one hectare and needed more tree. So he developed his own nursery.

R: Before he tries to approach you and Agriculture department agent, who is supporting his idea?

I: When he approached us, he came with his cooperative

R: How much is the cost he needs to make this nursery?

I: I do not know, but he just allocate small part of his land that he used to plant cacao before. because this size maybe can only make 2 or 3 cacao tree (ideally), since we recommend the optimal distance is 3 meter by 4 meter

R: Do you know when did he start to have this idea?

I: When he found out that he can gain more if he can plant himself and can sell it to other farmers

R: Who did influence his idea?

I: I think himself. and agriculture department (since his request to have more plants was rejected)

R: What was the main reason or moment that make he feels that he needs to do innovation

I: For that one I have no idea

R: But do you think he also sells everything to middle man?

I: Yes

R: Do you know what the first thing he did when he decided to make this nursery?

I: From the discussion with agricultural department and visiting bptp, he tried to get more plants for budding, but since we could not provide it, he ended up making this nursery

R: In the beginning, did he said to you that he has goal to make nursery?

I: he just wanted to increase his cacao production, so he wanted to do budding system instead of planting the seed or waiting for the harvested tree to make production of cacao again. He asked for more, but because of the limitation of the stock from agricultural department, then he made this nursery to keep his stock, and he can sell it to other cacao farmers

R: At the beginning of your innovation process, did he have any specific goals, or he just developed the idea from what he had?

I: He did not have specific goals, but he had general idea to increase his production by occupying all the land he has, not just waiting

R: Did he borrow resources from someone to make this nursery more successful?

I: as long as i know, as his trainer, he did not. Because he did not make the same structure like ours. Our nursery has the roof to protect from the rain, he just made it like this (in his own land, without specific structure)

R: In the beginning, do you think he only committed with resources available or he put more effort to get the resources needed to maximize your return from this nursery?

I: He built everything himself (meaning with his members as well), he controlled the watering activity regularly and without pump. when we visited, we saw that Pak Kama is really eager to develop his farm, and we asked him to make proposal so we can help him with something that he need as our support for selected farmers

R: Did he respond to unplanned opportunities as they arose or just leave those?

I: he did. For example, he asked the water pump after he knew that we can support selected farmers. He wanted to make roof but he has no capital, until now it works well without roof, so he has not thought that it is necessary

R: Did he adapt what you were doing to the resources at hand?

I: he made the proposal with good and clear objective about using the water pump, so we gave them, because we have small budget to farmers who want to develop their farms

R: Does he see someone of them be his competitor or partner?

I: So far as I know, he prioritized the nursery results for his plantation and his cooperative member. After that he can sell to the other cooperative if there is any extra.

R: So is it more like partnership rather than competition?

I: Yes. As a buyer for his nursery. It is mutualism.

3. Slipcover Innovation

3.1. Background Questions

R: What is your daily farming activity?

F: Cleaning and managing all the farm

R: Are you member of an agricultural cooperative?

F: Yes

R: How big is the cooperative?

F: 20

R: What are the benefits by joining that cooperative?

F: Access to government, BPTP (Balai Pengkajian Teknologi Perkebunan) and Dinas Pertanian

R: How big is your farm?

F: No answer (probably more than 5 hectare from the discussion)

R: Did you buy all the area or you work for someone else?

F: transmigration

R: What is your educational background?

F: Middle school

R: How much is your salary per month? (Maybe they can give the range if they have difficulties in answering this)

F: I can raise my 4 children and they all can go to university if they want

R: What are their occupations?

F: One of them didn’t want to work for farming, he is working as a computer staff in a company

R: What are their educational backgrounds?

F: One high school, one still in high school, two university

R: Is one of them helping you with farming? (either suggestion or real actual work)?

F: Yes, only one that is not but I also gave him 1 hectare plantation and someone worked for his plantation (4 euro per day and he didn’t work everyday, around 2 days a week)

R: What type kind of help?

F: Cleaning, covering and harvesting

R: Are there any other relatives or staff that help you in farming?

F: Yes, I have other farmers who help me maintain my cacao plantation

R: How many are there?

F: 2

R: What kind of help?

F: Cleaning, covering the fruits and harvesting

R: Do you have internet on your mobile phone or home?

F: yes

R: Does any member of your family, (relatives), or staff use internet?

F: yes

R: For what purpose in general? What are the websites that you use?

F: For entertainment, news

R: Do you use internet to help your farming practices?

F: No

R: Do you know about the pricing of cacao beans in each type of quality? (If yes, ask for the details of the price)

F: yes

R: How do you know it?

F: By asking company and trader.

R: Do you also use internet to check the buying price or the general price of cacao bean? (If not, why, if yes, ask about the middle man price and the reason why they rely on the middle man)

F: No, I don't know where to look on the internet

3.2.Innovation Process Questions

R: When did you start implementing this slipcover?

F: 2015

R: Who are the other actors that support you implementing this slipcover?

F: Agriculture Department Agent

R: What are their supports?

F: They introduced the cylinder to cover the fruit

R: Did they support you while making innovation of this cylinder?

F: They ask me to train other farmers

R: How did you influence other actors to believe in your new innovation?

F: I know that covering the cacao fruit with cylinder can help to avoid cacao from pod borer. I tried to implemented it and it is true. And then I make the faster way to protect the fruit then I shared it to Agricultural department agent

R: Before you try to approach the other actor, who is supporting your idea?

F: Cooperative member, after I found it and we started to apply in all our plantation. And the result was fantastic

R: How much is the cost of your installation (or cost of the other innovative system)?

F: Almost no cost, just anti mosquito and plastic

R: When was this idea coming to your mind?

F: 3 years ago, I found that it was so difficult to put cylinder, one day maybe only 200 fruits can be covered, and I started thinking about how to make it easier

R: Who did influence your idea to modify the cylinder into this more efficient technique?

F: I made this modification myself

R: What was the motivation that make you feel that you need to do innovation? Did you have extra needs that time?

F: To increase the productivity. Because my children need to school, get married and many other needs that force me to increase my income.

R: How did you come up with this innovation? Did you see the opportunities? What were the opportunities that you saw?

F: Time concern. Clynder takes time so many fruits can not be covered in the end. Moreover if the framers are lazy and never compare the result, they will not do it

R: Did you develop variations before deciding to focus on this idea?

F: Yes I tried first with cylinder, and then plastic with tape to reduce the time. And in the end while I am smoking, I put the fire of my cigarettes to the plastic and it stuck. but cigarette does

not have the fire for long time, instead the anti mosquito can takes one full day even two days.

R: At the beginning of your innovation process, did you have any specific goals for example to make the most efficient cover, or you just developed the idea from what you had?

F: In the beginning I just wanted to protect our fruits as good as I can. Do not think about the form of the product

R: Did you borrow resources from someone in order to maximize the profit?

F: No, I use only simple tools

R: In the beginning, do you think that you put more effort to get the resources needed to maximize your return from your goal to cover the fruits?

F: I did not buy anything, just try with everything I had, like the anti mosquito

R: Did you respond to unplanned opportunities as they arose? Or you just leave unplanned opportunities?

F: Yes, I used the cylinder and when I realized the cylinder wasted so much time and I needed to pay my staff more, I moved to plastic with tape, and now plastic with anti mosquito so I always adapted the opportunities that I found

R: Did you adapt what you were doing to the resources at hand?

F: (yes, he could go with wireless glue gun for example, instead he doesn't want to buy anything)

R: Did you think about someone that can be related with this slipcover?

Yes, many farmers come to me and ask me about the result and how to do it. This is the simplest method

R: Could you see one of them be your competitor or your partner?

F: No, we help each other and share between farmers

R: how did you expect them to be your partner?

F: nothing, just work together

R: Did you try to predict what will happen in the future, so you were prepared to face it?

F: I just prepare how to make better cacao production, but nothing related to this idea

R: Have you found something that is going not as smooth as your plan?

F: The cylinder case, at the beginning it looked very helpful, but it needs a lot of time to implement it

R: Did you predict it before?

F: No, I found out that I spent a lot of money to pay someone to cover all fruits that time

R: What was your response?

F: I stopped using cylinder and I compared the results. And it is really significant. I made a calculation about how much that I spent to pay someone to work for me and compare with the results. To pay someone is still better because I can increase the productivity until 40%. but after a while i got this idea and it can safe the working time until 10 times, so my worker need less time to cover all the fruits. so i safe my spent for the worker.

4. Fecal Fertilizer

4.1. Background Questions

R: What is your daily farming activity?

F: Managing the plantation

R: Are you member of an agricultural cooperative?

F: yes

R: How big is the cooperative?

F: 23

R: What are the benefits by joining that cooperative?

F: Access to the BPTP (Balai Pengkajian Teknologi Perkebunan) and Dinas Pertanian

R: How big is your farm?

F: 3 hectare

R: Did you buy all the area or you work for someone else?

F: All mine, from transmigration program

R: What is your educational background?

F: Elementary school

R: How many people are there in your family?

F: No children, but 2 niece and 1 nephew

R: What are their occupations?

F: elementary school students

R: What are their educational backgrounds?

F: Elementary school

R: Is one of them helping you with farming? (either suggestion or real actual work)?

F: no

R: Are there any other relatives or staff that help you in farming?

F: Every member work together

R: How many are there?

F: 23

R: What kind of help?

F: Work together

R: Do you have internet on your mobile phone or home?

F: Yes

R: Does any member of your family, (relatives), or staff use internet?

F: yes

R: For what purpose in general? What are the websites that you use?

F: facebook

R: Do you use internet to help your farming practices?

F: no

R: Do you know about the pricing of cacao beans in each type of quality? (If yes, ask for the details of the price)

F: Not really

R: Why you dont know it?

F: sell everything to tengkulak (middle man), → so it is just like an exchange, not like buying and selling process, same like first farmer

R: Do you also use internet to check the buying price or the general price of cacao bean? (If not, why, if yes, ask about the middle man price and the reason why they rely on the middle man)

F: No. because we can not escape from tengkulak because they are the place for us to ask help → and they do not want this condition to be changed because of social reason!

4.2.Innovation Process Questions

R: when did you make that cage?

F: (thinking) when? It has been there quite a while, I think around 4 years already

R: Did you build it alone or did you have someone who help you?

F: There were some people who helped me to build it

R: who did help you? Do you remember?

F: My cooperative member, we build the cage together

R: Is there any help from someone outside your cooperative? Any kind of help, like idea for example

F: BPTP and the trainer from Department of Agriculture

R: which kind of help that they give?

F: They give the reference to make a better cage

R: how did you ask their help? I mean, did you just ask for a design or how?

F: Yes, just asked

R: What did you ask? to be more specific if you can recall

F: I showed them that I already made fertilizer, so I asked them how is the better way to process the feces. And then they started explaining in one of their training, and also they suggested a model of the cage

R: how much money did you spend more or less to make this cage

F: I have no idea, I did not count. Because as you can see, we are commit to what we had

R: so, I am curious about how did you arrive with the idea to make fertilizer. When did the first idea emerge?

F: When I attend the training

R: who did give you the training?

F: Bptp

R: why did you want to make something, for example this fertilizer. Did you need extra money, did you just think that you can take this opportunity to make side business?

F: I need money

R: if you can share, why did you need more money?

F: To make better income to pay our debt. We owed the middle man

R: who is the middle man?

F: A man called Haji Amir

R: ok. About making fertilizer. How did this idea emerge, because you have goats or you buy goats to make this fertilizer?

F: We have goats first. Because usually if there is Idul Adha, we trade goats. We raise the goats and we sell it in Kalimantan, we bring to Berau area. And while we take care of the goats, there

are always a lot of feces. So we just collected at the beginning and we brought to the farm. And after we saw the result, we noticed that the soil condition was improved. The soil is softer, not that hard (like the one with chemical fertilizer)

R: have you had other idea beside making fertilizer?

F: No, I haven't had any other

R: No other idea comes to your mind?

F: no

R: so since the beginning, did you make the cage like this?

F: In the beginning is different. I only had few goats, so we just collected the feces manually. The cage is not like this (automatically throw the feces out). It was the one that you saw in the beginning.

R: so, since the first model, you already started to make the fertilizer, didn't you?

F: Yes, I collected the feces and use it

R: Since the new cage looks really nice, I am curious, did you borrow money or stuff in order to make the cage that time?

F: No, We have not made use of other training we attended because our human resources (in the cooperation) are already occupied, we only focus in making simple cage. these materials are just wood and plastic to cover the ground. Very simple materials, not like the one that came from BPTP design, which is made from steels.

R: did you experience the canging in your plan? Since the first idea is collecting the feces, and then make better cage, so I am curious, maybe in the middle of process, you have any other idea that distract you?

F: (thinking)

R: maybe your friend gave you suggestion to work together?

F: Yes, since we ended up with centralized cage, so we put our goats together and each member has his own schedule to take care of all of them and collect all the faeces together

R: so, there is no competition between the member of your cooperative?

F: Of course not

R: is there any secret method or something that you really need to keep it only for yourself in order not to get stolen buy others?

F: No, not at all

R: how about with other cooperatives? Do you have something that you need to keep as a secret?

F: No, we are farmers and we help each other

R: what type of partnership with other cooperative?

F: If they ask the for fertilizer and we have extra stocks, we sell it to them

R: Alright. I forgot to ask one thing about the cage. When you saw the suggested model from BPTP for the first time, did you have any concern at the beginning? Or accepted just as it was?

F: The only problem was the structure and the resources. I wanted to make the sustainable cage by myself but I found difficult to make the good structure and the steel is expensive, and I do not have enough goats to fill it. That is why that cage ended up as the collective one.

5. Pesticide from goat urine

5.1. Background Questions

R: What is your daily farming activity?

F: Controlling and cleaning the cacao farm

R: Are you member of an agricultural cooperative?

F: yes

R: How big is the cooperative?

F: 25

R: What are the benefits by joining that cooperative?

F: I can get help from the BPTP (Balai Pengkajian Teknologi Perkebunan) and Dinas Pertanian

R: How big is your farm?

F: 2 hectare

R: Did you buy all the area or you work for someone else?

F: All mine, I got them from transmigration program 1993

R: What is your educational background?

F: Elementary school

R: How much is your salary per month? (Maybe they can give the range if they have difficulties in answering this)

F: It depends. This year is quite low but I do not count.

R: But do you have enough salary to cover household expenses?

F: no

R: so how do you solve this household expenses problem?

F: we generally borrow from middle man

R: How many people are there in your family?

F: 3 children

R: What are their occupations?

F: 2 high school students, 1 helping in the farm, 1 hectare

R: What are their educational backgrounds?

F: High school

R: Is one of them helping you with farming? (either suggestion or real actual work)?

F: Yes, all of them and 1 runs his own

R: What type kind of help?

F: Cleaning the cacao farm

R: Are there any other relatives or staff that help you in farming?

F: Not really, everybody work together

R: Do you have internet on your mobile phone or home?

F: Yes, I have facebook

R: Does any member of your family, (relatives), or staff use internet?

F: yes

R: For what purpose in general? What are the websites that you use?

F: facebook

R: Do you use internet to help your farming practices?

F: no

R: Do you know about the pricing of cacao beans in each type of quality? (If yes, ask for the details of the price)

F: Not really

R: Why you dont know it?

F: Because I sell everything to tengkulak (middle man)

R: Do you also use internet to check the buying price or the general price of cacao bean? (If not, why, if yes, ask about the middle man price and the reason why they rely on the middle man)

F: No. because we need tengkulak because they are the place for us to ask help. He always be there when we need help

5.2. Innovation Process Questions

R: When did you produce your urine pesticide for the first time?

F: We already worked to make urine pesticide since 2013

R: Was there any other actor that support you implementing this idea?

F: bptp

R: What are their supports?

F: the reference picture of the better cage

R: Moving back slightly before you implemented your idea, how do you influence the other actors to believe in your idea?

F: I showed BPTP that I already made the innovation and BPTP give us the drawing of the model of the cage to help us collecting the urine

R: Before you try to approach the other actor, who is supporting your idea to make use of the urine as pesticide?

F: All the members of my cooperative

R: What did they do?

F: I told them my experience and they wanted to try to make use of urine as pesticide

R: How much is the investment for you to make this pesticide?

F: Almost no cost, some of us have experience as house construction labourer and also as carpenters that we do when we have free time

R: When was this idea coming to your mind?

F: when I found the need to increase productivity

R: why you need to increase productivity?

F: Just to support my household needs

R: What was the main reason or moment that make you feel that you need to do innovation?

F: Because we need extra money. We owe the middle man too much money so we need to give the money back. He helped us a lot so we need to produce more so we can pay all our debt.

R: Who did influence your first idea to make use of the urine?

F: I got this idea from my personal experience

R: What was your experience?

F: I realized when the harvesting period, the area close to the goat's cage has better cacao fruit rather than area that is far, so I started collecting the urine.

R: Did you develop variations (of idea) before focusing on this idea?

F: No other idea

R: At the beginning of your innovation process, did you have any specific goals, or you just developed the idea from what you had?

F: I wanted to make use of goat's urine so I just collected the urine

R: But did you already know what to make?

F: Yes, between fertilizer and pesticide

R: Why did you decide to make pesticide instead of fertilizer?

F: Because it is easier. To make the fertilizer we need fermentation process instead to make pesticide we just collect the urine

R: Did you borrow resources from someone in order to maximize the profit?

F: no

R: In the beginning, do you think you are only committed with resources available (state the resources) or you put more effort to get the resources needed to maximize your return from your goal (state the goal)?

F: We are committed

R: Can you give me example?

F: for example, we use all the things we had and all the knowledge to make the cage which can collect the urine.

R: You said that you just use your own knowledge, but Did you respond to unplanned opportunities as they arose? Like adapting to make better or easier process?

F: When we started to build better cage like the model from BPTP. we planned to buy steel but we switched to the woods since one of our member is a carpenter. And for the ground, BPTP suggest with the cement, but it is expensive. We can not use only the wood because it can absorb any water. In the end, we put fiber so we can afford the cement that is expensive and it is easier for us to make urine flowing.

R: Did you adapt what you were doing to the resources at hand?

F: Yes, for example now we have this cage as a cumulative work for certain people in our cooperative

R: Did you think about someone that can be related with your idea (state the idea)?

F: Bptp and other farmers in different cooperative

R: Could you see one of them be your competitor or your partner?

F: No, we share between farmers

R: How did you expect them to be your partner?

F: Some of them come and ask how to do it. And we help each other because we have same goals to improve cacao plantation in Mamuju

R: Have you found something that is going not as smooth as your plan?

F: Yes, we did not have for the money to buy steel, and bptp did not give money and steel. But we used resources we had, like woods

R: Did you predict it before?

F: we did not predict it because we thought that Bptp will help with everything when they said the proposal to make the cage to collect urine is approved

R: What was your response?

F: Adapt with all we had and modified the design with wood.