UNIVERSITÄT BERN

Seminar Paper
Towards Sustainable Cocoa
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Towards Sustainable Cocoa Peru

FIGHTING DEFORESTATION AND POVERTY

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Abstract

Peru has become one of the main producers for cocoa. This increase in production has consequences for the environment and the people who live there. Particularly deforestation and the living income are the main challenges for Peru. How can these problems be addressed? What are the actions and conditions towards a sustainable cocoa production?

In this seminar-paper, I constructed my own Theory of Change with special focus on deforestation-free supply chains. Other interventions in the context of landscape approaches are also integrated. The main findings are on the one hand the importance of the integration of local farmers – man and women – into the actions. It doesn't matter if these actions should create knowledge or technical innovation, it is fundamental to include the local society into the process. On the other hand, the Theory of change and the pathways to impact aren't a linear and static model. There are interdependences or interconnections between the actions, outcomes, and impacts. Not to forget the conditionalities under which some actions only work, or outcomes are successful. Last, I compare the results of the national Theory of Change with the ambitions of a HELEVETAS project[1] in San Martin.

[1] HELVETAS Swiss Intercooperation (2022): Concept Note: Sustainable Cocoa Sourcing Landscapes in Peru. (no public access)

1. Introduction

Latin American countries increased their cocoa production significantly. Especially Ecuador and Peru are strongly growing their cocoa sectors. But with the increasing production, the demand for land which can be cultivated increases simultaneously. The cocoa production is seen as a main driver of deforestation. (Fountain and Huetz-Adams 2022, 34, 83) In 2019, 148'426 hectares of forest were cut down in Peru (Ministerio del Ambiente 2020).

That is why there must be strategies for a sustainable cocoa production created, to prevent deforestation and with that increase the living income of the local farmers. There are already some interventions on different levels suggested to address those problematics. On an international level, there are regulations for deforestation-free products. Local strategies with landscape approaches want to "achieve multiple functional goals through collective action and integrated governance" (Zanzanaini et al. 2017 in Ros-Tonen et al. 2018, 2). The question of this paper is, how these interventions in the context of landscape approaches achieve their set goals. What are actions one could invent and implement to get the desired effects. What are the pathways to impacts?

These questions are tried to be answered with the method of a theory of change. It helps to visualize inputs, outcomes and impacts of specific actions and their interrelated and dynamic behavior. The initial position is the desired impacts which are given. After a context analysis of Peru and the region San Martin (chapter 2.1 and 2.2), one can see that deforestation and living-income are the main impacts the interventions in Peru should target. These two target dimension can also be legitimized be the "cocoa problem tree" (figure 1) by Fountain and Huetz-Adams (2022). They say that the three general problems of cocoa productions are human rights, environmental protection and living income. Every problem dimension has its subcategories which specify the challenges. The "cocoa problem tree" applied to Peru shows that the human rights are cross-cutting themes which aren't directly and only influenced by the cocoa production. The other two dimensions should be the impact-goals of interventions in the context of landscape approaches in Peru.

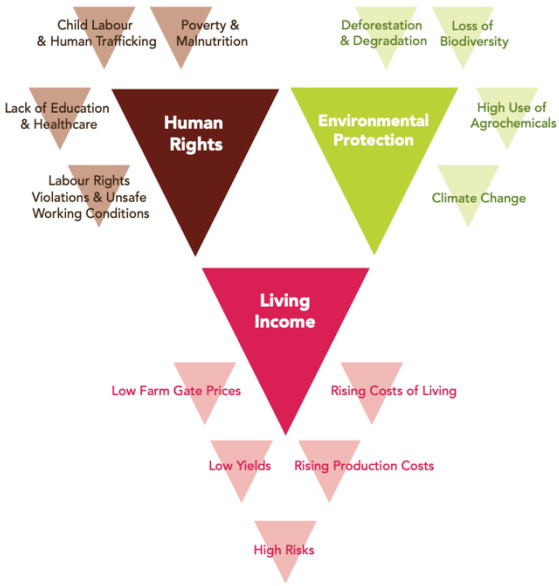

Figure 1: Cocoa Problem Tree

After the context analysis and the evaluation of deforestation and living-income as target dimensions, the theory of change for Peru is presented and explained (chapter 4). At the end, the constructed theory of change is compared to a project from HELVETAS which is implemented in San Martin.

1. Context analysis

In this chapter, the research regions are presented. First Peru as a country is described economically, politically, geographically, and environmentally. Then the focus is on one of the departments in Peru: San Martin.

1.1 Peru

Peru is in central-western South America. The country is in three directions surrounded by Ecuador, Colombia, Brazil, Bolivia, and Chile. Its west-coast borders the Pacific Ocean. Politically, it is divided into 24 departments, which include for example Lima or San Martin (figure 1). Topologically and climatically, the country can be divided into other regions: Coast, Mountains, and Rainforests. (Gianella et al. 2019, 4)

Figure 2: Map of Peru with departments

Politically the country is very unstable. In December 2022 the president was removed from his position through the parliament. The vice president automatically followed. Now the country is marked by violent riots without prospect of improvement. In the region of San Martin, the political instability is complemented by environmental and legal disagreements. (Eidgenössisches Departement für auswärtige Angelegenheiten 2023)

Economically, the development has been consistently good. Especially the poverty fell from 59 percent to 26 percent. However, with these numbers, the distribution must be considered. Urban population has a poverty rate of 17 percent, while in rural regions, more than half of the people are considered poor (Gianella et al. 2019, 6). Piu and Menton (2014, 58) also state that one of Peru's challenges is, additional to the low monitoring capacity and the weak governance, the poverty in forest areas. The relatively small portion of agriculture in Peru's economy could be an explanatory reason. It only makes up seven percent of GDP (World Bank 2021). But Gianella et al. (2019, 6) emphasize: "However, GDP is only one indicator of the importance of the agricultural sector." In terms of employment, over 27% of the workers are active in agriculture (World Bank 2019)

Not only the geographical aspects are affected different by poverty. Gender also makes a difference. Women, in particular rural women, are the poorest people in the country, even as they take most of the farm and household tasks (Gianella et al. 2019, 7).

Focusing on the environment, Peru is struggling with deforestation. In 2019, 148'426 hectares of forest were cut down. A year before, the area was 154'766 hectares. That is 4.1 percent more than in 2019 (Ministerio del Ambiente 2020). This negative trend is a new phenomenon. Before, the deforestation-rate increased yearly. Per example in 2016, 144'236 hectares of land was cultivated (Rios et al. 2017, 45), approximately 10'000 hectares less than in 2018.

As a main driver, the European Commission (2021) "blames" the expansion of agricultural land. Piu and Menton (2014, 10), on the other hand, base the main drivers of deforestation in different dimensions: demographic, economic, political, institutional, and legal. For the demographic category, they state the population growth in forested regions. The increasing demand of agricultural and extractive products are economic factors. The national policy on economic growth and the weak institutions are examples for the political and institutional dimensions. The legal category is defined by unclear laws and legal systems for land-use and exploitation rights.

Piu and Menton (2014, 34, 37) think that the weak national development policy in Peru is the main driver of deforestation. The institutional capacities aren't enough to implement a deforestation policy successful. Peru lacks mechanism for inter-institutional communication and coordination. But there are

also external factors which influence deforestation in the country. International market forces can also lead to deforestation and land degradation. With an increasing demand for agricultural products, the pressure on local farmers to produce as efficient as possible, also increases. This efficiency usually happens on the expense of the environment especially the forests.

The increasing cocoa-production is one reason for the expansion of agricultural land. As mentioned, there is an increasing demand of agricultural products, which is why the production must follow the trend. In 2014 and 2015, 92'000 tons of cocoa were produced in Peru. Compared to that in 2021 and 2022 the production amounted to 160'000 tons of cocoa. (Ministerio de Desarrollo y Riego 2022, 6)

Strategies to prevent deforestation and promote sustainable cocoa-production so far are environmental certifications (Tropical Forest Alliance 2022, 28), the "International Cocoa Agreement 2010" (International Cocoa Organization 2014) as well as the "Cocoa, forests and diversity agreement" (Coalition for Sustainable Production 2021)

As we saw, the problematic dimensions in rural Peru are the poverty and living income as well as deforestation. Not specifically located in a region are the cross-cutting challenges of gender-equality and innovation.

1.2 San Martin

Figure 4: Map of San Martin

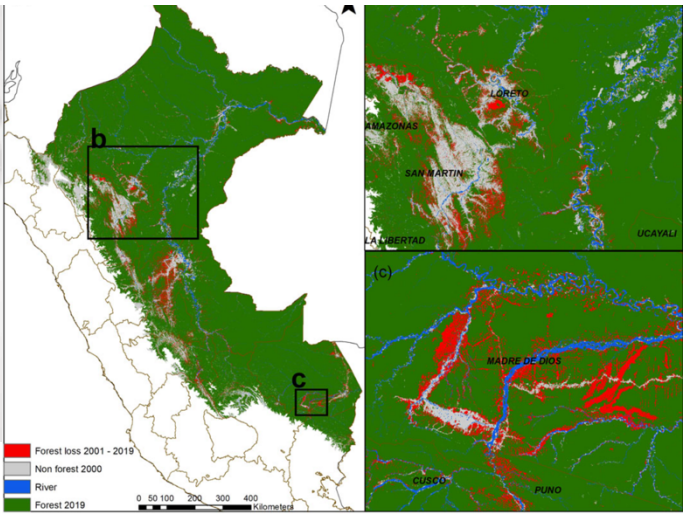

Figure 3: Accumulated deforestation from 2001 to 2019 and remaining forest cover.

San Martin is one of the 24 departments in Peru and is in the central-northern part of the country (figure 2). In 2011, the region had 794 730 inhabitants (Banco Central de Reserva Peru 2011, 2). The agricultural sector takes up to 28 percent of the gross added value from the department. It is the most important sector in terms of employment and economic production (Banco Central de Reserva Peru 2011, 3). In this region, a third of the national cocoa-production takes place. In 2022, 49'006 tons of cocoa were produced in San Martin (Ministerio de Desarollo y Riego 2022, 16), mostly from small-scale producers. As we have seen for the national context, more production leads to more deforestation. That is why San Martin is one of the most affected regions from deforestation (figure 3).

2. Theory of Change – Methodology

A theory of change is an explanatory tool for the generation of changes by activities of an initiative (Mason and Barnes 2007 in Oberlack et al. 2019, 106). With its implementation, the actors involved can evaluate "[…] hypothesized and observed effects of actions as well as [] underlying assumptions about how change happens" (Oberlack et al. 2019, 106). A theory of change visualizes pathways to impact which means that it shows how to achieve specific goals. It allows a constant reflection of the interventions and their effect as well as a dynamic (re-) action to the changing circumstances and individual experiences (Oberlack et al. 2019).

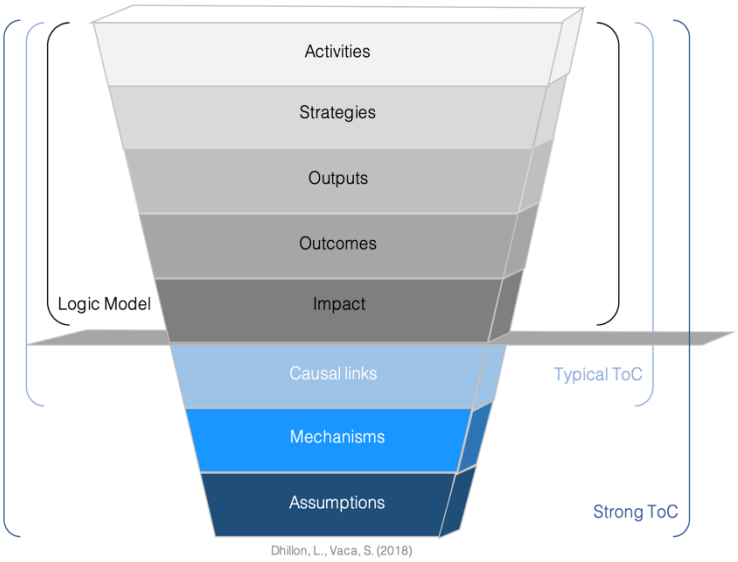

Figure 5: Layers of a Theory of Change

The Construction of a theory of change consists of different layers (figure 7) which are in a dynamic relation (Dillon and Vaca 2018). That means that the individual aspects are interconnected and do not follow a linear logic. An action can led to another action or can only work under specific conditions. The "Logic Model" describes the framework of an initiative: what will be done? How? What are the main goals? What are the short- and long-term impacts? Additionally, there are causal links, mechanisms, and assumption one makes in or between the layers.

For the theory of change in this paper, the logic model consists of activities, strategies like international financing, their outcomes, especially a deforestation-free supply chain, and the impacts of the outcomes which above all should be the prevention of deforestation and the increase of living-income of the local farmers. Causal links are also illustrated as well as some mechanisms or condition for a successful implementation.

To collect the information integrated into the theory of change, a literature analysis of different documents was made. The primary studies were selected with a focus on deforestation and deforestation-free supply chain.

3. Theory of Change – Results

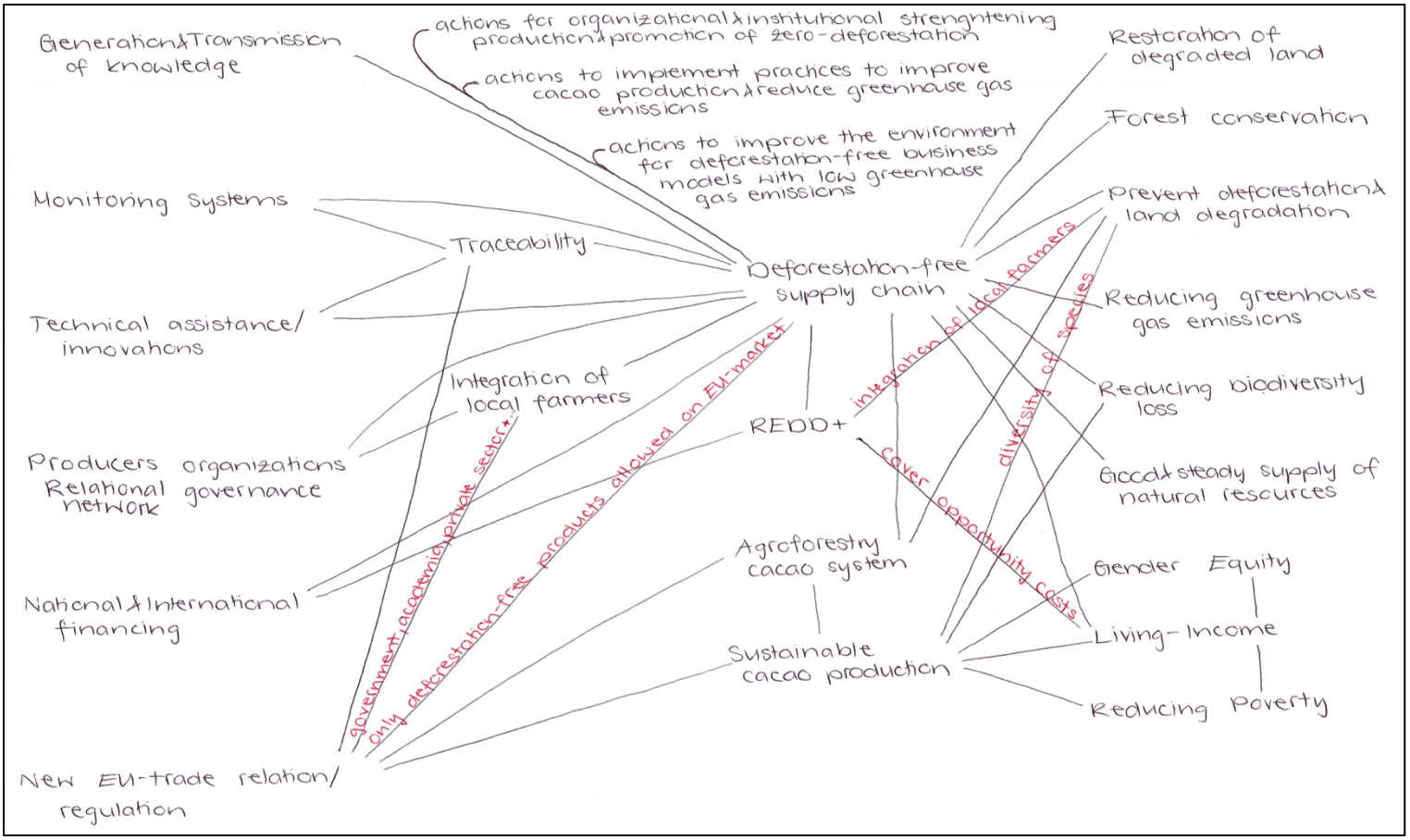

Figure 6: Theory of Change: Sustainable Cocoa Production in Peru

4. Discussion

4.1 Actions

Ivanova et al. (2020) divide their "Framework of activities" into three main actions. First the "actions for organizational and institutional strengthening regarding the production and promotion of deforestation-free cocoa" (Ivanova et al. 2020, 92). These actions target on two different challenges: the limited human resources trained and the limited innovation in development of cocoa products. Activities against those problems include general information and training on environmental issues and public policy instruments as well as the integration of existing knowledge to promote innovation. Regarding the theory of change, these actions are the generation and transmission of knowledge and technical assistance/innovation".

Second are "actions to implement practices to improve cocoa production and reduce greenhouse gas emissions" (Ivanova et al. 2020, 93, 94). These actions should help to overcome several challenges from the diversity of agroforestry practices and no forest monitoring system to the increasing weather conditions. Strategies against those problematics are the systematization and evaluation of agroforestry arrangements, the development of a forest monitoring and verification system for the cocoa value chain or the development of climate-smart cocoa project. Adapted to the theory of change, this dimension includes Monitoring Systems and Technical assistance as well as producers' organizations to implement the arrangements.

Third Ivanova et al. (2020, 94) present "actions to improve the environment for deforestation-free business models with low greenhouse gas emissions". Activities like the development of communication and positioning plans or resource management should reduce the problematic impacts of an increased demand for deforestation-free products and at the same time no local supply or the absence of a shared vision and leadership to guide the development. In the theory of change, those actions would be technical assistance/innovations, producers' organizations, and national and international financing.

As we see, the generation and transmission of knowledge is a key factor to overcome the limited human resources. With this action, sustainable practices and technological development can be supported (Tropical Forest Alliance 2022, 29). The generation of knowledge does not only promote the emergence of a deforestation-free supply chain, but it also drives another action (technical assistance/innovation).

Focusing on technical assistance/innovation one can see that it appears in all dimensions from Ivanova et al. (2020). Technical innovations are necessary because human actions have its challenges. The dependence on individuals who act subjectively can be difficult. With technical assistance/innovation, all mentioned actions are supported, and their implementation and regulation are simplified.

Technical innovation can also promote monitoring systems. These help to understand the local challenges and to compare them with other regions. Monitoring systems aim to verify deforestation-free cocoa production and the general performance of the implementation of interventions (Coalition for Sustainable Production 2021).

Producers' organizations can provide various resources from knowledge to money. The come together of local farmers in organization increases their national and international forces. If they appear as a group, their influence will be much higher than it would be as an individual. But the producer's organization face problems which weaken the organizations. An example is the lack of transparency in the organizational management or the difficult access to technical and financial resources (Ivanova et al. 2020, 32). In connection with the theory of change, one can see that those problems can be solved with other actions: technical assistance/innovation and national and international financing.

Some intervention strategies have to rely on external financing. Initiatives as CENTRAL COCOA AROMA (Tropical Forest Alliance 2022, 59) or CAT TOCACHE (Tropical Forest Alliance 2022, 62) count on national or international financings. European or Peruvian banks would give them limited access to their resources for production. Proper access remains a challenge for this action. Another possibility would be a fund available to coordinate financial resources from national and international sources (Piu and Menton 2014, 50).

An intervention which hasn't been mentioned yet is the new EU-trade relation and regulation. It is a commitment to eliminate deforestation from supply chain. The previous relation was based on international commitments and agreements like the Paris Agreement of Climate Change and the United Nations 2030 Agenda for Sustainable Development. The new regulations are opportunities to achieve deforestation-free supply chains and reduce greenhouse gas emissions. But the strategy can only be successful if the technical conditions and the legal status of land are considered. (Ivanova et al. 2020, 5, 63)

The main actions of the new regulations are that only deforestation-free and legal products are allowed on the EU-market. Another condition for market-access is the strict traceability of the products. Also relevant is the cooperation with governments, academia, private sectors, and the civil society from the partner countries. (European Commission 2021)

4.2 Traceability and Integration of local farmers

Factors which are actions and outcomes simultaneously are traceability and the integration of local farmers. They can "stand on their own" as intervention strategies but can also be a condition for a (successful) implementation of other actions or an intermediate step for the outcome.

Traceability is such an intermediate step between a deforestation-free supply chain and technical assistance/innovation and monitoring systems. The latter is a crucial factor for the existence of traceability systems (Tropical Forest Alliance 2022, 39). Technical innovation can support and improve the monitoring systems which also leads to better traceability and thereby to more transparency. For the new EU-trade relation and regulation, traceability is a necessary condition for reaching a deforestation-free supply chain (European Commission 2021, 2).

In connection with the integration of local farmers, the new EU-trade relation and regulation can be implemented more successful and more efficient. With the cooperation with local farmers, the intervention strategies aren't just top-down approaches but become bottom-up strategies with the recognition of the local conditionalities. By promoting public-private dialogues local farmers can benefit from international strategies (Tropical Forest Alliance 2022, 75).

That the integration of local farmers is related with producers' organization is to be explained briefly. Producers' organization consist of groups of local producers. Without the local farmers, they wouldn't be producers' organizations.

4.3 Outcomes

Every mentioned intervention strategy can provide a deforestation-free supply chain. That means that the goods are "produced on land that has not been subject to deforestation or forest degradation" (European Commission 2021, 3) In that way the cocoa production wouldn't contribute to deforestation and land degradation no more.

Another Outcome is the "Reducing Emissions from Deforestation and Forest Degradation Plus" (REDD+). With national and international funding, several initiatives can be developed and implemented (Piu and Menton 2014, viii). The main element for a successful REDD+ project is the integration of local farmers. Another condition is a "decentralized, multilevel cost sharing and centralized vertical benefit sharing" (Piu and Menton 2014, 58). To prevent negative effect for the population, forests and biodiversity, additional funds are necessary to cover the opportunity costs.

Agroforestry cocoa systems are another strategy to "reduce pressure over forests and mitigate climate change" (Ivanova et al. 2020, viii). The deforestation-free supply chain and REDD+ being international strategies, Agroforestry systems in the context of landscape approaches. They are small-scale alternatives which promote deforestation-free supply chain but also long-term impacts.

An overall outcome is the sustainable cocoa production. This includes a zero-deforestation strategy, agroforestry cocoa system and the environmental financing. The new Eu-trade relation and regulation has especially this outcome as a goal:

> Agreements between the EU and cocoa-producing countries are being made to ensure a transition towards an environmentally sustainable cocoa production, providing a living income to farmer households, free from child labor and other human rights abuses, and where gender equality is the norm. (Tropical Forest Alliance 2022, 37)

Ivanova et al. (2020) include, additional to the socioeconomic benefits, the environmental dimension of sustainable cocoa production. They especially highlight the reduction of greenhouse gas emissions.

4.4 Impacts

As impacts of a deforestation-free supply chain, the Tropical Forest Alliance (2022) describe the following impacts regarding the forests: restoration, conservation, and prevention of deforestation. These goals can be achieved by an inclusive supply chain which is built on a bio economy. Also, the promotion of planting in deforested land can lead to restoration of degraded land (Ivanova et al. 2020, 64).
Other Impacts are the reduction of greenhouse gas emissions as well as the biodiversity loss (European Commission 2021, 1). Another benefit from the deforestation-free supply chain is the good and steady supply of natural resources (Ivanova et. al 2020). Without the competitive pressure, the farmers can produce sustainable and with respect to nature.
As the quote in chapter 4.3 already said, the sustainable cocoa production provides a living income and gender equality. Specific Initiatives in Peru like CENTRAL COCOA AROMA (Tropical Forest Alliance 2022, 59) or CAT TOCACHE (Tropical Forest Alliance 2022, 62) state gender equity as attributes for social and economic issues. Another impact of sustainable cocoa is again the prevention of deforestation. But the condition is the combination of cocoa plants with a diversity of species to prevent the natural conditionalities (Tropical Forest Alliance 2022, 37).
Ivanova et al. (2020, 12) explain that the deforestation-free supply chain initially was developed to increase the living income and with that, reduce poverty.
That's why the intervention strategy of a deforestation-free supply chain does not just affect deforestation or the environmental dimension. It also leads to a better socioeconomic situation of local farmers.

4.5 Helvetas` project in San Martin

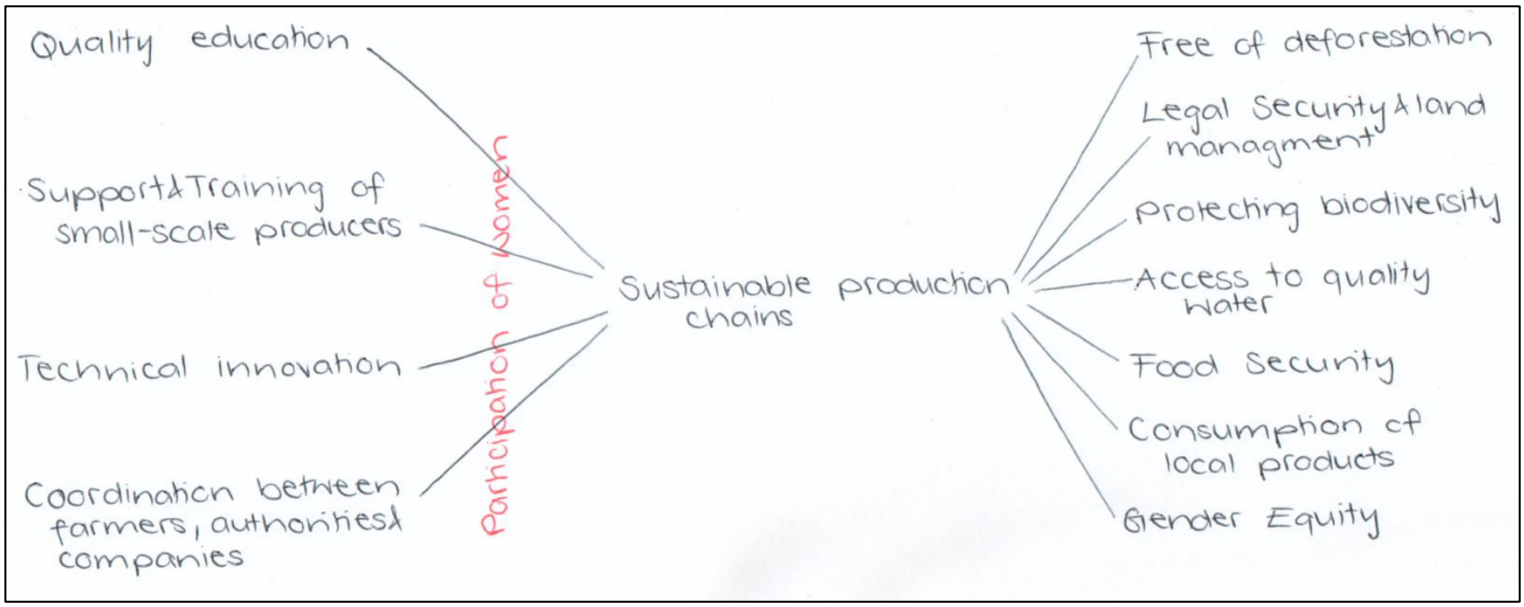

Figure 7: Theory of Change: Sustainable Cocoa Production in San Martin

When we compare the theory of change for Peru with the small-scale theory of change for San Martin, one can see that the structures in San Martin are more simplistic. But it is important to acknowledge, that these are just the pathways for this specific project.

The impacts are mostly in agreement with the national impacts. San Martins long-term goals are more specific, per example the access to quality water is missing in the theory of change for Peru. The goals focus more on the livelihood-aspects while on a national level, the environmental effects are more important or simply more addressed by researchers.

In the category of the actions, there are no big differences. The inputs are formulated different, but the effective actions are the same. The focus is on the creation of knowledge, technical innovation, and integration of all actors.

The main difference is gender equity which is pursued more ambitiously from HELVETAS. The importance of the participation from women is highlighted in the strategy. Without their integration, a successful implementation gets difficult.

5. Conclusion

Finally, I want to highlight two main findings. First is the importance of the integration of local farmers, men, and women. As we have seen, without the integration, the producers' networks wouldn't exist, the implementation of the new EU-trade relation and regulation would be more difficult and less successful. In addition, REDD+ projects wouldn't help much for the prevention of deforestation and land degradation. It would just be money which wouldn't be used there, where it should. In San Martin, none of the actions would work without the participation of the local society. Especially the integration of women in their strategies are fundamental.

A second significant aspect is the high interdependence between the actions, outcomes, and impacts. Some actions like technical assistance/innovation can support other actions or intervention strategies like the monitoring systems. Moreover, some strategies do only work in combination with other aspects. Per example do the REDD+ projects only have a positive effect when opportunity costs are guaranteed to be covered. Additionally, the pathways are not linear. There can be an action like the integration of local farmers, which is simultaneously an outcome of producers' organization. Another example is the sustainable cocoa production. It is an outcome of the new EU-trade regulations but also and outcome of deforestation-free supply chains. The connections between the different actions, outcomes, and impact can therefore go in both (or all) directions. A theory of change is a dynamic, nonlinear construction which does not have one right solution. It is also to be mentioned that not all intervention strategies are considered, but the illustration is a first draft of how change can take place.

Castro-Nunez et al. (2021) criticize the ambitions from REDD+ and the deforestation-free supply chain. It is precisely the dependence on conditions that they criticize about REDD+. The requirement of integrated conservation and development approaches lead the authors to call it a failure. Regarding the deforestation-free supply chain, they see some substantial challenges. The chains can marginalize key forest conservation actors like smallholders or indigenous people. They also describe the problem of "leakage", where deforestation in one place increases because another place has stated an environmental action against deforestation.

As we see, deforestation-free supply chains aren't the perfect solution against Peru's challenges, because there are always some negative aspects. But it can be the beginning of a process towards sustainable cocoa production.

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6.2 Figures

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Figure 1:

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Figure 5:

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Figure 6: own illustration

Figure 7: own illustration