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Spice and Medicinal Plants Production and Value Chain Analysis from South-West Ethiopia

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Abstract
Non Timber Forest Products like coffee, honey and spices, form an important part of livelihood strategies of the people in South-West Ethiopia. In addition, they can be an incentive to leave the forest intact instead of cutting down trees for agriculture. This study tries to fill some of the gaps in the information on marketing opportunities and constraints for spices that grow in the area, specifically for Ethiopian cardamom, Ethiopian long pepper, Indian cardamom and black pepper. From the interviewed 70 farmers in the seven kebeles of the study area 41 were trial farmers and 29 did not participate in the spice trials. 54 men and 16 women were interviewed. A number of traders in the spice value chains were interviewed in order to obtain information on spice production, trade and potential markets. The results show a mixed image on marketing opportunities for spices. The main spices produced and collected by the households interviewed during this study were: Ethiopian cardamom, rue, basil, birdseye chili, chili pepper, garlic, onion, turmeric, ginger, black pepper, timiz and cardamom. Few produced coriander, cinnamon, cumin, mint, *thyme* and lemon grass. About 38.57% (27) were involved in wild spice collection (all Ethiopian cardamom). About 66.67% (18) wild spice collectors were also cultivating cardamom. Regarding the marketing of spices, farmers and traders face low prices, difficulty finding markets, long transport distances, a lack of capital for transport and extending production, a lack of market information and small volumes to sell.
Keywords: - Black pepper, Ethiopian cardamom, Ethiopian long pepper, Indian cardamom and Spices

1. Introduction

Ethiopia has a unique and well developed kitchen. This kitchen rests on the alchemy of red peppers, cardamom, ginger and many other spices. Some of these spices are indigenous to Ethiopia or its neighboring countries; others were introduced a long time ago, due to Ethiopia's central position along the spice trading routes. As spices are needed every day in the preparation of the main dishes, spice sellers are much frequented on the markets. Many spices, like cinnamon, nutmeg and glove, are being imported, mainly from India. Others, such as turmeric, fenugreek and red chili pepper, are (also) produced in Ethiopia itself and even being exported. It is clear spice trade in Ethiopia is a lively business.

Spices are grown mainly by small farmers on their home gardens [1] and farm fields and to some extend on (government owned) plantations. Some spices can also be found in the wild, as is the case with amongst others basil, fennel, long pepper and the indigenous Ethiopian cardamom [2]. Although spice cultivation takes place all over the country, this study will focus on the South-Western part of Ethiopia which is an important centre of spice production and collection. Most farming households in the South-West of Ethiopia rely on products as coffee, honey and maize for their daily needs, nevertheless spice production can form a welcome additional source of income. Moreover, as some spices are collected from the forests and many spices need a shady environment and moisture soil, spice production can be an incentive to preserve the endangered natural forests in the region.

The South-Western highlands are one of the last places in Ethiopia where natural (montane) forest is found. They play an important role in regulating several important rivers and draining the surrounding lowlands. These forests are also home to a wide range of plant and animal species, forming an important source of the countries biodiversity. Local communities are highly dependent on the resources provided to them by the forests, such as wood for fuel and construction and several non-wood products, which are used as fodder, binding material, food and medicine. These non-timber forest products (NTFPs) often form an important source of income for local households. However, the forests in Ethiopia are under great pressure, due to population growth and agricultural investments projects [3]. Forests in Ethiopia are estimated to decrease with 141,000 hectares a year [4]. Moreover, the pace in which deforestation and degradation are taking place, is only increasing.

In this context, the NTFP Research and Development Project South-West Ethiopia was set up in 2003, operating in Bench Maji, Sheka and Kefa zones of the Southern Nations, Nationalities and Peoples Region. This project aims at contributing to the alleviation of rural poverty through the development and sustainable use of NTFPs, mainly coffee, honey, bamboo and spices. The project focuses on three related elements of an integrated technical approach, namely: sustainable management of forests and natural resources; production and processing of NTFPs; and utilization of NTFP for trading and household use [3]. It is this last marketing component this study

is focusing on. The NTFP project has put quite some effort in improving market access for coffee and honey, with positive results. As spices contribute less to local households, they have received somewhat less attention. Still, they can form additional income and be an extra incentive to keep the forest intact. Additionally, they have the potential to improve the livelihoods of specifically women, as often women are involved in collecting, cultivating and selling the smaller amounts of spices. Therefore, this study aims at exploring the marketing opportunities and constraints for local spices from the project area. The specific focus is on *Aframomum corrorima* (Ethiopian cardamom), *Piper capense* (long pepper), *Piper nigrum* (black pepper) and *Elettaria cardamomum* (cardamom) as these spices were included in spice trials with farmers which were set up at the beginning of the project. This leads to the following research question:

What are the marketing opportunities and constraints for Aframomum corrorima, Piper capense, Piper nigrum and Elettaria cardamomum and other marketable spices produced in the NTFP South-West Ethiopia project area?

As marketing opportunities and constraints are defined by conditions on the supply as well as on the demand side and on the way trade itself is taking place, the main research question was split up in the following three more specific research questions:

1. What are the opportunities and constraints on the production of *A. corrorima, P. capense, P. nigrum and E. cardamomum* and other potentially marketable spices?
    a. How is production currently taking place?
    b. What opportunities and constraints can be found in the spice trials?
2. What are the characteristics of the value chains of *A. corrorima, P. capense, P. nigrum and E. cardamomum*?
    a. Who are the stakeholders in these chains and what are their roles?
    b. How is power concentrated in the spice value chains?
    c. How are the spice chains being governed?
    d. How can the spice chains be upgraded?
3. What is the national and international demand for the spices produced in the project area and what are the conditions to access these markets?

Women are more knowledgeable in using, cultivating and managing root and tuber crops, vegetable crops, spices, condiments, herbaceous species and medicinal plants than men in home gardens [1,5]. Spices, herbs and condiments are used to flavor foods or beverages before, during or after their preparation [6]. The terms spices, condiments and herbs are often confused. Generally condiments are considered to comprise also flavorings of non-vegetable origin such as salt and sauces, whereas spices and herbs only come from plants or plant products. There are different ways to distinguish spices from herbs. Herbs are often regarded to be the green and leafy parts of non-woody plants which can also be used freshly. Spices are always dried and generally come from tropical regions, while herbs come from outside the tropics. This paper refers to the use of dried culinary plants and plant products and so uses the term spices in its widest sense, as any dried plant product used primarily for seasoning. Spices may be the dried bark, flower buds, seeds, leaves, bulbs, fruits, rhizomes, roots, or many other parts of a plant.

The history of spice trade is a long and romantic one. As spices were a valuable commodity, their trade involved considerable power struggles, intrigues and conquests [7]. The use of spices is probably as old as mankind since prehistoric men learned to distinguish between edible and inedible plants. Herbs and spices started to be used as medicine as long as 5000 years ago by the Chinese emperors and later by the ancient Egyptians, who also used spices to preserve the bodies of their dead kings (ibid). The first who started trading spices were Arab merchants who dealt in the transport of spices from India, Burma, the Malay Peninsula and the Persian Gulf to the trading centers of Alexandria and Carthage. It took them many years to bring the spices from thousands of miles away on camel caravans and ships (ibid). During the European Age of Discovery, European traders became more prominent in spice trade. The trade in spices was a driving force in the world economy until well into the modern times and ushered a time of European domination in the East and cultural and commercial exchanges between different cultures [8].

Due to Ethiopians location along the spice trade route, it is not surprising that spices and spice trade play an important part in Ethiopian society. Also because of its diversified and favorable agro-ecological zones, Ethiopia hosts a number of indigenous and exotic species of spices. Ethiopians have been using spices for generations, from earlier than 160 BC [9]. Some spices, such as Ethiopian cardamom and Ethiopian long pepper are indigenous to Ethiopia and therefore grow in the wild. Others, such as turmeric and ginger are being cultivated [6]. Many spices, like black pepper, nutmeg and cinnamon are mainly imported.

The NTFP Research and Development Project in South-West Ethiopia aim at reducing poverty and maintaining forests in the project area through the development and sustainable use of NTFP's. One way of developing NTFP use, is linking producers with regional, national and international markets. The strategic focus of the project is on NTFPs with most commercial value in the area, which is coffee, honey, spices and bamboo.

Regarding spices, the emphasis is on Ethiopian cardamom (*Aframomum corrorima*) and long pepper (*Piper capense*), as these are the most important spices which occur naturally as NTFP in the South-Western highland forests [10]. Promoting the development of these spices will add value to the forests and so help preventing disturbance of the forest. In addition to this, the activity creates appropriate agro-forestry systems in home gardens. It also increases the livelihood of women and resource poor households as they are traditionally involved in spice forest collection, home garden production and trade.

Despite the region's reputation on spice production, cultivation and trade in the focal districts of the project is little developed. For this reason the project decided to start by carrying out some research on the production and domestication of different spices in a series of farmer trials. Four spices were selected. *A. corrorima* (Ethiopian cardamom) and *P. capense* (long pepper) because of their natural presence, and *P. nigrum* (black pepper) and *E. cardamomum* (cardamom) for the high price these spices had on the international market. Through these trials the project hoped to get information on which spices could be domesticated in gardens and which were better managed in the forest, which could be easily managed by local farmers and what type of care was needed. In addition, it would provide the project with information on yields and interest farmers in developing spice production and trade [11]. It takes a relatively long time for the plants to come to full production.

The project has undertaken a few attempts to link up spice production from the intervention area with national and international end markets, but with no success so far. This is mainly due to a lack of information on the volume of spices available and the difficulty to control quality as these spices are open access resources [12]. This report hopes to generate more ideas on how to market spices from the project area.

Non-timber forest products (NTFPs) cover a wide range of products, which are being used in different contexts and contribute in many different ways in household livelihood strategies [13]. Many are primarily used for subsistence; often they fill income gaps or function as a 'safety net', helping poor households to overcome shortfalls from other income sources. Only few provide households with a regular cash income (ibid, 2003). Because of this, NTFPs have been defined in many ways. In this study NTFPs will be defined as 'all tangible animal and plant products other than industrial timber, which can be collected from forests for subsistence and for trade' [14]. Forests in this sense can also mean human modified forested landscapes. NTFPs such as bamboo, plant and plant parts, bush meat, waxes and silk can serve as food, medicine, forage, construction material, bio chemicals, ornamentals, utensils and aromatics.

The role of NTFPs in poverty alleviation and sustainable forest use became quite popular in the environmental and development dialogue from the end of the 1980s. It was thought that the subsistence and income contribution of NTFPs to local households would provide them with incentives to maintain the forests [15]. Some comparisons even suggested NTFP values that approached or exceeded timber values from the same forests [16]. Increasing the value of NTFPs would simultaneously serve development as well as conservation goals [17]. This assumption led to a rapid growth of NTFP initiatives, but scholars also started questioning the idea that NTFP commercialization would easily lead to livelihood improvement while at the same time conserving the forests [18].

More than 15 years of experience in NTFP commercialization has shown that these initiatives were not universally successful [17]. Often, the NTFPs were harvested in an unsustainable way, resulting in degradation instead of conservation of forest resources. Besides, income generation through NTFP commercialization stayed below expectations. NTFPs can form a critical livelihood strategy for poor households, but they rarely provide the means of socioeconomic advancement [17]. Based on two multi-case-study research projects [18] listed some challenges and risks that come together with NTFP commercialization. Volumes that are collected are typically small, quantities and qualities are often unreliable. Therefore, it is more difficult to get market access, find investors, limit production costs and negotiate on prices. Producing a product which meets the high quality standards of national and international markets may require levels of technology, infrastructure and quality control that are beyond the facilities and knowledge that are locally (or even nationally) available. Consequently, barriers to enter markets can be high. Successful NTFP commercialization can also collide with the goal of biodiversity conservation as it can work as an incentive for increased production through more intensive harvesting or management, leading to degradation of the forest. Finally, increased commercialization doesn't always improve the livelihood of the poorest groups. They may be out-competed by local elites who have the necessary assets and skills for doing business. Access to NTFP resources can be reduced because of privatization and increased production can lead to decreased prices. So, NTFP commercialization is not an easy process which automatically results in improved livelihoods and conservation of ecosystems. Still, successes at different levels have shown that there is still potential in increasing commercialization of NTFPs if it done with consideration of the constraints and risks.

All NTFP activities take place within a production-to-consumption system [19], or 'value chain'. A "*value chain* describes the full range of activities which are required to bring a product or service from conception, through the different phases of production (involving a combination of physical transformation and the input of various producer services), delivery to final consumers, and final disposal after use" [20]. The term differs slightly from 'supply chain' and 'marketing chain', which are often used by economics to highlight issues of

competitiveness, industrial organization and clustering [13]. A value chain emphasizes the value that is added in the process and how it is communicated [21] . Analysis of the value chain of a specific product gives insight in the actors involved, the roles they play and their power to work within and influence that chain.

An NTFP value chain can be broken down into several sub-sets of activities: production, harvesting, processing, storage, transport, marketing and sale. The length and complexity of value chains differs from product to product. Chains for locally traded products usually are short, simple and supply driven, whereas (inter)nationally traded NTFPs tend to have long and complex chains and driven by the demand for these products. NTFP value chains involve a large number of different actors. Only in the shortest chains, a producer harvests the product, processes it by himself if necessary and sells it to the final consumer. In all other cases, there is a chain of network of different stakeholders, from private traders to enterprises, NGO's, cooperatives and government departments. The more developed the chain, the more sophisticated and formal the relationships between these stakeholders will be.

As stakeholders within the value chain interact with each other, there will always be some level of control, or governance. This is not the same thing as coordination of the activities. Governance means interaction is not random; it gives more insight in the power asymmetries within the chain. Issues related to chain governance include how producers organized, where power is concentrated, how transparently prices are set and whether any actors feel exploited by others [22]. [23] identify five types of value-chain governance: *markets* (repeated transactions amongst different actors with low switching costs); *modular value chains* (suppliers make products to a customer's specifications and take responsibility for competencies surrounding process technology and incur few transaction specific investments); *relational value chains* (mutual dependence is regulated through reputation, social and spatial proximity, family etc.); *Captive value chains* (small suppliers depend on much larger buyers for their transactions and face significant switching costs and are, therefore, "captive") and *hierarchy* (vertical integration with managerial control).

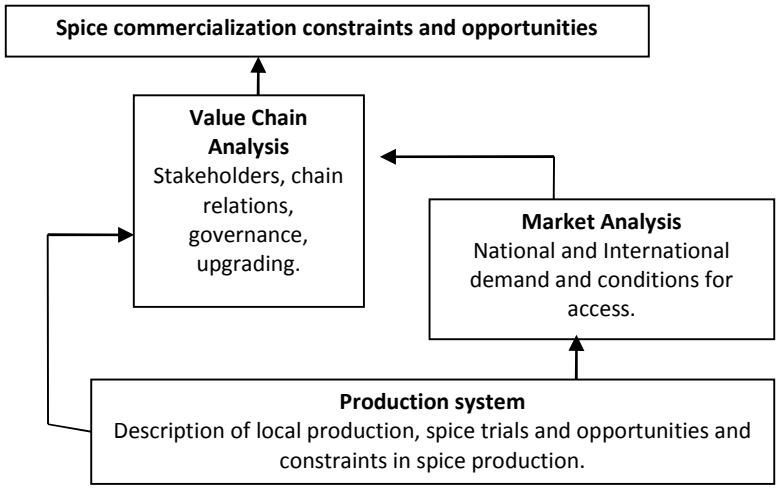


Figure 1. Conceptual Framework.

2. Methods and Materials

2.1. Description of the Project Area

The research was carried out in the highlands of South-West Ethiopia. The study area comprises three zones in the Southern Nations, Nationalities and People's Region (SNNPR). The zones are Bench-Maji, Kefa and Sheka. Within these zones 5 woredas (districts) were selected as focal area for intervention. Within these woredas selection was further specified to 10 kebeles (sub-districts) and a number of Gots (communities) within these kebeles (see Fig.2). As the zones are located on different altitudes and therefore have different ecological environments, a distinction is made between high altitude zones (Sheka and Kefa zones) and low altitude zones (amongst which Bench-Maji). The higher zones have an altitude ranging from 1700 to 2600 m, while altitudes in the lower zones range from 800 to 1400 m (ibid.).

The area includes the upper part of the catchments of several important rivers and is among the highest rainfall area of the country. In contrast with the rest of Ethiopia, this region is still largely covered with its original vegetation, a tropical montane humid forest, with different degrees of degradation [24]. Forest loss is mainly caused by agricultural expansion. Vegetation in this area is considerably diverse, at the lowest level one finds lowland woodland, higher up, the area is covered with different types of forest, with bamboo forests covering the highest parts of the area. The forest takes 18.1% of the land use of the area, bush and shrub land 8.5%, grazing land 26.8%, cultivated land 30% and the remaining 16% is used for several other purposes including private tea

and coffee plantations.

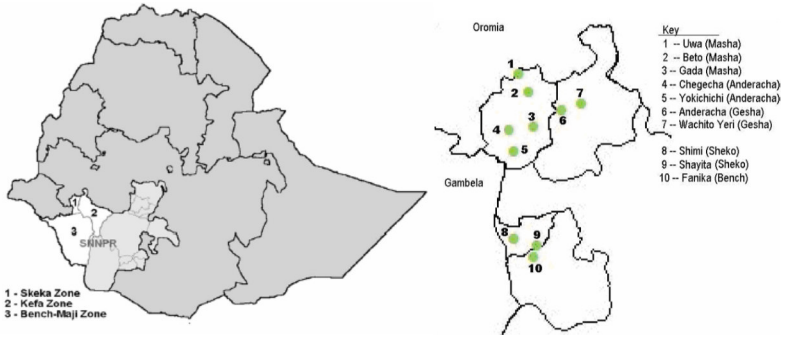


Figure 2. Project area: zones, focal woredas and kebeles

The SNNP region is known for its ethnic diversity. Also in the research area zones several ethnic groups can be found, such as the Sheko, Mejengar and Menet in Bench-Maji zone and the Sheka and Menja in Sheka and Kefa zones. These are just a few of the many ethnic groups as the area also consists migrants, mainly from Oromia and Amhara regions. The majority of the inhabitants rely solely on agricultural practices for their livelihood. Major staple foods are enset and maize, mainly used for subsistence use. Coffee and honey are the main income sources. Other livelihood sources are amongst others livestock, vegetables, fruits, chat, bamboo and forest spices (ibid.).

2.2. Sample Selection

Ten farmers in each project kebele (except from Gada, Sheka zone) were selected for interviews on the production system and market access, so in the end 70 farmers were interviewed. Selection was based on involvement in the project spice trials (per kebele six trial farmers and four non-trial farmers by random sampling system). Local Development Assistants (DA's) helped making the selection by approaching farmers in advance. Naturally the selection also depended on the availability of farmers. Traders were approached on the markets and reached through snow-ball sampling. 70 farmers in the project area were interviewed (10 in each kebele). Out of these 70 farmers, 41 were trial farmes, 29 did not participate in the spice trials. 54 men and 16 women were interviewed, with an average age of 39.3 years (the youngest respondent was 18 years old, the oldest 67). 64.3% of the respondents could read and write, 35.7% was illiterate (in contrast with the traders who could all read and write). Farmers were asked about their main sources of income. Most popular was coffee, followed by honey. Other livelihood strategies that were frequently mentioned were livestock, maize and enset. Generally the farmers used a combination of livelihood strategies, receiving cash income from coffee and honey production while at the same time cultivating a range of crops for home consumption and holding livestock for consumption and income. Only one respondent was receiving salary. Average income on the three main livelihood strategies was 11218,13 birr in 2007. This is just a rough calculation as generally asking directly for ones income on a specific activity does not give the best approximation of the real income. 11218,13 birr = 1156,51 US Dollar (Exchange rates June 2008). The households of the respondents ranged from one to 20 people with an average of 7.2 household members and an average dependency rate of 0.7023.

First the production context is being assessed through interviews with producers, in order to identify opportunities and constraints on the supply side. Through interviews with traders at different levels in the chain information on the value chains was obtained. Market analysis (by means of interviews and exploring existing market surveys) was provided information on the actual demand for spices from the study area. The whole was given information on the general constraints and opportunities for the commercialization of spices produced in the study area.

2.3. Data Colleton

Data for this study was collected in May -June 2008. As the research question focuses on actors on different levels, in the spice, value chains both farmers and traders were interviewed. In addition a number of researchers and local officers were interviewed. Information on international markets was obtained from existing market surveys. Open interviews were held with a range of stakeholders: farmers, different types of traders, officials, project staff and researchers in order to obtain background information on the project itself, the project area, spice production and marketing in the area and in the whole of Ethiopia. For the community interviews an interview guide was developed. These interviews took about 30 to 60 minutes and they were translated into Amharic or any local language if the respondent did not speak Amharic. The interview guide contained demographic questions, questions on livelihood strategies, on spice production and spice marketing. Regarding spice production and marketing farmers were asked about the spices they were producing and selling, for how long, how tasks regarding production and marketing were divided within the household, whether they were collecting spices from the forest and what problems they were facing in production and marketing.

Traders were also interviewed using an interview guide. These interviews took about 30 minutes and contained questions on spice marketing. Traders were asked about the spices they were buying and selling, specifically on from whom they bought, to whom they were selling and what prices they were paying and receiving. They were also asked about how they negotiated on prices and qualities, how they experienced spice demand and what problems they were facing.

2.4. Data Analysis

Based on the information obtained from the different interviews, market visits and asking around, a value chain analysis for *A. corrorima*, *P. capense*, *P. nigrum* and *E. cardamomum* was performed using analytical tool SPSS Software.

3. Result and Discussions

3.1 Spice Production in the Study Area

The importance of spices for Ethiopia can hardly be overestimated as they are being used in considerable amounts every day. Therefore, it is not surprising that spices are not only collected in the wild, but also being (semi) domesticated and grown in home gardens. The main spices produced and collected by the households interviewed during this study were: Ethiopian cardamom (*Aframomum corrorima*), rue (*Ruta chalepensis*), basil (*Ocimum basilicum*), birdseye chili (*Capsicum frutescens*), chili pepper (*Capsicum annuum*), garlic (*Allium sativum*), onion (*Allium cepa*), turmeric (*Curcuma domestica*), ginger (*Zingiber officinale*), black pepper (*Piper nigrum*), timiz (*Piper capense*) and cardamom (*Elettaria cardamomum*). Few produced coriander (*Coriandrum sativum*), cinnamon (*Cinnamomum verum*), cumin (*Cuminum cyminum*), mint (*Mentha longifolia)*, thyme (*Thymus*) and lemon grass (*Cymbopogon citratus*). Not all spices are used in the same intensity. The relative importance of the different spices were further investigated by making an inventory of what spices were being collected and cultivated in home gardens and on farm fields and by asking farmers about their preferences regarding the spices they produce (Table 1).

Table .1 gives an overview of the spices cultivated by the interviewed households in each kebele.

Table 1 Number of interviewed households cultivating spices in each kebele

Scientific name	Fannika	Shimi	Shayita	Beto	Uwa	Yokichichi	Chegecha	Total
Aframomum corrorima	10	5	10	10	10	9	10	64
Allium cepa	0	0	1	0	0	5	1	7
Allium sativum	0	0	0	1	6	7	5	19
Capsicum annuum	4	0	1	0	2	0	2	9
Capsicum frutescens	4	0	1	0	0	0	2	7
Cinnamomum verum	0	1	0	0	0	0	0	1
Coriandrum sativum	1	0	0	0	8	1	5	15
Cuminum cyminum	0	1	0	0	0	0	0	1
Curcuma domestica	1	8	1	1	0	0	0	11
Cymbopogon citrates	0	0	0	0	0	1	0	1
Elettaria cardamomum	9	5	7	5	6	8	4	44
Mentha longifolia	0	0	2	0	0	0	0	2
Ocimum basilicum	7	2	6	8	9	4	7	43
Piper capense	0	1	5	6	9	9	5	35
Piper nigrum	4	10	6	0	0	2	2	24
Ruta chalepensis	7	4	7	8	9	8	7	50
Thymus	0	0	0	0	0	1	0	1
Zingiber officinale	2	8	4	0	1	0	0	15

As only a few farmers per village were interviewed, it is difficult to make general statements based on the information retrieved from the interviews. However, interviews with Development Assistants and RDCO-staff generally confirmed the findings regarding types of spices produced and the differences between the kebeles. The table above shows that Ethiopian cardamom is the most produced spice in the study area. This is probably due to its relative easiness to cultivate, its popularity in the kitchen and the abundance of its presence in the forests. Only in Shimi less interviewee were producing Ethiopian cardamom, most likely because Ethiopian cardamom collection there is mainly the task of households living near or in the forest, while the interviews took place at the roadside. Ethiopian cardamom is mostly produced in the farm field or to a lesser extent in the home garden, along with other crops such as coffee and other spices. In Sheka zone it is mostly collected from the forest, with additional cultivation on the farm field or in the home garden.

Many interviewed households produce rue and basil in their home gardens as these spices are easily grown and frequently used as spice and for medicine as similar report to Dawuro zone [1,5]. The popularity of the

other spices differs per kebele. Turmeric and ginger are mainly produced in Shimi, Chili peppers are mostly found in Fannika, whereas coriander, onion and garlic are popular in the kebeles in Sheka zone. These differences can partly be explained by the different ecological circumstances as is the case with Shimi, which has the right ecological conditions for turmeric and ginger production. Another explanation could be that farmers copy from each other. If one farmer starts cultivating garlic, others might get inspired to start production as well. Besides, they can learn the techniques from the initiator. Copying is at least the case with the trial spices (Ethiopian cardamom, long pepper, black pepper and Indian cardamom). These spices are also produced by farmers outside the trials. Production of the trial spices also differs per kebele. Black pepper is mainly grown in Bench Maji zone, where the agro ecological conditions are more favourable. Long pepper is mostly cultivated in Sheka zone which can be explained by its abundant presence in the surroundings.

Both men and women work on the production of spices. Generally the women work on the spices that grow in the home garden, like rue, basil and other spices for home consumption[1,5]. Both husband and wife work on spices growing in the farm field, though usually the household heads are main responsible for spices growing in large volumes or with high value such as turmeric, cardamom and black pepper.

3.1.1 The spice trials

In view of the fact that farmers were already engaged in cultivating various spices, the project decided to test whether spice cultivation could be further stimulated for income generation. For that reason a series of spices trials were set up in 2004. Farmers received training on spice production in an agro-forestry environment, which was facilitated by formerly trained RDCO staff. The project selected fifty farmers and distributed seedlings of Ethiopian cardamom, Indian cardamom and black pepper amongst them. On-the-job training and support was provided for nursery management, site selection, plantation establishment and shade management. In addition, the project undertook participatory monitoring of the nursery and plantation performance.

During the study, farmers, Development Assistants and RDCO staff were asked after their experiences with the trials. It is not surprising results differ from kebele to kebele as they have different ecological conditions. Overall, cultivated Ethiopian cardamom is doing relatively well. Farmers are already harvesting and only a few mentioned the plants had difficulties in the dry season. Collection from the forest mainly takes place in the kebeles in the high altitude zones (Beto, Uwa, Yokichichi and Chegecha). Though the plants there are performing well, farmers frequently mentioned the distance, the danger of wild animals in the forest and distraction of the plants by baboons and moles as serious constraints. Long pepper is mostly cultivated in the farm field where it is already naturally present. It grows in all kebeles, except for Fannika. No problems regarding plant performance were mentioned, nevertheless it is not being harvested yet due to a lack of knowledge on harvesting techniques and market access.

Most of the problems faced concerned Indian cardamom and black pepper. Almost all interviewees struggle with drought and light intensity affecting the plants. Especially in the high altitude zone plants develop weakly and remain dwarf. For this reason farmers in Beto and Uwa were not provided with black pepper seedlings. Indian cardamom and black pepper seem to perform best in Shimi, due to the more favourable ecological conditions there. Despite these serious constraints farmers keep up their high expectations on the future income they believe to receive on these spices in the future. Many requested for additional seedlings. Although the farmers received training in the first phase of the trials, many of them said to struggle with a lack of knowledge on harvesting, plant care drying and storage techniques. Besides, they would like to get more continuous training or at least have access to local expertise on spice production.

So, spice production in the project intervention area shows a mixed image of opportunities and constraints. However, to get a realistic image of the marketing opportunities for these spices, one should not only look at the supply side, but also on how spice marketing is organized and where opportunities on the demand side can be found. This will be discussed in the following section.

3.1.2. Wild spice collection

From the 70 farmers interviewed, about 27 (38.57% of them) were involved in spice collection (all Ethiopian cardamom). Only 1 collected Ethiopian long pepper. Out of the 27 spice collectors, about 18 (66.67% of them) were also cultivating cardamom (in the farmfield and/ or home garden). Collection from the forest mainly takes place in the kebeles in the high altitude zones (Beto, Uwa, Yokichichi and Chegecha). People walk up to 3 hours to collect wild Ethiopian cardamom, with the risk of snake bites and finding the plants distracted by baboons at arrival. A reliable estimation of the volumes available in the natural forests would require a thorough assessment through laying out grids and quadrats. This was not included in the study. However, farmers were asked whether they believed more could be collected from the forest they were collecting from. Estimations of potential supply varied greatly (from 1 to 40 quintals), but nearly all confirmed more could be collected. Estimations of available volumes in the lower altitude zones were much lower.

Farmers were also asked whether they prevented degradation while collecting from the wild. About half of them did so by picking carefully and taking care they would only pick the red and ripened ones. Others said they didn't prevent degradation, usually because access was free, the fruits seemed to be there forever, others

(including baboons) were taking the fruits as well and they said they didn't know how to prevent degradation (distraction, importance).

During the interviews farmers were asked to rank and explain their preferences for the spices they were producing. Ethiopian cardamom is by far the most popular spice being produced in the study area. Most farmers brought up home consumption and the income they received on it as main reasons for their preference. In Sheka zone the free access to Ethiopian cardamom in the forest was also frequently mentioned. Second comes Indian cardamom. Despite the fact it is not being harvested yet, farmers expect to earn a lot on it in the future. Third popular spices are garlic and black pepper. The first because of the additional income it forms and its popularity in the kitchen, the second because of the assumed future income on it. Compared to other livelihood resources spices only form a minor contribution [24]. Asked to rank the three most important livelihood resources, nine farmers (about 12.86% of them) mentioned spices as an important source for their livelihood.

3.1. 3. Medicinal plants

When starting this research there was an interest in exploring the production and trade in medicinal plants in the research area. Farmers and traders were asked whether they knew anything about medicinal plant production, collection and or trade. Apart from the medicinal use of some of the spices (mainly rue, garlic and ginger), there was virtually no record of production nor trade in medicinal plants. Some cultivated kebricho (*Echinops kebricho*) for home consumption (rheumatics, stomach ache, snake bites, livestock). Four respondents were selling this plant. Respondents often said there was no knowledge and tradition in producing and trading medicinal plants. The plants they needed were available in the surroundings, but it was not clear which plants the respondents were referring to. For specialist knowledge they would go to traditional healers, though these healers wouldn't be very willing to share their knowledge with researchers according to the traders and farmers. So, from the few questions on medicinal plants in this research, it appeared there was no notable trade in medicinal plants, although some plants in the surroundings were used for medicinal purposes. Insight in the opportunities for trade in medicinal plant would require a thorough investigation of the plants that grow in the area and anthropological research on the indigenous knowledge regarding the use of these plants.

3.2 The Spice Value Chains

The southwestern part of Ethiopia is a known area for spice production and trade. Especially in and around Tepi, which is located between some of the project's intervention woreda's, many spices are being produced and traded. This section will line out how trade in the trial spices is organized and which are typical characteristics of value chains for the different spices. It will also discuss (potential) markets within and outside Ethiopia for spices which are produced by the farmers in the study area. Before discussing the specific value chains and markets some general information about the marketing of spices was outlined in the project intervention area.

Based on the information obtained from the different interviews, market visits and asking around, a value chain analysis for *A. corrorima*, *P. capense*, *P. nigrum* and *E. cardamomum* was performed. The analysis was done by exploring the different stages in the chains, what (type of) stakeholders were involved, how the stakeholders were related to each other (mainly by asking them to describe negotiation on prices, volumes and quality), prices in the chains, the extent to which the chains were governed and by identifying production areas and locations where trade was concentrated. Stakeholders were also asked about their knowledge on the other parts of the chain (for instance what was happening with the spices after they sold them and whether they knew the prices in Addis Ababa).

3.2.1. Spice marketing in the study area

Most of the farmers who were interviewed produced spices mainly for home consumption. About 67.14% (47) of the 70 spice producers that were interviewed sold (a part of) their production. On average farmers had been trading spices for 6 years. Most of them had just started, but a few were already trading for over 30 years. The spice most frequently traded was Ethiopian cardamom, 29 farmers were involved in trade in Ethiopian cardamom. Other spices that were sold by more than one individual were garlic, turmeric, ginger, green pepper, birds eye chili and rue. Generally, spices were sold freshly, but some also dried the Ethiopian cardamom, ginger and turmeric before selling. For the majority spice trade was only a minor income generating activity. Revenues were minor. Only in Shimi a few farmers earned relatively, well on spice production. On average, trading farmers earned 550 birr previous year on spice trade, though the range is rather wide, which means most farmers earned much less than 550 birr and a few much more. Most farmers sold to intermediary traders, some to consumers. Generally, farmers do not know what would happen with the spice after they sold them.

Most of the time the head of the household was responsible for selling and decision-making on revenues. Women usually sold the small amounts of spices on the markets where they would use the money on the same day to buy basic needs such as salt similar to the report of Dawuro [1,5]. Generally, the men were selling the large amounts to traders, especially after they became aware of the potential value of some spices. Most respondents said friends and fellow farmers informed them about the prices they should receive for their trade, but many stated they only had the buyer to inform them. Many farmers said the low prices and the lack of market access

discouraged them to further develop their spice production.

Next section will go deeper into the trade of the four trial spices: Ethiopian cardamom, Ethiopian long pepper, Indian cardamom and black pepper. The first species is the major spice and studied in detail. The information on the other spices is more general.

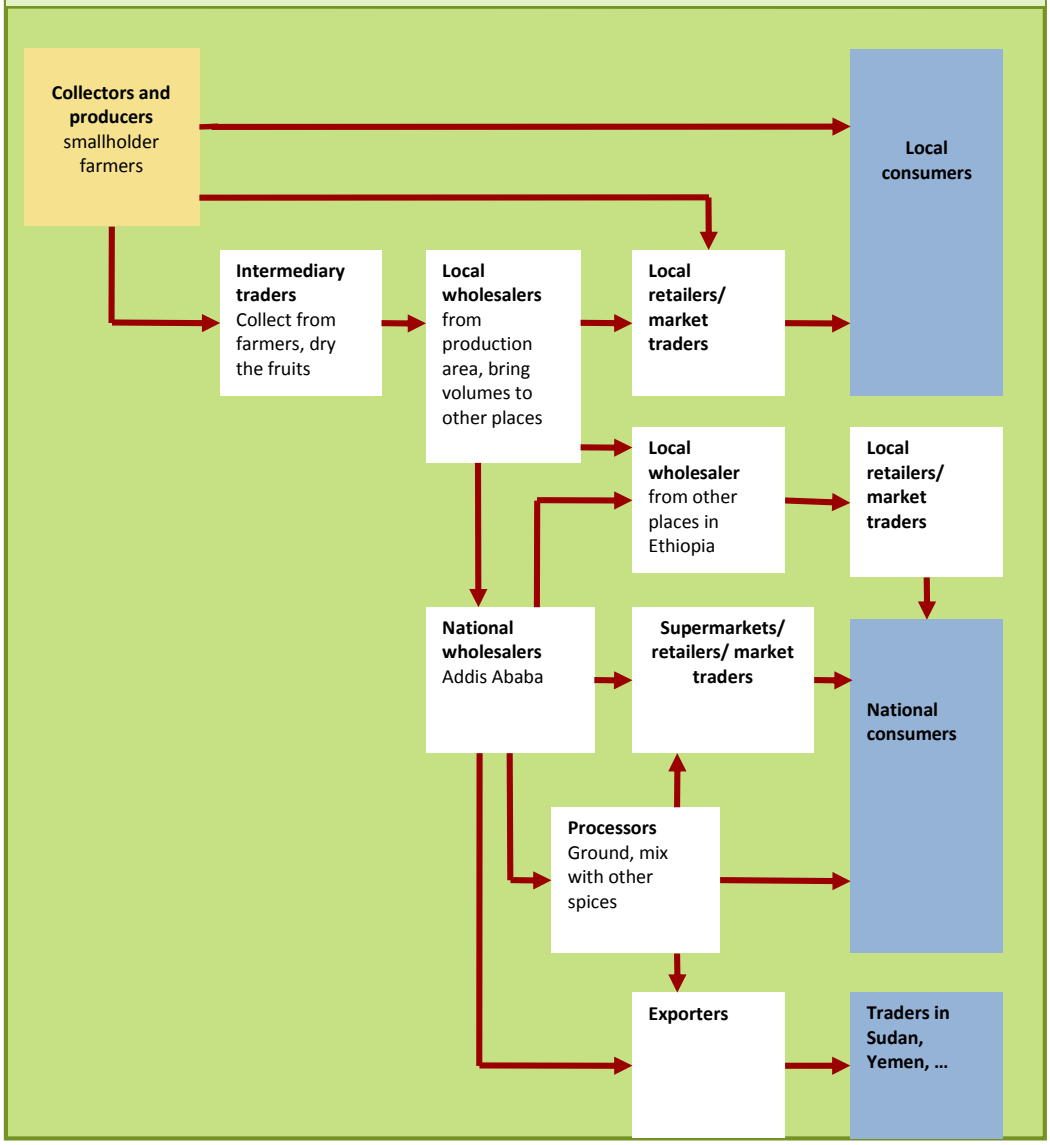
3.2.2 The value chain for Ethiopian cardamom

Ethiopian cardamom (*Aframom corrorima*) is being collected from natural forests as well as being cultivated in home gardens and on farm fields. This is typically done by farmers who either sell the fruits on local markets or to intermediary traders who visit them. Usually the fruits are sold freshly, but in some cases the farmers dry them before selling. The intermediary traders who collect the fruits from farmers sometimes add their own production to the collected volumes, dry the fruits or further dry them if they bought fruits, which were not completely dry yet and then sell to local wholesalers by quintal. These wholesalers add up the volumes in their shops and wait until they have sufficient amounts to take the Ethiopian cardamom to Addis Ababa and other major places in Ethiopia profitably. These activities take place all year round, but are strongly concentrated in the harvesting season. As the chain for Ethiopian cardamom generally remains within the national border, it is a relatively short chain. Short NTFP chains are typically supply driven, with collectors and producers making all the key decisions [25]. Regarding Ethiopian cardamom, this is not always the case as it happens regularly that local wholesalers receive a request for Ethiopian cardamom from wholesalers in other places of the country, especially around the holidays. These national wholesalers sell the Ethiopian cardamom to local wholesalers in places where Ethiopian cardamom is not being produced, other national wholesalers, processors, retailers and exporters who on their turn sell to other traders and consumers. An overview of the Ethiopian cardamom value chain can be found in figure 3.

Because of price fluctuations and the sensitivity of the information, it is quite difficult to get reliable information on the prices that the different actors in the chain receive for the spices they sell. Still, Table 2 might give a realistic indication as prices were asked in different ways from a large number of farmers and traders. Anyway, it will give relevant information on price ranges and relative price differences within the chain.

Farmers selling the fresh cardamom fruits are generally paid per fruit instead of per kg. This is partly due to the small volumes they sell, but it also makes it more difficult for them to compare the price they receive with the price by which the dried fruits are sold on the markets, where they are sold per kg.

Figure 3. Value chain for *Aframom corrorima*



Amounts retrieved from visits to Merkato and interviews with 32 farmers selling Ethiopian cardamom, 9 middlemen, 6 local wholesalers and 4 wholesalers at Merkato. Prices for farmers, middlemen and local wholesalers are average prices. Farmers selling fresh fruits of Ethiopian cardamom were usually paid per fruit instead of per kg. As the average weight of 1 fresh capsule is 26.65 grams [26], the price could be calculated. E.g. when a farmer received 1 Birr for 15 fruits, this would mean the price was (1000/ (15x26.65)) 2.50 Birr/ kg. Exchange rates June 2008: 1 Euro = 15 Birr, 1 Dollar = 9,70 Birr. 1000 g fresh Ethiopian cardamom = 179 g dry Ethiopian cardamom (Edossa Etissa, 1998). Prices in Addis depend on the quality. Addis: depends on quality type. Highest prices are for Gofa cardamom. Second comes Jimma, followed by Gore and Gimira.

Table 2 Prices in the value chain for Ethiopian cardamom – June 2008

Actor	Price Paid	Price Received
Farmer	X	Fresh: 3,51 birr/ kg Dry: 7,93 birr/ kg
Middleman	Fresh 4,12 birr/ kg Dry 10,00 birr/ kg	Dry 15,15 birr/ kg
Local wholesaler	Dry 18 birr/ kg	Dry 20,43 birr/ kg
Wholesaler in Addis Ababa	Dry 25 – 27 birr/ kg	Dry 27 – 30 birr/ kg
Retailer	Dry 27 – 30 birr/ kg	Dry 28 – 32 birr/ kg

The table shows that there is a difference between what seller said they received than what buyers said they paid them. It seems that lower in the chain larger revenues per kg are made. Wholesalers in Addis Ababa say their profit is between 0.40 and 1 birr per kg, but that the business is profitable because of the large volumes. Local wholesaler also have much higher costs because of transport, taxes and labour. Middlemen mainly invest in material and labour for drying. Prices in the table are current average prices at the time of study. They tend to be lower in the harvesting season and they have also been higher further away from the harvesting season. Prices are also influenced by the demand abroad and the successfulness of the Indian cardamom production. So, the table mainly says something about the relative earnings of the different actors in the chain.

Current price ranges in the capital are mainly explained by quality. Traders identify four types: Gofa (Arba Minch), Jimma (which actually comes from Bonga), Gore (Masha and Anderacha zone) and Gimira (Bench Maji zone). Gofa has the best quality, Jimma comes second. Gore and Gimira are found less frequently as those types are supplied more seasonally. Quality is defined by dryness, the size of the fruit, whether it has been harvested at the right time, the number of seeds, the smell and the neatness of the fruits (whether it is cut right).

Prices at Merkato are set by the wholesalers there. During harvesting season they come together to decide by which price they will sell the spices, this is the 'Addis price'. Actors at all levels in the chain were asked how negotiation on the prices took place. Usually respondents stated it was a matter of both parties, though many farmers also stated they would sell their production by any price because otherwise they wouldn't lose it and it would get rotten. Besides, they wanted to earn money quickly, so they didn't want to wait for traders who would offer better prices or for a better season. This is partly due to the direct need of them to earn money and partly to a lack of knowledge and facilities for storage. There is also a difference in the extent to which the different actors are informed about prices. Wholesalers in Addis Ababa discuss the price together and have easy access to information about international prices. Local wholesalers and some middlemen have contacts in the capital who can inform them on the 'Addis price', so they can calculate what is reasonable to offer. Farmers generally get informed by friends or by the buyer.

Several respondents mentioned price agreements between buyers, being middlemen, local wholesalers or national wholesalers. Of course all denied to make agreements themselves. Interestingly, many local wholesalers said they did not receive the whole amount for what they sold in the capital, but only about 75%. Some respondents said this was to make them come back, so this was a means for national wholesalers to bind their suppliers towards them. Others said it was because local wholesalers offered larger volumes than the national wholesalers needed and could pay, but that the national wholesaler took it anyway so the local wholesalers wouldn't have to return with unsold stocks. They emphasized it was a voluntary agreement between local and national wholesalers. It is difficult to say who speak the truth, but it is clear that power regarding price and volume setting is with the national wholesalers.

Another aspect of the value chain of Ethiopian cardamom is the ignorance of the different stakeholders of each other. Farmers don't know what the middlemen who buy from them will do with the spice, local wholesalers have no idea to whom the wholesalers in Addis Ababa will sell their product, the wholesalers in the capital don't know who produced the spices and where they exactly come from (whether they were cultivated or collected and where exactly). The same applies to knowledge on the prices other actors received. Only the national wholesalers and some local wholesalers with friends in the capital know the 'Addis price'. The wholesalers on their turn have no idea of what the farmers received for their production.

The way value chains are being governed has an impact on the ability of different actors in the chain to innovate and upgrade their activities [29], [30]. In relation to the various governance characteristics of value chains, the value chain of Ethiopian cardamom can be characterized as follows. In the case of Ethiopian cardamom there is no complex information, the switching costs are low and interaction is being repeated, so it can be said this chain has mainly market characteristics. Still some relational as well as hierarchical aspects can be found as well as some middlemen are related to farmers and in some cases national wholesalers request for specific products and volumes at local wholesalers. Due to the market character of this value chain, it should be relatively

uncomplicated to carry through innovations and upgrade the value chain. However, this also such as the capabilities of producers and other actors in the chain.

Several aspects define the extent to which a value chain is resilient to external shocks and with that its ability to continue delivering a sustainable supply to meet demand [25]. Some of them are the knowledge of the producers on plant management, effective communication between actors in the chain, length of the chain, the ability to innovate, the concentration of market power and organization. Regarding Ethiopian cardamom the chain doesn't seem very sustainable. Compared to the other trial spices knowledge on plant care is relatively high, though often middlemen and local wholesalers complained fruits were not harvested at the right time and not dried well. The asymmetrical distribution of power and lack of organization also imply a lack of sustainability. Strong price fluctuations due to international price and harvest fluctuations, seasonality and variation in quality seem to confirm this.

Irregularity of prices was only one of the problems mentioned by farmers and traders. The farmers most frequently brought up low prices and the inconsistency of demand as problems they faced. Other main problems mentioned were the large distances to markets, the lack of affordable transport and the lack of capital to invest in their business. Traders generally mentioned the harsh competition and inconsistent demand. Too many people are doing the same thing. Some said they had to stay in Addis Ababa for a long time before could sell their whole stock. Still, many wanted more capital to extent their business. Mainly middlemen would like to buy larger volumes so they could act as local wholesalers and sell their product in the capital. A lack of quality was also a problem which was frequently mentioned, many traders said the fruits they received were not dry enough. Sometimes they could not sell because the quality of their stock was not good. Some complained that volumes decreased after they had bought it because at the time of buying the product was not completely dry. Finally, a lack of knowledge on prices and markets were problematic to both farmers and traders.

Some of these problems could, at least partly, be overcome by chain upgrading. [20] distinguish four trajectories in which value chains can be upgraded. Process upgrading (increasing the efficiency of internal processes), product upgrading (introducing new products or improving old products), functional upgrading (increasing value added by changing the mix of activities conducted) and chain upgrading (moving to a new value chain). In this case product upgrading through increasing quality would probably be the most rewarding way of upgrading. Process upgrading by producing at a larger scale and functional upgrading by starting to process the spices (drying and eventually grounding) would be other reasonable ways of upgrading the chain for Ethiopian cardamom.

3.2.3 The value chain for Ethiopian long pepper

The value chain of Ethiopian long pepper (*P. capense*) is very much similar to the one of Ethiopian cardamom, especially regarding the type of actors involved. Farmers collect the fruits from the forest and are visited by middlemen who (further) dry the fruits and bring them to local wholesalers. Cultivation takes place as well, though to a lesser extent than is the case with Ethiopian cardamom. If local wholesalers receive a specific request, they sometimes visit markets were farmers sell their collection. The main difference between the value chain for long pepper and the one for Ethiopian cardamom is the number of people involved and the volumes which are being traded, which are much smaller. In addition the chain for long pepper seems to be more demand driven. This could be because generally the demand for long pepper is much smaller than the demand for Ethiopian cardamom whereby actors in the chain are less likely to produce and wait for someone to buy it from them. Local traders rather wait for a request from national wholesalers and then order middlemen and farmers to collect. Another difference is the number of production centers. Ethiopian cardamom is being cultivated and collected in a wide number of places whereas collection of Ethiopian long pepper is mainly concentrated in Bonga zone. Collection and cultivation do take place in other zones as well, but to a much smaller extent and they are not well known by traders. Trade in long pepper is often combined with trade in Ethiopian cardamom.

Because of the small number of long pepper producers and traders interviewed it was difficult to obtain reliable information on the prices and profits in the chain. It is clear prices for long pepper are much lower than those for Ethiopian cardamom. At Merkato long pepper costs between 18 and 20 birr per kg. Local traders receive between 8 and 15 birr for a kg of dried long pepper. Farmers sell the fresh fruits for 1 to 3 birr/kg, though the average price might be different in reality as this information was obtained from only a few interviews. The more popular imported *P. longum* costs 70 birr/kg.

The way prices are negotiated on and power is concentrated in the chain, is comparable with the value chain of Ethiopian cardamom as the actors are the same. There is less knowledge on processing, so there are more quality problems in the chain. Often the long pepper is not dry enough which results in molt. Another problem is that farmers often smoke dry the long pepper (instead of sun drying the fruits), which reduces quality as well.

So, the chains for Ethiopian long pepper and Ethiopian cardamom are very much comparable regarding the type of actors, power concentration, governance, sustainability and upgrading opportunities. In the chain for long pepper marketing opportunities would increase significantly if quality was improved (as generally the quality is low) though the market is very small, so less people are involved and prices are low.

3.2.4 The value chain for Indian cardamom and black pepper

The production of Indian cardamom (*E. cardamomum*) and black pepper (*P. nigrum*) in Ethiopia is still in its infancy. The majority of cardamom and black pepper found on the markets is imported. National production started some eight years ago after a period of research by the spice research centre in Tepi. Present day production is still concentrated around Tepi which has relatively favorable ecological conditions for the production of these spices. Main producers are the government owned coffee plantations in Tepi and Bebeka. A number of farmers around Tepi produce cardamom and black pepper as well.

The plantation production goes directly to the main office in Addis Ababa. The plantation office stated that their prices were fixed (60 birr for a kg of cardamom and 30 Birr for a kg of black pepper), though traders said the plantations announced the new harvest in the media in Addis Ababa and sold to the highest bidder. Farmers producing Indian cardamom and black pepper generally sell their production to local market traders and retailers. As the trade of nationally produced Indian cardamom and black pepper is so little developed information on prices within the chain is limited. Producers tend to receive 60 to 80 birr for a kg of cardamom and 20 to 40 birr for a kg of black pepper. At Merkato, Ethiopia's central market, prices for black pepper range from 50 to 55 birr/ kg. This comparable with the price of imported black pepper as the quality is comparable. Indian cardamom produced in Ethiopia costs between 80 and 90 birr/ kg. This is cheaper than imported Indian cardamom because of the quality difference. Quality is defined by the color and thickness of the fruits. Green and thin fruits from Guatemala may cost up to 135 birr/ kg. As cardamom produced in Ethiopia is white and thick the price is much lower.

As for the prices, not much information about the chain characteristics was obtained either. Most important features of the value chain of Indian cardamom and black pepper produced in Ethiopia is that chains are rather underdeveloped (as trade remains local) and the central position of the coffee plantations.

3.2.5 Comparison of the Different Value Chains

Every spice has its own dynamic within its value chain, though similarities can be found as well, especially between the chains of Ethiopian cardamom and long pepper and the chains of Indian cardamom and black pepper (Table 4). The first two spices have a rather long history so linkages within the chain are quite developed, the other two just started to be traded so a real chain has yet to be established. The next section discusses the national and international demand for these spices.

Table 4. Spice Value Chain Characteristics

Characteristic	A. cororima	P. capense	P. longum and E. cardamomum
Producers/ Production area	Farmers in Arba Minch, Bonga, Bench Maji, Masha and Anderacha zones	Collectors, mainly in Bonga zone	On Tepi and Bebeka coffee plantations and farmers in around
Stakeholders	Farmers/ collectors – middlemen – local wholesalers – national wholesalers – processors – exporters – vendors Other: NGO's, district administration, policy makers, research centres	Farmers/ collectors – middlemen – local wholesalers – national wholesalers – processors – exporters – vendors Other: NGO's, district administration, policy makers, research centres	Farmers – plantation employees – plantation staff – wholesalers – processors – vendors Other: district administration, research centres
Chain activities	Cultivation, collection, drying, grounding, transport, selling, packaging	Cultivation, collection, drying, grounding, transport, selling, packaging	Cultivation, drying, grounding, transport, selling, packaging
Demand/ supply driven	Supply driven (small part demand driven)	Demand driven and supply driven	Supply driven
Chain development and linkages	Historically developed value chains, strong linkages	Less developed linkages	Recently established linkages, loose linkages with buyers
Merkato price (June 2008)	27 – 30 birr/ kg	18 – 20 birr/ kg	P. longum: 50 – 55 birr/ kg E. cardamomum: 80 – 90 birr/ kg

3.3 The National and International Market for Spices

Spice production and the trade in spices from the project intervention area are not very sustainable and organized yet. Still it is useful to explore the national and international demand for these spices in order to facilitate the development of a new spice strategy.

3.3.1 The National Market for Spices

As spices are being used frequently in the Ethiopian kitchen, they can be found on every market. Women sit along the market paths selling small piles of chili peppers, garlic and onions. Fresh and dry fruits of Ethiopian cardamom can be found especially around harvesting time. Both women and men are found on the markets selling dry exotic as well as Ethiopian produced spices. Despite the large internal market for spices, opportunities for supplying large volumes of Ethiopian cardamom are probably limited as national demand seems to be well covered. Especially in the harvesting season, supply exceeds demand so prices are low. More opportunities can be found outside the harvesting season, when traders run out of stock and prices rise. At Merkato, the central market in Addis Ababa, several wholesalers said they were interested in Ethiopian cardamom, on condition that the product was compatible with the high quality of the Gofa and Jimma types. For Ethiopian long pepper, opportunities seem to be more limited, as even the more preferred imported P. longum only has a small market. One wholesaler at Merkato was interested in buying if supply would be sustainable, regular and of satisfactory quality. Cardamom and black pepper are more popular spices, though the majority is being imported as only small volumes are produced nationally. In addition, traders prefer the imported cardamom which is of better quality. The quality of black pepper produced in Ethiopia seems to be compatible with the imported one. The spice extraction, based in Addis Ababa, showed interest for different spices, among which Ethiopian cardamom, rue, basil and thyme. Their interest was especially in creating direct links with producer cooperatives and with that overcoming intermediary links and reduce prices. However, they also mentioned that buying at Merkato at this moment was sometimes profitable to them because then they could the best quality and buy exactly the volumes they needed. The spice extraction factory too emphasized that good quality was their main criterion, more than price.

3.3.2 The International Market for Spices

The amounts of money consumers in many western countries spend dramatically exceed spendings of people in Africa, which strengthens the image of unlimited marketing opportunities in the West. To a certain extent there are indeed many opportunities for export to western countries. On the other hand, it is also well known that getting access to these markets is not easy. Competition is high and the strict quality standards for food safety set by the American Spice Trade Association (ASTA) and the European Spice Association (ESA) are difficult to meet. This doesn't mean one should give up trying to export. This section attempts to provide the concerened body with some information on opportunities for exporting spices which are produced in the study area. As the time for this study was too limited to perform a specific and in depth market survey, this section will give some general information on trends in the global spice market, based on market surveys of international trade organizations and interviews.

The main international trade for spices is in dried and in crude form, they are cleaned but not further processed [27]. Competition is mainly focused on quality and consistence of quality. Research and development for providing innovation and a variety of flavours are also an important point of competition. Chilies and paprika form the group of most consumed spices in the EU. Peppers are the second most important group. Nutmeg, mace and cardamoms represent the seventh group. Export opportunities for pepper and cardamom seem to be limited. [28] states that oversupply in the world market, unmatched by demand and high stocks brought down pepper prices in recent years. Price decline was also affected by increased completion and different grades of pepper. The United States are the largest importer of pepper, followed by the European market [28]. Main producers and exporters are Vietnam, Indonesia, Brazil, Malaysia and India. Prices for cardamom decreased as well, due to oversupply resulting from a combination of very successful harvest and a fall in the demand in the Arab countries [27]. India is the main producer of cardamom, but most is for internal consumption. Main exporter is Guatemala, followed by Nepal. The largest importer is Saudi Arabia. In the EU the Netherlands and Germany are the main cardamom importers.

No market surveys of Ethiopian cardamom and long pepper are available. Agroprom International, an export association in Ethiopia, stated that the demand for Ethiopian cardamom is very inconsistent and depends on the successfulness of the international production. The same applies to Ethiopian P. capense, as P. longum is preferred in international trade. Most Ethiopian spices are exported to the Middle East and to some extent to Europe as well. Trade is unstable and volumes and prices seem to fluctuate a great deal from year to year [11]. Some time ago samples of Ethiopian long pepper were sent by the project to a number of spice importers, however, with no success so far.

Market surveys of the Centre for the Promotion of Imports from developing countries and the International Trade Centre show that some opportunities can be found in the market for mixed and processed spices [27, 28]. There seems to be an interest in new authentic varieties of mixed spices, though this requires quite sophisticated levels of innovation and marketing techniques. More relevant for the NTFP project is the small, but growing niche market for organic spices. If the NTFP project decides to focus on this market, it would be useful

to assess the options for and profitability of certification. Another option would be to explore opportunities for other (organically produced) spices which currently have more demand, such as nutmeg, mace, pink pepper, allspice, chilies and paprika [27]. It could also pay of to see whether there are opportunities for oleoresins of spices produced in the project area, eventually in collaboration with the spice extraction factory in Addis Ababa.

Although marketing opportunities for spices produced in the project intervention area are not overwhelming, openings can still be found. Nationally it would be useful to contact national wholesalers, exporters and processors and discuss their requirements. Internationally, opportunities are mainly found in the organic market though export at this moment is a step too far as supply is not sustainable and organized enough yet to meet the strict criterions of the western market.

4. Conclusions And Recommendations

4.1. Conclusions

Many different spices are being produced in the NTFP project intervention area, such as Ethiopian cardamom, chilies, turmeric, ginger, garlic, onion, basil and rue. For the farmers Ethiopian cardamom is the most important one as it is being used for home consumption and generates income. Wild collection of Ethiopian cardamom (and to some extent long pepper) mainly takes place in Masha and Anderacha woreda's. Production takes place in home gardens and on farm fields.

Production in the spice trials still seems to be in its beginning stadium, production is not developed enough yet to supply sustainable volumes and qualities. Successfulness of the trials differs from kebele to kebele and from spice to spice. Production of Ethiopian cardamom and long pepper are going on relatively well, though long pepper is only being produced by a few farmers. Indian cardamom and black pepper face more difficulties, mainly due to drought, light intensity and distraction by wild animals. Other constraints are the large distances to the forests and the lack of knowledge on plant care, processing and storage. Farmers still have high expectations from the trials, but the trials need further development and attention.

With regard to the supply side of spice trade, several opportunities and constraints can be identified. Ethiopian cardamom and long pepper seem to be sufficiently available, both in agroforestry systems as well as in the wild forest. Besides, the plants are performing well. However, successful supply might still be threatened by large distances, potential forest distraction, wild animals, small volumes and seasonal fluctuations. The difficulties with Indian cardamom and black pepper form more serious constraints for successful supply. Only in Shimi there seems to be potential for further development. Possibilities might also be found in Fannika and Shayita, but only with intensive plant care. It could be useful to further assess what actions are required to overcome the ecological constraints that affect Indian cardamom and black pepper cultivation. Better results would probably at least be achieved by more ongoing training and assistance.

The region in which the NTFP project activities take place is a known area for spice production and trade. The spices Ethiopian cardamom, Ethiopian long pepper, Indian cardamom and black pepper, each has its own dynamic in this trade. Of these spices Ethiopian cardamom is traded mostly. Its value chain has many similarities with the one for Ethiopian long pepper as the same actors are involved. Generally producers and collectors are visited by middlemen who dry the fruits and sell them to local wholesalers. These wholesalers add up the volumes and bring them to wholesalers in Addis Ababa and other large cities. Wholesalers in Addis Ababa sell to retailers, processors and exporters, who on their turn sell to retailers and finally to consumers. Prices are generally set by the wholesalers in Addis Ababa, though they are also influenced by the prices asked by the local wholesalers. Market information is rather skewed. National wholesaler have better access to information about prices and markets than local wholesalers, who have much more information than the producers. Farmers rely on friends and buyers for information. In general, the different actors are not much aware of each other. However, information within the value chain for Ethiopian cardamom and long pepper is not very complex. Switching costs are low (apart from a lack of demand) and interaction is repeated. This doesn't mean innovation is rather easy as many farmers and traders lack the means for creative production and marketing. Unsustainable supply, fluctuating prices and large distances are other issues that constraint successful spice marketing. Opportunities are mainly in upgrading the value chains for Ethiopian cardamom and long pepper. This could be done through organizing and with that supplying larger volumes, creating links with actors further in the chain and value adding (drying and grounding).

The value chains for Indian cardamom and black pepper produced in Ethiopia are much less developed as production of these spices started not very long ago. Main producers are the government coffee plantations, who send their production directly to buyers in the capital. As the quality of cardamom produced in Ethiopia stays behind the imported one, it is not very popular by traders and consumers. Quality of black pepper is compatible with the imported one. As there are quite some problems with the production of these spices in the spice trials, intervention should mainly focus on improving production. If farmers in the project manage to produce good quality cardamom and black pepper there seem to be plenty of opportunities to market them. If this works out, it would be advisable to create direct links with clients in order to receive a reasonable price.

As spices are a central element in Ethiopian cooking, it is not surprising that spice trade is a lively business. On every market you will find people selling many different types of spices in different forms. To some extent spices are being exported as well. Internationally the demand for spices mainly comes from industrial clients who further process the spices. Internationally the demand for Ethiopian cardamom and long pepper is minor as they are usually secondary choices. Black pepper and Indian cardamom are more generally traded, though prices for these spices have been declining during the last years due to oversupply.

It is clear that competition in the market for spices is high, so it won't be easy to find niches and get access. Nationally, the demand seems to be well covered, especially during harvesting seasons. This implies prices are low. Internationally competition is even harsher and quality requirements are sky high. These constraints shouldn't hold the NTFP project back in their attempts to market the spices produced in the intervention area as also opportunities are found. Nationally it would be useful to contact wholesalers at Merkato (the central market in Addis Ababa), exporters and processors as some of them showed interest. There is still much to be done before the project can think of exporting, as the international market has much higher quality standards and requires sophisticated levels of organization and coordination. Niches in the international market would especially be found in the market for organic and health food. The project could decide to contact international companies again and send samples. Then it would be useful to seek contact with intermediary traders in order to have large enough volumes for exporting. In addition the project could assess the profitability of certification for organic (forest) spices.

5.2 Recommendations

Based on the findings of this study some recommendations for further development of a spice strategy were formulated.

1. *Develop a diversified strategy*
   Marketing opportunities and constraints are different for every spice in each kebele in the study area, therefore it is important to develop individual strategies for each kebele. Regarding the trial spices, Indian cardamom and black pepper seem to have the best marketing opportunities on the demand side. However, in almost all intervention kebeles farmers struggle with the production of these spices. It requires expert involvement to assess whether improvement is (ecologically) possible and at what costs (such as training and capital for irrigation systems amongst others). Most potential on the production of Indian cardamom and black pepper can be found in Shimi, though even there more training and availability of expertise would be desirable. In the other kebeles it could be useful to explore possibilities to produce new crops that are more suitable to the agro ecological conditions, such as some types of fruits. Ethiopian cardamom grows relatively well in all kebeles, but most opportunities on the production side can be found in Masha and Anderacha due to its availability in the natural forest in these woreda's. The same applies to long pepper, though the demand for this spice is more questionable. So, the concerned body should decide on which spices it wants to focus in each kebele.
2. *Consider spice marketing as an additional source of income*
   It is known that spices only form a minor contribution to households incomes. Possible spices could be a more sustainable source of income on the long term, but due to limited land availability, volatility of prices and demand, specific ecological requirements and other constraints it will be difficult and risky to make spice production a major income source. Still spice production can be an important additional livelihood strategy or form a safety net if other income sources fall out.
3. *Give more attention to training and education of farmers and local experts*
   If the project decides to continue and intensify its spice strategy, there should be more or renewed attention for training of farmers and the (local) availability of expertise. Many respondents requested for more follow up after the initial training they had received. They struggled with plant care and weeding, harvesting and storage techniques and stated they would like to have more training on that. In some cases it was not clear to farmers whom to contact with questions or they … that people who could help them, such as the Development Assistants, lived too far away. In addition, there should be careful attention for the expectations of the farmers, which are often quite high compared to what is really possible.
4. *Organize spice producers*
   Individual farmers don't have much power to improve their market position. Many marketing constraints would be overcome or diminished if there were some level of organization and coordination. It would make it easier to sell larger volumes (through uniting the individual yields) which would improve the bargaining position of the farmers and sell the products to larger customers than middlemen and local consumers (and with that overcoming too many links within the chain). Organization would also simplify the provision of training and shared storage/ drying facilities. Besides, together the farmers could decide to store their price and wait for times with better prices (like the period after harvesting time and during holidays). This would have more effect if it is done in a group. In addition, it will make it easier to

negotiate and make agreements with buyers. To reduce the costs of organization, the project could decide to start a pilot project in cooperating with one of the honey PLC's it already established. Ethiopian cardamom probably has most potential for such a pilot.

5. *Focus on quality improvement and sustainable supply*
   For Ethiopian cardamom and long pepper the biggest challenge is probably not increasing production. Rather, more attention should go to improve quality and take care of sustainable production. Several potential clients were found, but they all emphasized the need for a good quality product. In most cases they stated that in principle they could find sufficient supply, but that they were only interested in a high quality product. The same applies for Indian cardamom and black pepper. If farmers manage to succeed in producing high quality Indian cardamom and black pepper they could potentially replace the imported ones, which would strongly increase marketing opportunities.
6. *Upgrade the spice value chains*
   There are several ways to upgrade a value chain, some of which were already mentioned in the other recommendations. Important is to improve quality of the products, this would strongly increase opportunities for market access. Another way is through creating direct links with clients further in the chain, such as national wholesalers, processors and exporters. Chain upgrading can also be achieved through adding value to the product, e.g. by drying the fruits of even grounding them if a demand for grounded spices can be found. Organization is also one way to upgrade the value chains for spices.
7. *Focus on national market access and national intermediaries*
   It is common knowledge that entering international markets is not easy, especially if the supply chain of a certain product is just little developed as is the case with the spices produced in the NTFP project intervention area. Niches would especially be found in the market for organic and fair trade products, though in that case certification would be needed, involving additional costs. Rather, the project should focus on further developing the chain within Ethiopia itself and establish a sustainable supply in terms of volumes and quality. As exporting requires a much higher level of organization and coordination, it would be advisable to seek contact with intermediaries (such as exporters who are based in Addis Ababa) and find international markets through them.
8. *Contact potential clients*
   Several potential clients were found. On Merkato in Addis Ababa a number of wholesalers showed interest in creating direct links with producers of Ethiopian cardamom as well as long pepper. There also seems to be a potential market amongst spice exporters, though only if the farmers manage to compete with the quality other producers deliver. The Spice Extraction Factory which is located in Addis Ababa also seemed interested in all trial spices, as well as in basil, rue and some other spices. During this study it was not possible to thoroughly assess the potential market and discuss specific requirements. If the project decides to continue and intensify its spice strategy, it would be useful to visit wholesalers on Merkato (who are located in one specific area), contact exporters (through the wholesalers and the Oilseeds, Pulses and Spices Association) as well as processors like the Spice Extraction Factory and discuss specific requirements concerning quality, volumes, prices etcetera.
9. *Make an assessment of wild Ethiopian cardamom and long pepper supply*
   If the concerned body decides to further develop wild collection of Ethiopian cardamom and long pepper it would be advisable to make an ecological assessment of the volumes (and qualities) that are available in surrounding forests, e.g. through laying quadrates. In addition there should be attention for the ecological impact of increased collection. The concerned body could decide to start a pilot project to combine wild collection with already existing participatory forest management initiatives in order to prevent further degradation through increased collection.

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