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Forest Spice Development: the Use of Value Chain Analysis to Identify Opportunities for the Sustainable Development of Ethiopian Cardomom (Orerima)

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1. Introduction

In 2010, the government of Ethiopia launched a Growth and Transformation Plan (GTP) which included the promotion of agro-industries. The GTP guides the implementation of the Agricultural Development Led Industrialisation (ADLI) strategy, which envisages the transformation of the Ethiopian economy from agricultural domination towards broader economic development through the commercialisation of agriculture. The GTP identifies the spice sector for potential development and aims to increase spice export revenue from \$18.5 m to \$50million by 2015 (ACP, 2010).

Evidence from agro-industrialisation experiences elsewhere suggests that despite their goals such policies often have negative impacts on forest conservation, community livelihoods and gender engagement (McCarthy et al, 2011). Hence there is a need to develop the spice sector in a sensitive way that delivers economic, environmental and social benefits. To achieve this, the government needs to understand the nature of spice production, the actors involved and key marketing related issues. This paper provides much of this information through the use of a value chain analysis for one spice, korerima (Ethiopian cardamom).

Value chain analysis has become a key tool for exploring agriculture markets in developing economies (Kaplinsky and Morris 2001, Henricksen et al, 2010) as it enables the understanding of power relationships between various actors in the chain. It has the potential to identify interventions that would benefit the poorest, least powerful actors (Mitchell and Coles, 2011). This paper identifies the actors, activities and relationships between actors in the korerima value chain and identifies key areas of constraint. Potential interventions are discussed, and the challenges and dilemmas of evaluating these in terms of their impacts on poverty, gender and the environment (PEG) are considered with regard to the specific spice itself, but also with regard to the broader issue of national spice commercialisation policies.

This paper draws on findings from the NTFP-PFM (Non-Timber Forest Products – Participatory Forest Management) Project operating in south-west Ethiopia (NTFP 2012). The overall objectives of the action research project are to maintain the forested landscape, improve livelihoods of forest-dependent communities, while simultaneously ensuring the delivery of environmental services. A key focus is the development of NTFPs, namely coffee, honey, bamboo and spice, through the development of better market linkages. The project operates in three northern woredas and two southern ones in Southern Nation, Nationalities and People’s Regional state,¹ an area that accounts for 25-30% of all the korerima grown in Ethiopia (Figure 1).

Figure 1 Here

¹ Woredas are the lowest administrative area for the full range of government services, equivalent to a district or county.

2. Value Chains

Most definitions of value chains, use 'chain' to demonstrate the vertical relationship between producers and buyers (chain actors) and the movement of a particular good or product from the producers to consumers. Kaplinsky and Morris (2001) define a value chain as 'the full range of activities which are required to bring a product or service from conception through the intermediary 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'. A typical value chain analysis would deconstruct the stages a product goes through from production to the market with the aim of identifying areas of inefficiency or ineffectiveness (Rieple and Singh, 2010). Most analyses address these problems and consider how benefits could be more fairly distributed amongst actors in the chain. Many of these problems derive from the inequality of power within the value chains, something that Gereffi et al (2005) refer to as the governance of the chain. Value chain analysis therefore enables the assessment of barriers and constraints along the chain, often from the perspective of weaker chain actors. Much of the literature is concerned with the identification of policies and practices that might result in greater rewards for these actors (Haggblade, 2007; Roduner 2007).

Value chain analysis has been applied to many sectors ranging from agro-products to garment production and its popularity and versatility has led to its description as an 'accommodating model' (Rieple and Singh, 2010). However a core criticism of the diagnostic work on value chains is the top-down nature of many studies and the limited engagement with key stakeholders Chitundu et al, (2009). This is exemplified by the Ethiopian Spice Strategy (ACP, 2010) which was devised as a result of just one participatory stakeholder workshop and therefore did not achieve recommended levels of engagement with producers and harvesters (Cooke and Kothari, 2001; Meyer-Stahmer and Waitring, 2006).

McCarthy et al (2011) argue that research has tended to focus on global governance structures in global value chains, with only a limited amount of research conducted on the national and local contexts within which value chains operate. Bolwig et al (2010) were concerned that most research was based on quantitative surveys, often overlooking political, economic or contextual issues and called for more research on the impacts of interventions on individuals and communities and argue that apart from a few notable exceptions (Bair and Gereffi, 2001; Nadvi, K and Barrientos, 2004, Tallontire et al., 2005) most research ignores the poverty, environmental, and gender (PEG) impacts of value chain analysis and intervention. More recently Mitchell and Coles (2011) have highlighted how this could be achieved through the use of seven case studies.

The data collection for the korerima value chain began in 2009 and by focussing on local contexts and communities, addresses some of these concerns, although, as will become apparent, several shortcomings of the process resonate with the criticisms outline above.

The next section provides a brief overview of the historic and economic significance of spice in Ethiopia.

3. Spices in Ethiopia

The Ethiopian spice trade can be traced back to 1500 B.C. (Fullas, 2009) and over forty spices, herbs, medicinal and essential oil plants are still grown in Ethiopia, with the four most important being ginger, turmeric, cumin and korerima, with market shares of 65%, 15%, 8% and 3% respectively. In export terms the Ethiopia spice export trade is negligible, accounting for less than 1% of the country's total export earnings but it is growing and between 1998 and 2010 the average annual growth rate was 25% in terms of value and volume (Yimer, 2010). The total value of spice exports grew from \$3.7m to \$6.8 million between 2006 and 2010 (ACP, 2010).

The most important export markets for all spices are Sudan, India, Yemen, UAE, Saudi Arabia and Morocco, but for korerima, the main markets are Jordan (44% of market share), Saudi Arabia (19%), Israel (14%) and Yemen (10%). There are no published figures for the Ethiopian domestic market, but since spices are widely used throughout the country, and in all cultures, it is thought that this market is large.

4. The Korerima Value Chain

The data was collected using case study based qualitative methods (Flyvbjerg, 2001) over several months through interviews with producers, traders, wholesalers and exporters (Table 1).

Table 1 Here

The interviews enabled the identification of the production methods and stages of the korerima supply chain together with the actors involved and their specific functions. These are illustrated in Table 2.

Table 2 Here

The key production stages are discussed below.

a) Cultivation

There are two production systems for korerima in the study area; domestic and forest harvesting. Forest harvesting of korerima in the southern woredas of South Bench and Sheko is limited because of the predominant coffee cultivation in the forest. In the northern woredas of Masha and Anderacha nearly all korerima is derived from natural forests, but Gesha woreda has less forest and hence less wild spice.

Domestication of korerima in the northern woredas of Masha, Anderacha and Gesha was recently introduced by the NTFP-PFM project, but in the southern woredas it was introduced by the Agricultural Office in the 1980s and is much more established.

b) Harvesting

In the north harvesting occurs between October and February, and in the south from July to February. This variation is caused by the higher temperatures (due to lower altitude) and the longer dry season in the south. Forest harvesters walk for up to three hours to access the wild fruits, often combining such visits with other tasks such as hanging beehives in the forest. Because of the distance and the dangers of the forest, women rarely participate. In the northern woredas commercial harvesting from the forest is also practised by marginalized groups of communities, called '*menjo*', an indigenous forest dwelling group.

Good quality korerima can only be achieved if ripe (red) fruit are gathered. Although harvesters understand this, many continue to pick unripe, green fruits because of competition between other harvesters and baboons. The absence of quality based pricing in local markets (discussed later) means there is no financial penalty for early harvesting. Domestic korerima is less vulnerable to competition and a superior crop can be achieved.

c) Processing

Drying

Drying reduces the moisture content, preventing deterioration and allowing storage. In the north local traders and domestic harvesters dry or semi-dry the fruits, while forest harvesters typically supply undried fruits to the market. In the south, both domestic and forest harvesters semi-dry fruit before taking it to market. Local traders buying these fruits carry out further drying.

The drying method in the north involves spreading the fruits on mats, cloths, plastic sheets and sacks which are left in the sun for between 7 and 30 days. This leaves them vulnerable to soil, dust and moisture contamination which can result in yeast, bacteria and mould infestations.

In the south fruits are linked together with fine lianas and hung from ceilings in farmers' huts. During sunny days they are taken outside and spread on the ground. This method takes 15 to 21 days. The smoke from domestic fires causes undesirable aromas while incisions made for linking them together can cause fungal contamination, tainting the flavour.

Sun-drying the fruits on raised beds is the recommended method but this is rarely practised.

Cleaning:

Most producers do not clean their produce because the local markets do not reward quality. However, the traders clean the spices themselves whenever the market pays a premium for clean fruits.

Poor drying and cleaning has resulted in korerima from the project area being infamous for its mouldy aroma and poor quality. Consequently it achieves low prices in the national Addis Ababa market.

Packaging and Storage:

The plastic bags (*madaberiya*) used to pack the spice often cause mould. Plastic is fine if the fruit is fully dried, but that is rarely the case. Jute sacking would be more suitable but few traders use them.

Although storing the produce would enable producers and traders to benefit from price fluctuations, hardly any do so. Many believe that the weight loss resulting from drying the product while in storage would result in less revenue. They also have no faith in predicting future market prices because of constant price fluctuations. There are also logistical problems associated with storage as many chain actors have no storage space.

Threshing and Grinding:

Threshing the dry fruits extracts the seeds so they can be ground into powder, adding value. A few Addis Ababa wholesalers thresh korerima and several Addis based spice processing companies (*baletenas*) supply the seeds and powdered korerima to the market. These companies add further value by mixing and grinding it with different spices, mainly hot chilli to produce *'itmita'* and red pepper to produce *'berbere'*. The *'baletenas'* sell their products to urban consumers in Addis Ababa and other main towns of the country.

d) Marketing

Local Trading in the Northern Woredas of the Project Area

In the north, twenty two shops trade korerima. The shopkeepers collect small quantities of fresh korerima from forest-based collectors and the few domestic producers. They dry the fruit and bulk up the volumes before retailing it to local households and or selling it to local traders or to long-distance turmeric traders from north-west Ethiopia. Each shop trades approximately 500 kgs of dry korerima each year. Korerima is normally just one small part of the shopkeepers' and traders' business. Their trade in other commodities, including grain and honey, are economically more important than spice.

Three traders were identified who collect dried fruits from small shops and farmers, bulk up the volumes and sell around 5000kgs to the turmeric traders from the north each year. Although claiming to understand quality issues, they do not pay more for quality fruits because they cannot get higher prices at wholesale. As a result there is little incentive to provide good quality spice.

Farmers do not have access to market information and even the small shops and the traders struggle to get up-to-date information on prices and demand. This undermines the bargaining power of farmers, preventing them from making informed choices on production, collection volumes, product types and when and where to sell. The local traders have slightly better

knowledge gleaned from turmeric traders who get their information through contacts on their travels.

In general, the volume of trade of korerima in the northern project area is small. Participants in this research agree that lack of market information in the area, constant price fluctuations on the national markets and the low volume of forest production are the major limiting factors.

Local Trading in the Southern Woredas of the Project Area

In the southern woredas most producers sell semi-dried korerima fruits (20% to 50% dry) to the village collectors at small rural market places, but some buy it directly from producers' homes. These collectors usually receive weekly advance payments from traders and transport produce on horseback to the traders in the main towns of Aman and Debrework. The traders undertake further drying and bulk up economically feasible volumes (usually 50 quintals, 1 quintal = 100kg) for transport to Addis Ababa. Small shops in the towns also buy, dry and sell small quantities of fresh and semi-dried korerima to local households.

In Aman and Debrework there are five major traders each regularly supplying 15000 to 35000 kgs per year to spice wholesalers at the Merkato in Addis Ababa. There are a further nine or ten traders undertaking the trade by cooperating with the larger traders. The average annual supply of these other traders is thought to be some 5000kgs.

As in the northern woredas, market information is sparse. However, local traders in the southern area get some irregular information on prices and the overall supply of korerima in Addis Ababa markets through telephone contacts with brokers and friends. This helps them make more informed decisions. However, the unpredictable price fluctuations in Addis Ababa create significant risk.

Wholesaling

There are more than 20 spice wholesalers at '*kemem tera*', the spice trading area in the Merkato, the main market in Addis. They regularly buy korerima from suppliers throughout the south west, bulk it up and wholesale it to retailers in Addis Ababa and other areas of the country. They also sell to kitchen spice processing companies in Addis Ababa. They help decide the national price by regulating the supply of korerima onto the national market.

The wholesalers set purchase and wholesale prices based upon production area, the level of holding stock, the season and the daily price movements in the Merkato. Because of quality issues spice from the project area attracts low prices. Wholesalers have limited knowledge of the processes required to maximise product quality and consequently do not provide feedback on quality or specific end-market requirements to their suppliers.

Retailing

A large, but unknown, number of actors retail korerima in Addis Ababa and other towns in the country. They buy korerima and other spices from the spice wholesalers at Merkato for sale to households.

Figure 2 illustrates the value chain for the project area.

Figure 2

5. Problems in the Value Chain

The analysis of the value chain identified key problematic areas where interventions might be productive. These 'pressure points' are ~~considered~~discussed ~~individually~~ below, ~~without~~ many overlapping and relating to each other.

• ~~Forest Harvesting~~

Forest ~~harvesting is problematic, being~~ ~~Korerima is~~ time-consuming ~~and, to harvest, difficult and dangerous for~~ ~~Women to undertake, are unable to harvest from the forest.~~ ~~Open~~ access intensifies competition between harvesters (and baboons), leading to early harvesting, resulting in poor quality spice. The case exemplifies issues of common pool resources (Agrawal 2001), which, if not addressed, could potentially result in environmental problems concerning the sustainability of the resource base and poverty issues relating to power relations within the community.

• ~~Poor Quality~~

The poor reputation of korerima and the subsequent low price offered on the national market discourages traders from paying premium rates for quality produce. Consequently they do not demand quality from harvesters, who continue to reap only small economic returns for their efforts.

• ~~Low volumes~~

The low volumes traded, the absence of market information, and fluctuations in price, discourage local traders from engaging in trade development further limiting the development of improved financial returns for producers.

• ~~Low/Spot Prices~~

The poor local price discourages harvesters from increasing their efforts to improve and coordinate forest collection and develop domestication more fully.

The dominance of spot pricing in the value chain, the non-existent contractualisation between chain actors, is characteristic of agriculture value chains in developing countries (Gereffi et al., 2005), and mirrors practices in other 'chaotic' spice supply chains in Tanzania, (Caigher

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,2004), and in meat value chains in Ethiopia (Legese et al, 2008) and in medicinal and aromatic plants in India (Yadav and Misra, 2012). Harvestors do not have access to large-scale buyers and are at the mercy of local traders. Most actors lack market information to consider long term activities. Most do not keep records or accounts.

• ~~Equipment~~

Furthermore, ~~M~~most harvestors don't have access, or the finance, to buy equipment, such as drying racks and jute sacks, that would improve the quality of their produce. This is particularly difficult for women. Because the

• ~~Poor levels of cooperation~~

The harvestors and producers all work independently theyand do not benefit from any economies of scale.

• ~~Lack of information~~

~~Most actors lack market information to consider long term activities. Most do not keep records or accounts.~~

• ~~Legislation~~

There is no legislation or regulation governing korerima harvesting and the existing Ethiopian forest policy does not control open access to the forest nor facilitate constructive forest management.

• ~~Access to Markets~~

Harvestors are geographically distant from their main market and. ~~P~~poor roads and poor communication technologies isolate them from information and input materials, problems found elsewhere in spice supply chains (Abay, 2010) and other agricultural value chains in Ethiopia (Jema, 2008).

The international export market is dominated by Sudan, with other markets dependent on shortfalls in the production of Indian cardamom in Asia. There are not any 'lead' firms developing access and niches in these markets for Ethiopian cardamom and until now there has been very little intervention by the government.

6. Value Chain Development Interventions

Interventions that could be used to overcome these pressures can be situated with the simple model developed by Riisgaard et al (2010). This has been adapted to frame the potential interventions for the korerima value chain (figure 3). The matrix is created by considering two dimensions for intervention: vertical integration and increased contractualisation. Vertical

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integration is when actors take on multiple chain activities, while increased contractualisation concerns the development of more complex economic relationships between chain actors.

Figure 3 Here

a) Entering the Chain (0-1 in Figure 3)

In order to reduce poverty and maximise the value of the forest and its produce to local communities the PFM-NTFP project seeks to explore how people can be encouraged into the korerima value chain by finding more economically feasible methods of forest and domestic harvesting. Maximising the productive capacity of the forest could make it less susceptible to agricultural clearance, and hence environmental benefits can also be achieved.

Managing Forest Access

The action research project is assessing the potential for the sustainable harvesting of quality korerima under new forest-based production systems. Critical for this is the introduction of Participatory Forest Management (PFM), and ending open forest access. Community control over the forests was finally legalised in 2012 and communities now have access rights to specific areas of forest. Community PFM groups advise on the sustainable management of their forest resources and Forest Producer Groups (FPG) are working with communities to enhance forest korerima production .

Encouraging Domestication

Greater domestic korerima cultivation would increase volumes and improve product quality. The project has identified interested community members and has provided training for them, drawing on the success stories of producers from outside the project area in Gemu, Bench Maji and Kaffa zones of SNNPRS. Domestication is supported by the Forest Management Associations who are involved in the collection of the best yielding varieties of seeds from the forest, establishing community nurseries to raise seedlings which can then be distributed to the newly trained cultivators. Domestication could lead to more women engaged in the supply chain as they are currently unable to harvest from the forests because of the dangers. [Their greater involvement in the value chain could potentially enhance sustainable forest management \(Pandey, 2010\).](#) 7

A further possible intervention bridging forest and domestic harvesting would be the use of forest edges for domesticated korerima (where baboon damage is less).

b) Adding Value by taking on more functions

Moving from quadrant 1 to 2 in the model would involve harvesters, individually or together, taking on more functions. This might mean cleaning, drying, storing and transporting the

product themselves or in groups through the cooperatives and private limited companies established by the project. The project will continue to train harvesters, and members of the cooperatives and PLCs on the sustainable management, harvesting and post harvest handling techniques of korerima at the gote² level. This will involve the selection of suitable sites for drying and storing the products using locally available materials and should create opportunities for more women to get involved.

Raising the quality will not be enough to enhance its value as there is no price premium attached to good quality korerima. Local traders need to be aware of quality production methods and how this might result in financial gain for themselves. Market traders in Addis Ababa, who set the price, also need to know about, and acknowledge quality improvements.

The project is exploring processes and equipment requirements for threshing the spice to enhance the product value and reduce transport costs. PLCs or cooperatives would be able to trade threshed and powdered korerima to the national markets at significantly higher prices. Further value could be achieved if the product could be endorsed with organic or fair trade certification, although this is not always a straightforward process (Reed, 2009, [Fayet and Vermeulen, 2012](#)).

c) Increasing Contractualisation

Moving from quadrant 1 to 3 would mean producers engaging with new chain actors, or changing the terms of existing relationships in order to achieve increased contractualisation. Frequently this movement would be co-dependent on moving from 1-2, where products have been upgraded.

The PFM-NTFP project's participatory engagement with local communities over several years has focussed on forming private limited companies (PLCs) and cooperatives through which active producers in several nearby administrative areas (kebeles) are able to come together to engage in processing and trade. Seven PLCs have been developed for honey marketing and have been operating successfully for five years. They are now diversifying into other products, including spices, while groups of communities are developing cooperatives to trade in forest products. PLCs can facilitate joint marketing of produce with economies of scale and could also manage micro-credit facilities to improve access to drying and storage equipment. The upgraded product could then be sent directly to wholesalers in Addis. Further product upgrading through certification could also be explored through the PLCs.

d) Co-ordinating Chain Segments

When producers have been successful in moving towards quadrants 2 and 3 this can sometimes lead to a move to quadrant 4, where they become involved in the coordination of their own chain segment. For example, the producers could work with the PLCs and cooperatives to create direct marketing links with retailers and exporters. The project has already facilitated exchange visits for the NTFP PLCs to national spice wholesalers and processing companies in order to find out their requirements so they can make pre-market

² Gote is a community which identifies itself as having a common area of residence and forest use

negotiations. This will lead to the identification of interested PLCs capable of meeting the volume and quality requirements of the wholesalers and processing companies. This would need to be underpinned by the provision of training and materials as discussed above. The project also proposes to link the PLCs and cooperatives with financial institutions as that would allow them to access finance required to supply larger volumes on the market.

e) Cross-Cutting Strategies

Riisgaard et al (2010) proposed the notion of ‘crosscutting’ strategies which cannot be compartmentalised into the various sections of the main model. These strategies include major changes in the international and national business environments that potentially could impact on a value chain, as well as regulatory changes, and the establishment of new governmental agencies.

In the case of korerima a number of ‘crosscutting’ strategies are pertinent. Critical for the PFM initiative is the development of supportive legislation. Four years of liaison between the project and the government has resulted in a new forest policy which allows communities to control access to their forest and develop the sustainable use of a range of forest products. Without this few of the interventions above would be workable. The Ethiopian government’s support of cooperatives is also critical and should help producers gain access to credit from government institutions, facilitating access to credit and hence, equipment, such as drying racks.

Infrastructural issues are improving, with the main road connections from the project area to Addis Ababa being upgraded, while mobile phone coverage has reached the project area along the main roads. These developments will help communication between actors in the chain with potentially significant positive impacts (Aker and Mbiti, 2010).

In order to guarantee markets for producers the export potential needs to be maximised. For korerima, it is necessary to change perceptions of korerima as the poor man’s cardamon to one of a valuable spice in its own right. The Ethiopian Pulse, Oil Seed and Spice Producers and Exporters Association (EPOSPEA) is in a good position to achieve this. It was an important stakeholder in the development of the Spice Strategy (ACP, 2010) and could take a leading role in the promotion of korerima in export markets as an independent and specific spice, and in a broader sense, could take the lead on the government’s spice strategy. EPOSEA could model their approach on the successful coordinating role played by the Zambian cassava task force in Zambia (Chitundu et al, 2009). The Ethiopian Institute of Agricultural Research (EIAR) is also key to some of the proposed cultivation and harvesting interventions, primarily through its work with the specialist spice research centre in Tepi.

These initiatives are what McCarthy et al, (2011) might consider as regime interests, state policies and agri-business agendas which, they argue, are mutually constitutive, cumulatively shaping local production networks so they can change a developmental pathway. The government’s spice strategy clearly intends to effect such a change and should provide a broad facilitative framework.

Figure 4 illustrates the various interventions, how they relate to the value chain and how they link to Riisgaard et al's model (2010).

Figure 4 Here

Discussion

These potential interventions all concur with global practice and it would be tempting to implement them swiftly. However, many projects that have intervened in value chains have been criticised for neglecting poverty, environment and gender (PEG) aspects and the NTF-PPFM Project, is sadly, no exception. For example; Humphrey and Navas-Aleman (2010) reviewed 30 case studies and concluded that there was 'not enough evidence on poverty alleviation impacts from interventions to claim that they are effective or efficient in helping the poor'; Donald (2004) found that the environmental dimensions of value chain interventions are rarely thoroughly explored with many subtle relationships overlooked and Henricksen et al (2010) argue that gender analyses are rare and even those conducted are superficial and do not consider issues of power and intra-household gender dynamics. Thus, there is a growing consensus that any value chain analysis should involve significant research into 'horizontal' aspects before progressing with interventions.

The NTFP-PPFM Project team is conscious of these criticisms and is exploring the potential PEG consequences of the proposed interventions. However, this is problematic and some of the key obstacles and dilemmas are discussed below.

Encouraging more people to enter the value chain is seen as positive as it is likely to increase and diversify household income, while simultaneously making a contribution to forest protection by reducing pressure for agriculture clearance (where forest collection and forest-edge domestication is undertaken) and so generates alternative income. The intention is not to encourage households and individuals to engage solely in korerima production, but to add it to their portfolios of marketable forest-based activities. In this way households could be protected from market shocks and seasonal variations in income. However, reviewing interventions in terms of household incomes is not enough, and it is necessary to identify who exactly is benefitting within the household, and whether that includes poorer, marginal and less economically engaged individuals. The project is also attempting to assess how such interventions might also expose actors and the environment to various risks (Bolwig et al, 2010). For example, the risks of forest harvesting could be lessened through the PFM process of developing community property rights to common forest resources. This security of access should promote good husbandry and sustainable use. Through PFM property rights to specific areas of forest and forest products can be assigned to groups of harvesters (including women) who work together, rather than in competition, thereby lessening individual risk and minimising competitive early harvesting. However, assigning individual property rights to common forest resources within community-based PFM may be problematic. A greater understanding of the power dynamics in the communities and how these rights are granted is required to ensure that all members of the community benefit equitably. Rights to harvest and

the methods of harvesting would also have to be managed carefully so that any deterioration to the spice resource is avoided.

Interventions to support the domestication of korerima could benefit women. The management of backyard production is complimentary to their other tasks and encourages female involvement in the value chain. Adding value to the produce through cleaning, drying and packaging could also create opportunities for women. However, the gender rules and roles of the community need to be explored to avoid potential unforeseen consequences. For example, such practices might result in women become more tied to their homes, reinforcing unequal gender power balances in the communities, and it might upset existing community connections such as reciprocal arrangements between women, or kinship care arrangements. The project will therefore find out more about the households, their resources and gender balances, as well as engaging women and minority groups in discussions, before further commitment to these interventions.

The marketing interventions focus on PLCs and cooperatives, whose development the project is facilitating, with collective marketing being a key aim, an approach that has had success in other projects (IFAD 2009). However, the project needs to explore the nature of the main actors in each of these groups. These are likely to be dependent on community dynamics and could unintentionally compound wealth and gender divisions within the community, especially as both organisations require contributions of working capital as the basis of membership. There are also issues surrounding the competence of key players in these organisations as well as the democratic process within them.

A potentially significant unintended consequence concerns the impacts on local traders currently buying korerima directly from harvesters. The PFM strategy, with its emphasis on PLCs and cooperatives could eliminate some of these actors from the value chain. The project needs to consider its responsibility for these chain actors which will require a greater understanding of their resilience and the economic importance of korerima trading to them. It is possible that by cutting out such middle men, the project might also cut out important individuals with existing or potential market intelligence (Choudray et al, 2010).

A further connected concern relates to the price of korerima in local shops for non-actors in the supply chain. If quality is enhanced and if the product is sold directly to PLCs or cooperatives, there is a risk that local prices will increase. However, Neilson (2008) identified the opposite regarding coffee systems in Indonesia where increased supply held the price down.

Many value chain interventions concern the role of a lead firm. At present there is no lead firm involved in the korerima value chain, but the government's spice strategy is likely to encourage corporate involvement. Chitundu et al (2009) argue that successful interventions require the identification of a sizable commercial opportunity with the backing of the private sector. While lead firms can strongly and positively influence small producers in terms of stable demand, price premiums and certification (Lusby, 2007), a balance has to be struck that avoids over-dependence (Henriksen et al, 2010) and inequitable power dynamics (Taylor, 2005).

Monitoring how and why communities and individuals respond to these interventions is key (Rich et al, 2011) and the project needs to gain insight into the incentives and disincentives of adopting new behaviours. Adoption is likely to be influenced by an individual's own socio-economic situation and significant in-community and cross-community variations are likely. Any assessment of potential interventions must take these issues into account. Chain actors also need to understand that the interventions should be seen as a package, and not a menu from which to pick and choose. For example, if the interventions relating to product quantity and quality are successful, but the marketing strategies are either not in place or fail, this could lead to higher levels of production without a market, leading to lower rather than higher prices and a major disincentive to the producers, with potential long term, negative impacts.

7. Conclusions and Reflections

These dilemmas and potential unintended consequences create a major challenge for the project team, and by extension, for the government's intended spice development strategy. The government is aware that developing the spice sector to meet the economic targets will require an 'an effective and efficient spice value chain service delivery mechanism' (ACP, 2010). However, if interventions identified to achieve this are derived from a purely economic perspective, important social and environmental factors may well be ignored. If so, the well intended government spice strategy might fail to meet the anticipated economic gains, and, may even, from an environmental, livelihood and social perspective, make things worse.

The project's work on the korerima value chain provides a case study that highlights key issues that need to be addressed with this particular spice. The overarching aim of the NTFP-PFM project is to protect the environment and to improve the livelihoods of forest communities, yet even within that context and with that focus, the value chain analysis, considered in the context of recent literature, has shortcomings. Although the analysis provides a good understanding of the actors, their activities, the connections and the power dynamics within the existing supply chain, these findings should be regarded as the starting point for more detailed and robust research. This paper has identified an array of interventions and has attempted to consider them from the PEG perspectives, but this work is in its infancy, and the discussions in this paper serve to frame the necessity of more PEG focussed action research, and to warn of superficial, hurried analysis.

The NTFP-PFM project is on-going and is currently exploring methodologies for assessing the potential impacts of interventions, drawing on Mitchell and Coles (2011) recent analysis of seven case studies. The project is planning to use gender analysis, vulnerability and marginalisation assessments, participatory mapping and diagramming and livelihood analysis (Tallontire et al, 2005; Rubin et al, 2009) in order to identify appropriate interventions, but the process is time consuming and the findings are likely to be area and community specific. Nonetheless, the team hope that the understandings from korerima can be fed into the national spice strategy so that more robust, holistic and sustainable spice supply chains can emerge.

The EPOSPEA have already demonstrated a strong desire to “extend its call for concrete action to all pertinent stakeholders; including public and private sectors, individual and organised business entities as well as development partners; to come together with strong collaborative synergy to attain breakthrough results”. The authors hope that this invitation will evolve into an iterative stakeholder dialogue that will shape the transformational strategy so that the fast pace of proposed change can be matched by measured and informed development interventions.

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Table 1: Location, Number and Types of Respondents Interviewed

Location	Respondents	
	Type	Number
Masha	Harvesters	30
	Small shops	10
	Traders	5
Anderacha	Harvesters	20
	Traders	1
Sheko	Harvesters	11
	Small shops	2
South Bench	Traders	6
Tepi	Traders	1
Gore	Traders	1
Mettu	Traders	2
Addis Ababa	Spice Wholesalers	4
	Spice Retailers	5
	Processing Companies	1

Table 2: Summary of actors and their functions

Actors	Functions/Activities
Forest Harvesters	Harvest ripe and unripe fruits (capsules). Transport fresh fruits to town markets on foot and horseback. Sell fresh fruits to small vendor shops
Domestic Harvesters	In Southern Woredas - Plant, raise and manage seedlings in shaded areas of farmland; harvest both ripe and unripe fruits; undertake semi-drying; transport and sell semi-dried fruits to village collectors at markets. In Northern Woredas - Plant, raise and manage seedlings in shaded areas of farmland; harvest ripe fruits only; undertake drying; transport dried fruits to nearby urban markets and sell to small vendor shops.
Small shops	<ul style="list-style-type: none"> ▪ Purchase fresh fruits from forest harvesters, undertake drying and sell to local consumers in the town and suppliers (in northern woredas). ▪ Purchase semi-dried fruits from harvesters and domesticators, undertake further drying and sell to local consumers (in southern woredas).
Village collectors	<ul style="list-style-type: none"> ▪ Receive advance payment from the supplier. ▪ Collect semi-dried fruits from the farmers in villages and market places. ▪ Bulk, pack and transport semi-dried fruits to the towns on horse back. ▪ Sell product to supplier.
Traders	<ul style="list-style-type: none"> ▪ Provide the village collectors with advance payment. ▪ Weigh and purchase semi-dried fruits from the village collectors in bulk. ▪ Undertake further drying.

	<ul style="list-style-type: none"> ▪ Pack and store the dried fruits until they are supplied to the market. ▪ Transport the stocks to Addis Ababa (Merkato) using trucks. ▪ Supply stock to spice wholesalers found at merkato.
Turmeric Traders (from northern Ethiopia)	<ul style="list-style-type: none"> ▪ Collect dry fruits from local traders along the main road of Tepi-Mettu. ▪ Transport product to the main towns in north-west Ethiopia. ▪ Wholesale and retail dry fruits to retailers/consumers in towns of north-west Ethiopia.
Spice Wholesalers at Merkato	<ul style="list-style-type: none"> ▪ Purchase dried fruits from suppliers in different parts of the country ▪ Wholesale and retail dry fruits to retails, spice processing companies, hotels and dry fruit consumers. ▪ Produce, wholesale and retail threshed seeds of Korerima
Kitchen spice processing companies(Baltenas)	<ul style="list-style-type: none"> ▪ Purchase dried fruits from wholesalers in bulk ▪ Produce threshed seeds and powders from dried fruits ▪ Pack the seeds and powder in different quantities ▪ Wholesale and retail packed seeds and powders of Korerima to supermarkets, hotels and consumers. ▪ Mix and process the seeds and powders with other spices produce powders from hot chili, red pepper and other products. ▪ Wholesale and retail powders of different spices to supermarkets, hotels and consumers. ▪ Export seeds and powders of Korerima and other different spices.
Retailers	<ul style="list-style-type: none"> ▪ Purchase dried fruits from wholesalers and retail it to consumers

