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Forest spice development – using value chain analysis to identify sustainable opportunities for developing Ethiopian cardamom (korerima) in forest communities in south-west Ethiopia

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Abstract

The spice subsector has been identified as one part of the Ethiopian Growth and Transformation Plan. This paper explores the value chain for korerima, Ethiopian cardamom, one of a number of non-timber forest products which a project is helping to develop in order to maintain the forest landscape in southwest Ethiopia. This analysis identifies pressure points and potential interventions to improve the livelihoods of forest communities from greater commercialisation of the spice. The paper focuses on the way interventions could contribute towards contractualisation and vertical integration, while ways to assess social and environmental, as well as economic implications of the interventions are explored.

1. Introduction

In 2010, the government of Ethiopia launched a Growth and Transformation Plan (GTP) which included the promotion of agro-industries. The GTP envisages the Agricultural Development Led Industrialisation (ADLI) strategy transforming the Ethiopian economy from agricultural domination towards broader economic development by using the commercialisation of agriculture as a 'stepping board'. The ADLI strategy identifies the spice sector as one with potential for development and aims to increase export revenue from spice from \$18.5 m to \$50million by 2015 (ACP, 2010). Evidence from agro-industrialisation experiences elsewhere suggests that such policies can often have negative impacts on the conservation of forest reserves and on community livelihoods (McCarthy et al, 2011). However, if the spice sector can be developed with regard to community forest management, its commercialisation could potentially deliver economic, environmental and social benefits.

This paper discusses these issues by drawing on the insights of an action research project promoting non-timber forest products (NTFP), including spices, through participatory forest management (PFM). The project is located in the south-west highlands of Ethiopia in the Southern Nations, Nationalities and Peoples' Regional State (SNNPRS). The overall objective is to apply PFM as the way to maintain the forested landscape and so support improved livelihoods of local, 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 for these products and so benefit both the producers and the national economy.

Understanding why agricultural producers in developing countries often fail to benefit from their labours requires the exploration of the relationships between the various players in the supply chain. Value chain analysis provides an important framework to explore these issues (Kaplinsky, 2000) and has become a key approach in both research and policy fields (Henriksen et al, 2010). This paper presents the existing value chain for the spice korerima (Ethiopian cardamom) in Ethiopia and identifies its

various constraints and pressure points. Potential interventions are then discussed with regard to economic rewards for small-scale spice producers and issues of forest preservation. The challenges and dilemmas of evaluating these interventions in terms of their impacts on poverty, gender and the environment are also discussed and lessons for this process identified.

2. Value Chains

While the concept of value chain analysis has emerged as a useful and innovative tool to explore the dynamics of supply chains, there is a significant amount of discussion regarding the terminologies in this area and a variety of definitions and meanings are used (Raikes et al, 2000; Bair, 2005). Most definitions use the term '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 the eventual consumers. Kaplinsky (2000) defines 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 et al, 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.

A key aim of value chain analysis is to identify policies and practices that assist weaker actors and consequently much of the literature is devoted to the analysis of marketing systems and the

identification of potential interventions (Boomgard et al., 1992; Dowds and Hinojosa, 1999; Bourgeois and Herrera, 2000; Kaplinsky, 2000; Kaplinsky and Morris, 2000; Lusby and Panlilbuton, 2001; Miihlbradt. et al, 2005; Meyer-Stamer, 2002; Haggblade, 2007; Roduner 2007; Chitundu et al, 2009).

Value chain analysis has been applied to many sectors and industries ranging from agro-products to garment production and its popularity and versatility has led to its description as an 'accommodating model' (Rieple at al., 2010). However there are a number of core criticisms of the use of value chains. Chitundu et al., (2009) argue that much of the diagnostic work on value chains has been top down with little engagement of key stakeholders and certainly most of the authors in the academic literature stress the need for participatory, bottom-up strategies. In practice, however, the reality is still rather top-down. For example, the authors would argue that the Ethiopian Spice Strategy (ACP, 2010), which was devised as a result of a participatory stakeholder workshop, did not fully engage with the producers. Others argue that successful analysis and action requires greater engagement of private sector interest groups at a whole series of levels right down to the producers and harvesters (Cooke and Kothari, 2001; Ernst et al., 2004; Meyer-Stahmer and Waitring, 2006;). Hemmati (2002) and Warner (2006) are concerned that value chain analysis often results in conflict and fails to include certain groups, notably the weakest and the poorest.

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 (Fold, 2008; Murphy and Schindler, 2009; Neilson and Pritchard, 2009). This might be related to Bolwig et al's (2010) concerns that much of the research conducted has been based on quantitative surveys, which have omitted detailed consideration of broader political, economic or contextual issues. A related criticism concerns the limited research on the impacts of interventions on individuals and communities. Bolwig et al (2009) argue that apart from a few notable

exceptions (for example, Bair and Gereffi, 2001; Barrientos, 2003; Nadvi, 2004; Tallontire et al., 2005) most research ignores the environmental, poverty and gender impacts of value chain analysis and intervention.

A growing amount of literature seeks to guide research and practice in value chain analysis (McCormick and Schmitz, 2001; Nadvi and Barrientos, 2004; KIT, 2006; Riisgaard et al., 2010) and many of them seek to deconstruct the practice of value chain analysis. For example, Kaplinsky and Morris (2001) identify four components of the analysis namely; mapping and characterisation of the actors, assessment of governance mechanisms regarding relationships between actors, analysis of opportunities for upgrading within the chain and the calculation of the benefits of such interventions. These four components are mirrored in Ashley and Mitchell's (2008) six point framework for analysis, namely 1) value chain selection, 2) value chain analysis, 3) identification of market based solutions, 4) assessment of solutions, 5) identification and selection of interventions, 6) performance measurement. These steps will be used to explore the value chain of Korerima in Ethiopia.

The PFM-NTFP project (which has generated the data for this paper) is ongoing and has yet to reach steps 5 and 6. Consequently, this paper discusses the rationale for selecting the spice value chain, presents the existing supply channels identified together with an examination of the actors and their roles, and considers the constraints and problems of the existing chain. The paper then looks at possible interventions and attempts to assess these, demonstrating the dilemmas and controversies that have been confronted in attempting to work through steps 3 and 4. The relevance of these issues is then discussed with regard to the Ethiopian government's proposed spice strategy.

3. Value Chain of Korerima

3.1 Step 1 Value Chain Selection

Research on cassava value chains in Zambia concluded that in order to identify value chains with strong prospects for effective collective intervention, three conditions need to be met (Chitundu et al., 2009). First, the value chain must have significant growth potential and large benefits for a broad range of stakeholders; secondly the exploration should be conducted by trusted, honest brokers and, thirdly, all involved stakeholders need to understand that the development of the value chain can only be achieved through mutual collaboration and sharing of responsibilities and benefits. The first two of these issues can be assessed prior to the commencement of field work and will now be discussed with regard to korerima. Whether the korerima value chain meets the third condition will largely be evidenced after interventions have been attempted.

Spice trading in Ethiopia dates back to biblical times and is arguably part of the world's first international supply chain (Bradley, 2008). Records suggest that the Ethiopian spice trade can be traced back to 1500 B.C. (Fullas, 2009). Over forty spices, herbs, medicinal and essential oil plants are still grown in Ethiopia, but the four most important are 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 25.3% in terms of value and 25.6% in terms of volume (Yimer, 2010). The 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 known figures for the Ethiopian domestic market, but since spices are widely used throughout the country, in all cultures, it is thought that this market is large.

The selection of the korerima value chain for analysis was driven by the need to identify how local producers can enhance their economic livelihoods. The project supporting this work is based in SNNPRS (figure 1) in five woredas.¹

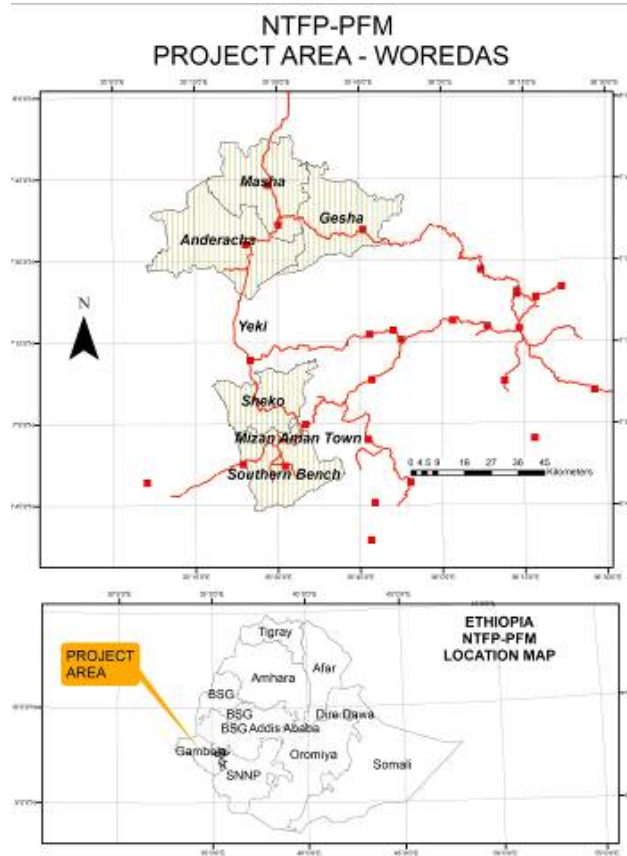


Figure 1: Project Area and its Location in Ethiopia

This area of Ethiopia accounts for 25-30% of all the korerima grown in Ethiopia. The communities depending on the forest for an important part of their livelihood were the target group for this study.

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

Forty thousand households could potentially benefit from the project, although not all of these would necessarily be engaged in the korerima value chain. The lessons learnt from the project will be applicable to korerima producers throughout the region and will be relevant to the implementation of the spice sector strategy of the GTP and the wider agriculture industry in the country.

Since there are considerable opportunities within global and domestic markets with many potential beneficiaries, korerima fulfils Chitundu et al.,’s (2009) first requirement for valid analysis, that the value chain should have significant growth potential. Her second condition, that the exploration should be conducted by trusted, honest brokers, is met by the involvement of the EU, Norway and Netherlands funded NTFP-PFM project and managed by the University of Huddersfield.

3.2 Step 2. Value Chain Analysis

Like many previous studies on value chains (McCarthy et al, 2011), the data was collected using case study based qualitative methods (Burawoy, 1998; Flyvbjerg, 2001). Data was obtained over several months in 2008 through interviews with producers, traders, wholesalers and exporters (Table 1).

Table 1: Location, Number and Types of Respondents Interviewed

| Location | Respondents | |
|-----------|-------------|--------|
| | Type | Number |
| Masha | Producers | 30 |
| | Small shops | 10 |
| | Traders | 5 |
| Anderacha | Producers | 20 |
| | Traders | 1 |
| Sheko | Producers | 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 |

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. The key production stages are cultivation, processing (drying, cleaning, packaging, storing, threshing and grinding), marketing, wholesaling, retailing and finally consumption.

3.2.1 Production

There are two production systems for korerima in the study area, backyard production/domestication and wild forest collection. Forest harvesting of korerima is restricted in the southern woredas of South Bench and Sheko, and also in Gesha (north-east), because of the limited areas of forest in these woredas or the predominant use of the forest for coffee cultivation in the south. However, in the northern woredas of Masha and Anderacha nearly all of the korerima is derived from natural forests.

Domestication of korerima is a very recent phenomenon in the Northern Woredas of Masha, Anderacha and Gesha (introduced by the NTFP-PFM project), while in some parts of the Southern woredas it is a more than two decades old, and much more substantial having been introduced by the Agricultural Office during the 1980s.

3.2.2 Harvesting

In the northern woredas harvesting occurs between October and February, and in the southern woredas, it is 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 travel up to three hours by foot to access the fruits from naturally established plants, 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 this activity, although some do engage in backyard domestication. In the northern woredas commercial harvesting from the forest is also practised by marginalized groups of communities, called '*menjo*' who are an indigenous forest dwelling group.

Good quality korerima can only be achieved if the ripe (red) fruit is picked. Although harvesters understand this, many continue to pick the unripe, green fruits. This is largely due to the perceived need to harvest before their competitors (a problem typical of common pool resources). Baboon damage is another challenge with farmers claiming that nearly 70% of forest korerima is lost this way. The absence of quality based pricing in the local markets means that there is no financial penalty for

such early harvesting of unripe fruit from the wild. Backyard cultivated korerima is less vulnerable to human and baboon competition and a superior crop is emerging as a result of producer training.

3.2.3 Processing

a) Drying

Drying reduces the moisture content, thereby preventing deterioration and allowing storage. In the northern woredas of the project, local traders and domesticators dry or semi dry the fruits, while forest harvesters typically supply undried fruits to the market. In the southern woredas both domesticators and forest harvesters semi-dry fruit before taking it to market. The local traders buying these fruits carry out further drying themselves.

Different drying methods are practised in the two project areas. In the north fruits are spread on the ground on mats, cloths, plastic sheets and sacks and left to dry in the sun for between 7 and 30 days depending on the weather. This leaves them vulnerable to soil, dust and moisture contamination which can result in yeast, bacteria and mould invasions.

In the southern area the fruits are "needled" to make incisions, and then linked together with fine lianas so that they can be hung from ceilings in the huts to dry by the heat of domestic fires. During sunny days they are taken outside and spread on the ground. This method takes 15 to 21 days depending on the weather. The smoke from domestic fires causes undesirable aromas while the needling can result in fungal contamination resulting in an undesirable flavour.

Local traders blame the poor quality of korerima from both the north and south on these poor drying practices. Drying the fruits in the sun on raised beds is the recommended method.

b) Cleaning:

Cleaning removes dirt and enhances the appearance of the fruits. Traders claim that most producers do not bother to clean their produce because the local markets do not pay for quality. However, the traders clean it themselves whenever the market pays a premium for clean fruits.

A combination of poor drying methods and limited cleaning has meant that that korerima from the project area has a bad reputation for quality. South Bench korerima is infamous for its dirty appearance and mouldy aroma and only achieves low prices in the national Addis Ababa market.

c) Packaging and Storage:

Plastic bags ('*madaberiya*') used to pack the spice often cause mould. Plastic bags would be acceptable if the fruit was fully dried, but that is rarely the case at this stage of the supply chain. Jute sacking would be a more suitable alternative but only a few traders use them.

Although storing the produce would enable producers and traders to benefit from price fluctuations, hardly any did 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.

d) Threshing and Grinding:

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

3.2.4 Marketing

a) Local Trading in the Northern Woredas of the Project Area

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

Three traders were identified who collect dry fruits from small shops and farmers, bulk up the volumes and sell around 5000kgs to the turmeric traders each year. These traders claim to understand quality issues, but do not pay higher prices for high quality fruits because they claim 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 as it prevents them from making informed choices on production, collection volumes, product types and when and where to sell it. The local traders are slightly better informed, largely because of their contacts with the turmeric traders who understand demand and prices as they travel and in their home area .

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.

b) 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. Some collectors buy it directly from producers' homes. These collectors usually receive advance payments every week from the traders and transport the produce on horseback to the main towns of Aman and Debrework to supply them. The traders then undertake further drying and bulk up the volumes to the level at which it is economically feasible to transport to Addis Ababa, usually 50 quintals (1quintal = 100kg) . There are also small shops in the towns, where small quantities of fresh and semi-dried korerima are bought, dried and retailed 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 do seem to get some irregular information on prices and the overall supply of korerima in Addis Ababa markets through telephone contacts with brokers and friends in the capital. This information can help them make more informed decisions regarding when to sell in order to maximise their profit. However, sometimes this strategy fails because of unpredictable price fluctuations at the Merkato in Addis Ababa.

c) Wholesaling

There are more than 20 spice wholesalers in Addis Ababa, specifically at '*kemem tera*', the spice trading area in the Merkato (the main market in Addis). They help decide the national price by regulating the supply of korerima onto the national market. They regularly buy korerima from suppliers throughout the south west, including beyond the study area, bulk it up and wholesale it to retailers in Addis Ababa and

the non-growing areas of the country. They also sell to the kitchen spice processing companies at Addis Ababa.

The wholesalers set purchase and wholesale prices based upon supplies from different parts of the country, the level of stocks at hand, the source area of supply, the seasons and the daily price movements in the Merkato. This generally means that spice from the project area attracts low prices as it is perceived as dirty and irregularly sized. Wholesalers do not have knowledge of the production and processes required to maintain the quality of the product and consequently do not provide feedback on quality and the specific requirements of end markets to their suppliers.

d)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 and sell it to individual households.

3.2.5 Korerima Value Chains

Figure 2 The Korerima value chain for both the north and south study areas

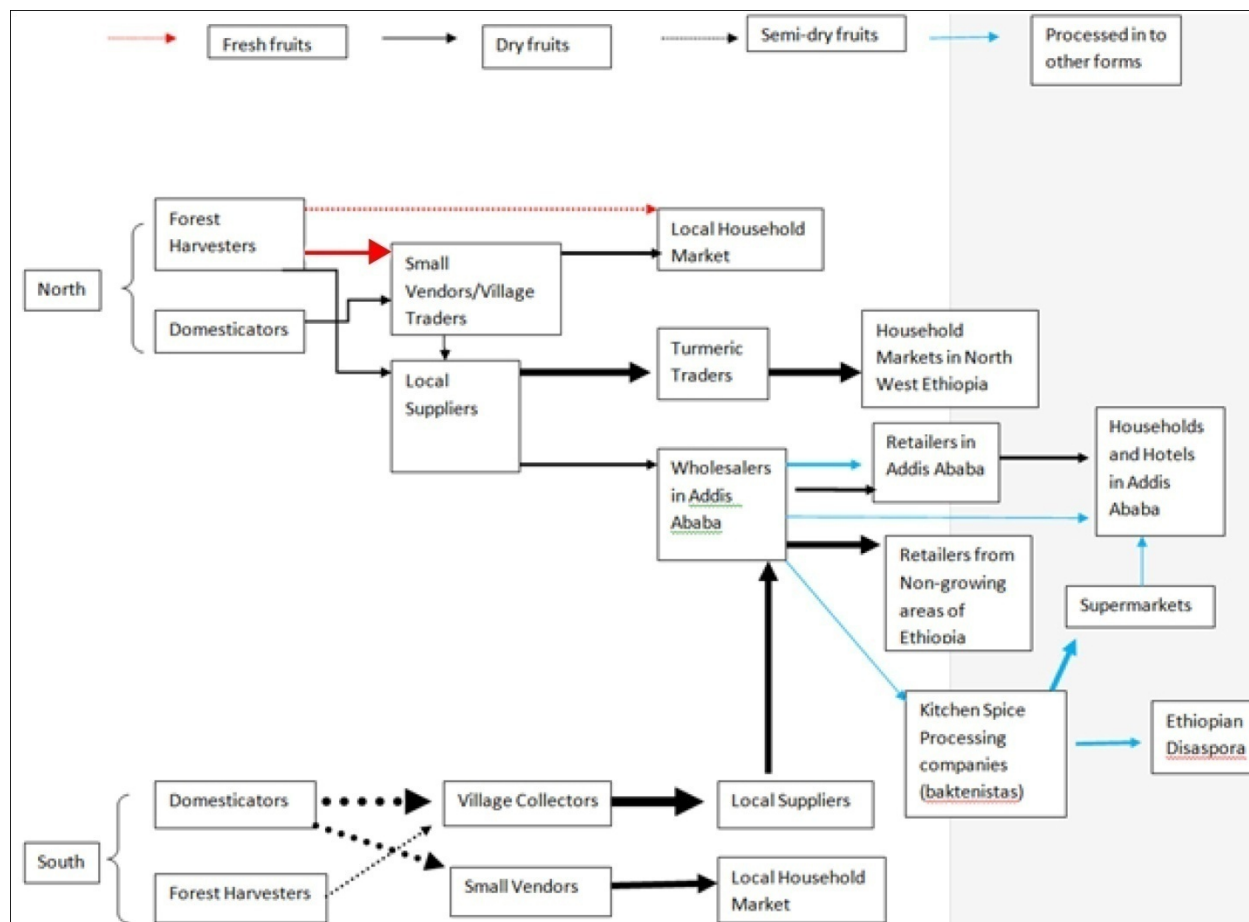


Figure 2: Korerima Value Chain

Actors

Analysis of the data shows that there are nine major categories of actors in the value chains for korerima. These are presented in Table 2 along with their key functions.

Table 2: Summary of actors and their functions

| Actors | Functions/Activities |
|----------------|--|
| Harvesters (of | Harvest ripe and unripe fruits (capsules). |

| | |
|--------------------|--|
| forest korerima) | <p>Transport fresh fruits to town markets on foot and horseback.</p> <p>Sell fresh fruits to small vendor shops</p> |
| Domesticators | <p>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.</p> <p>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.</p> |
| 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. ▪ 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 | <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 Korrerima |
| 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 Korrerima 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 Korrerima and other different spices. |
| Retailers | <ul style="list-style-type: none"> ▪ Purchase dried fruits from wholesalers and retail it to consumers |

3.2.6 Identification of Pressure Points

The analysis of the value chain enabled the project to identify areas which were problematic and where interventions might be productive. These have been referred to as ‘pressure points’ (Lusby and Panlibuton, 2007). Ashley and Mitchell’s (2008) typology of seven categories has been used to frame the ‘pressure points’ in the korerima value chain.

a) Technological/Product Development

Much of the korerima is harvested from the forest and this is the root cause of various problems. Korerima is usually found scattered deep in the forest making it time consuming to harvest. Open

access to the forest and its products intensifies competition between harvesters (and baboons), leading to early harvesting, resulting in poor quality spice. The poor local price offered for korerima has discouraged farmers from increasing their efforts to improve and coordinate forest collection and develop domestication more fully. Most producers do not have access to technology that would help them improve the quality of their product. For example, the inappropriate drying methods and the failure to clean the fruit is detrimental to product quality. The use of plastic for storage (when it is undertaken) further undermines product quality.

b) Market Access

The governance relationships in the existing value chain are dominated by spot pricing with almost non-existent contractualisation between the chain actors. This is a common pattern in agriculture (Gerreffi et al, 2005), and similar patterns are identified in the spice value chain in Tanzania, described as ‘chaotic’ by Caigher (2004), and in meat value chains in Ethiopia (Legese et al, 2008). The korerima producers do not have access to the large-scale buyers and are largely at the mercy of the local traders paying spot prices. The poor reputation of the korerima from the project area and the subsequent low price offered on the national market discourages these traders from paying premium rates for good quality produce and as a result they do not demand quality from the producers. The low volumes traded and the absence of market information, together with fluctuations in price, discourage local traders from engaging in trade development and this limits the financial benefits that could be accrued by the producers.

On an international level, the korerima 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.

c) Organisation and Management

The harvesters and producers are all largely working independently and do not currently benefit from any economies of scale. They are generally without the ability and the time to consider longer term activities and most do not keep records or accounts.

d) Regulatory/Policy issues

There is no legislation or regulation governing korerima harvesting and the existing Ethiopian forest policy does not effectively control open access to the forest nor facilitate constructive forest management. Licensing of trade is also an issue as the present proliferation of trading license requirements, one for each product, tends to lead to minor trading activities, like spice, being neglected or forced underground.

e) Finance

Most of the producers and local traders have no access to finance so are unable to invest in even the most basic of materials that would enhance the quality of their produce or the maintenance of the produce during trade.

f) Input supply

This is closely linked to the problem of access to finance and access to the materials necessary to improve quality through appropriate drying, storage and trading conditions.

g) Infrastructure

Korerima spice producers are geographically distant from their main market. Poor roads and poor communication technologies further serve to isolate them from information and input materials. Caigher (2004), ACP (2010), and Abay, (2010) identified similar problems in their studies on spice value chains which are typical for most agricultural production in Ethiopia (Wolday, 1994; Eleni, 2001; Jema, 2008).

4 Step 3. Identification of market based solutions

4.1 Possible Interventions:

This section considers the types of interventions that could be used to overcome these pressure points and constraints. This is sometimes referred to as value chain development. Interventions typically include; forging or strengthening new links within a value chain; increasing the capabilities of target groups to improve the terms of value chain participation; minimising the possible negative impacts of value chain operations on non-participants and/or adjacent communities and the creation of new value chains.

These interventions are about enhancing rewards and reducing risks, and while many argue that interventions should consider environmental, poverty and gender issues (Henriksen et al., 2010; Bolwig et al., 2010; Riisgaard et al, 2010) most interventions typically focus on economic factors

The most common means of upgrading the value chain involves improving product quality and/or the efficiency of production, increasing volumes, improving the timing of supply and complying with standards for certification. Obvious examples of how this could be achieved within the korerima value supply chain include ensuring the harvesting of ripe fruit and ensuring it is dried, cleaned and packaged appropriately. Gereffi et al, (2005), refer to this type of upgrading, where an actor takes on more functions in the value chain, as vertical integration, which they argue, is usually dependent on increased contractualisation, normally achieved by establishing longer term and more complex relationships between chain actors.

Riisgaard et al (2010) identify two types of contractualisation. Vertical contractualisation involves moving away from spot buying in favour of binding agreements and sales contracts with agreed amounts and prices. This can involve just that, without any major change to the product itself, or it could mean a move towards greater volumes, better quality produce and even more specialised methods of production that could lead to certification (e.g. organic/fair trade). Horizontal contractualisation concerns agreements among producers at the same position in the chain and might involve cooperation leading to the bulking up of produce, identifying preferred buyers, and working towards certification. This sort of collective action may involve institutional development and can give producers more power as well as reducing costs and risks thereby resulting in higher revenues. The two types of contractualisation are often mutually dependent. Contractualisation and upgrading are also interlinked, potentially resulting in a system that benefits all chain actors. For example, if a supplier is able to buy consistently good quality produce, it will be easier for them to achieve higher prices when they sell the product on to the next actor in the chain.

Riisgaard et al (2010) developed a simple model to demonstrate how contractualisation and vertical integration, along with upgrading, can facilitate the strengthening of the value chain (Figure 3). This

model will be used to frame potential interventions that could be made to maximise the economic potential of korerima.

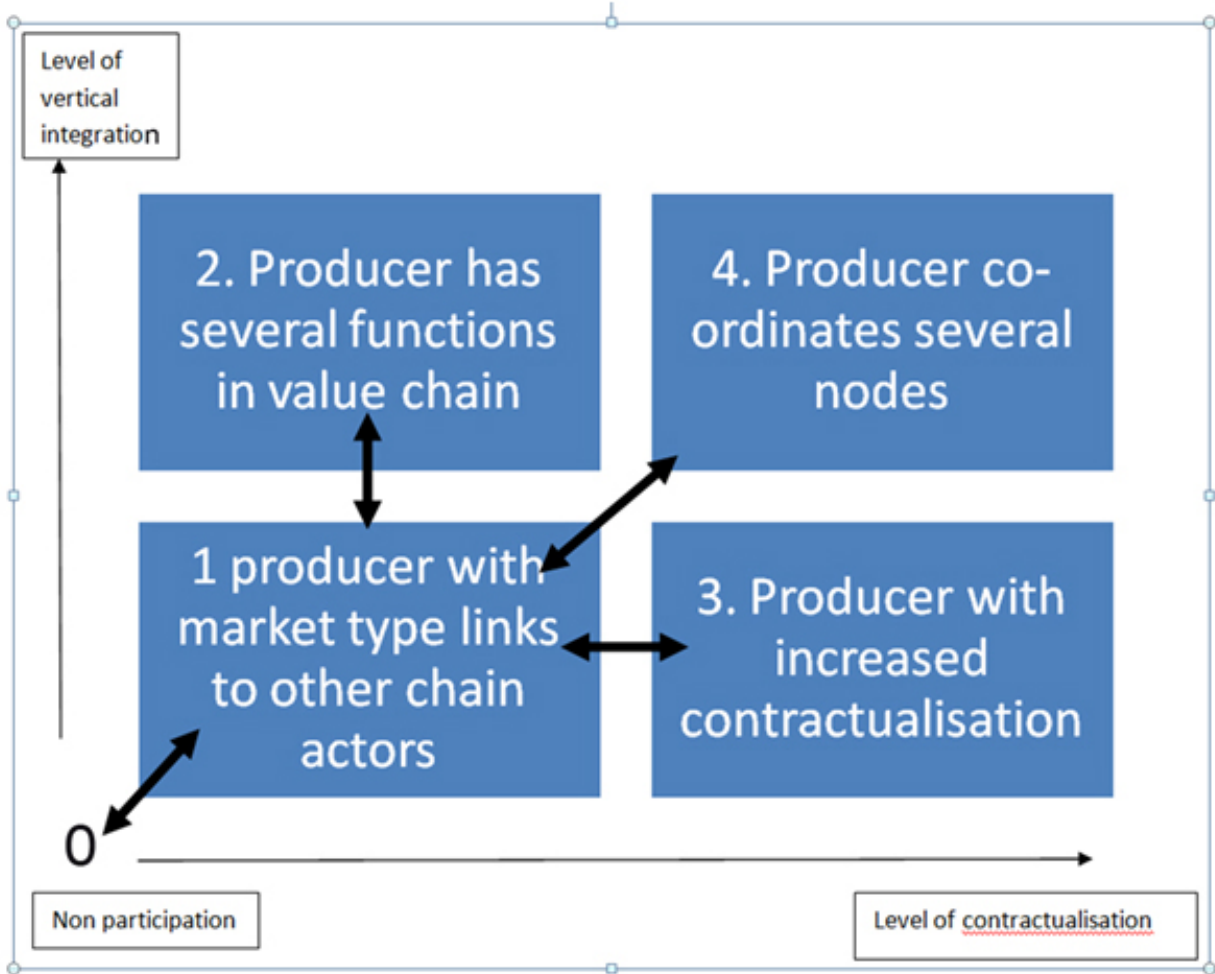


Figure 3: Forms of Coordination Matrix (Riisgaard et al, 2010).

The NTFP-PFM project has been working with communities and with government stakeholders in the project area for nearly eight years with the overarching aim of applying PFM with forest enterprise development in order to maintain the forest, improve the livelihoods of the forest fringe communities and ensure wider environmental benefits. During this time the PFM work has led to forest management

being undertaken at the lowest possible level of the 'gote' (below the kebele) where community PFM groups are being legalised as members of a district (woreda) level PFM Association. This association has significant political power and acts on behalf of all forest communities. At appropriate levels between the gote and wereda marketing institutions are being formed for enterprise development, including new private limited companies and cooperatives, which seek to encourage the development of forest based NTFP enterprises. (Timber based enterprises are illegal at present.)

a) Entering the Chain

The most fundamental part of the model (Figure 3) involves entering the value chain (0-1). In order to maximise the value of the forest and its produce to local communities the PFM-NTFP project sought to explore how people can be encouraged into the korerima value chain either by finding more economically feasible methods of harvesting from the forest, or by growing the spice in their back yards.

Regulating and Managing Forest Access

The action research project proposes to assess the potential of forest based production in order to identify sites with good potential for production. This feeds into a strategy on how to manage and harvest korerima in sustainable ways under forest-based production systems. Critical for this is ending the open access arrangements in the forest by introducing Participatory Forest Management (PFM). PFM would mean communities having access rights to specific areas of forest. The communities would be supported in the management of their forest resources in ways to sustain the forest whilst simultaneously maximising forest based income and hence forest value. Forest producer groups could be established under existing and forthcoming Forest Management Associations (FMA). The FMAs

would be charged with managing access rights and the producer groups would work to enhance korerima production in the forest. The work of the NTFP-PFM with stakeholders in the study areas to introduce and develop participatory forest management has finally been successful and community control over the forests is being legalised in early 2012. This provides a legal basis for ending open access and developing community or individually managed korerima production within the forest under controlled access conditions.

Encourage Domestication

Although domesticated production of korerima does not directly add value to the forest, associated activities designed to support domestication would have knock-on benefits in terms of production volumes and more viable marketing. The interventions here have included the identification of community members interested in growing korerima and providing training for them. This has involved drawing on the success stories of producers from outside the project area in Gemu, Bench Maji and Kaffa zones of SNNPRS. Domestication could be supported by the Forest Management Associations who could be 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 domesticators. The added volumes of korerima that this would generate would help producers to command more control in marketing exchanges.

A further possible intervention would be the use of forest edges for domesticated korerima (where baboon damage is less) so that a zone of korerima production would act as a forest fringe barrier to forest clearance.

b) Adding Value by taking on more functions

Moving from quadrant 1 to 2 could involve the producers, individually or together, taking on more functions. In the study area this might mean harvesters and domesticators cleaning, drying, storing and transporting the product themselves or in groups through the cooperatives and private limited companies. The project proposes to provide training on sustainable management, harvesting and post harvest handling techniques of forest and domesticated korerima to producer groups at the gote² level and to members of cooperatives and PLCs. This will involve the selection of suitable sites for drying and storing the products using locally available materials.

Raising the quality of the product will not be enough to enhance its value as there is no price premium attached to good quality korerima in the project area. Hence, there is a further need to raise awareness of local traders on quality production systems and their benefits and how this might result in financial gain for themselves. For example training could be given on how they manage the produce so quality is further enhanced through appropriate drying, cleaning and storage techniques. Such initiatives would need to be supported by greater awareness of quality further downstream in the chain.

Further value could be added if additional processing can be achieved. The project is exploring the availability of mechanical technologies for threshing seeds, simultaneously enhancing the product and reducing transport costs. This would allow the PLCs or cooperatives 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 (Ponte et al, 2004; Taylor et al, 2005; Forero and Redclift, 2007; Reed, 2009).

c) Increasing Contractualisation

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

Moving from quadrant 1 to 3 would mean the 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 led to the identification of a preferred arrangement for forest management and trade through which small scale producers, entrepreneurs and micro-traders can engage efficiently with the market. This preferred arrangement centres 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 new groups of forest fringe dwellers are developing cooperatives to trade in forest products (although this is dependent on the new Ethiopian forest policy being approved³). While facilitating joint marketing of produce with economies of scale, PLCs could also be the legal basis for applications for micro-credit with consequent improved access to materials for drying and storage. The intention would then be to supply the upgraded product directly to wholesalers in Addis and to explore possibilities for further upgrading the product through certification.

Further economies of scale could also be achieved with respect to regulation and licencing, which are discussed below, in the 'crosscutting' strategy section.

c) Co-ordinating Chain Segments

³ This has been a matter of engagement by the project team with the regional government for some 4 years. A new forest policy has now been approved by the regional government and detailed guidelines are being developed in 2012 which will support the sustainable use of a range of forest products.

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

d) Cross-Cutting Strategies

Riisgaard et al (2010) proposed the notion of 'crosscutting' strategies which cannot be compartmentalised into the various sections of their main model. These strategies can include major changes in the international and national business environments that potentially could have an effect on a particular value chain. The most often discussed example, is that of the UK's Soil Association's proposal to refuse organic certification to air freighted produce, thus potentially decimating many producers in Africa (Gibbon et al, 2007). However such strategies might also include 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. The project team have been liaising with government for some four years and a new forest policy has now been approved by the regional government. Detailed guidelines are currently being developed which will support the sustainable use of a range of forest products.

The Ethiopian government favours the use of cooperatives and this should help the producers gain access to credit from government institutions. Thus the organisational interventions being supported by the project should facilitate access to credit and so also help the producers obtain funds with which to buy inputs, notably the materials to make drying racks.

Licensing, as another aspect of regulation is more problematic. Recently trade licensing has proliferated, and multiple licences are now required for all different products and for the processing of products. From an overall perspective the formation of cooperatives and PLCs should reduce the number of licenses needed for a given volume of trade but the need for multiple licences cannot be overcome.

While roads are limited in the project area, and the conditions of some roads are deteriorating, the main connections out of the project area to Addis Ababa are being improved and will soon be tarmac. Also within the project area mobile phone coverage has been started, although this will only be along the major roads where the mobile phone towers are constructed. This will help communication between actors in the chain which could have major positive impacts (Muto and Yamano, 2009; 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. Chitundu et al, (2009) consider the success of a cassava project to be strongly related to the coordinating role of the Zambian cassava task force which was established to pull together all aspects of the interventions, and EPOSPEA could model their approach on such past successes.

The Ethiopian Institute of Agricultural Research (EIAR) is also key to some of the proposed interventions, primarily through its work with the specialist spice research centre in Tepi.

A key problem is the governance of the value chain, and the recently established Ethiopian Commodity Exchange could play an important role in connecting value chain actors in a more transparent, efficient and reliable manner. It has the potential to define rules of trading, warehousing, payments, delivery and business conduct and could provide market integrity to the product, although this might be somewhat idealistic.

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 such that 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).

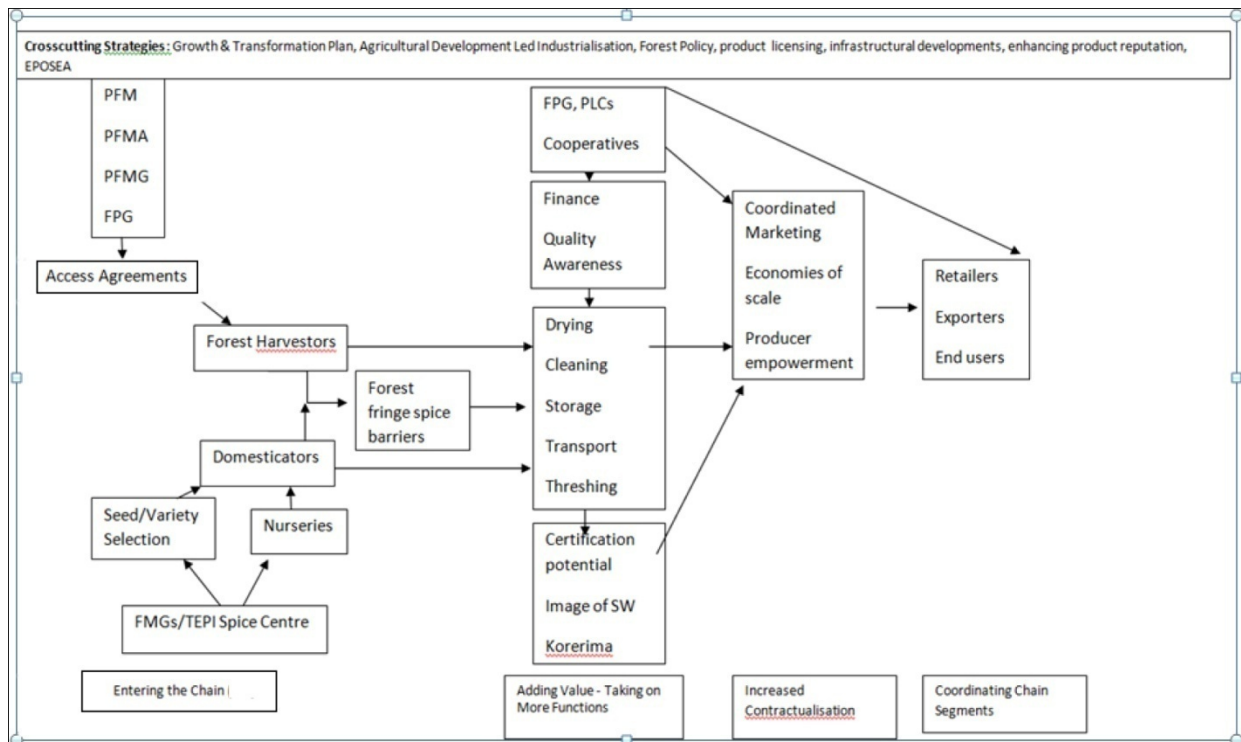


Figure 4 Proposed Interventions

These potential interventions all concur with global practice and it would be tempting, like many projects before to implement them swiftly so change can commence. However this rushing from step 3 to step 5 has been criticised in the literature. Such action, while well intended, could backfire and Lee et al (1997) argue that insufficient attention has been placed on the potential unintended consequences of interventions in value chains. Such interventions are likely to have a range of implications for individuals and groups of individuals and it is therefore important to assess their potential impacts, in environmental, poverty reduction and gender terms, before they are actioned.

5 Step 4. Assessment of Solutions

The superficial selection and application of interventions has been criticised widely in the literature because it results in little focus on Bolwig et al's (2010) 'horizontal' aspects of value chains. Humphrey and Navas-Aleman (2010) in a review of 30 case studies, 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'. Henricksen et al,(2010) argue that both generic and gender focussed value chain interventions thus far have lacked robust evidence of the actual impacts on gender and argue, that any analysis must go beyond simply assessing the number of women involved in the chain and should consider relative bargaining power in relation to other chain actors and intra-household gender dynamics. The environmental dimensions of agro-industry are also rarely thoroughly explored in the context of value chains (Donald, 2004) and as a consequence, subtle relationships are overlooked. Thus, there is a growing consensus that any value chain analysis should involve significant research into 'horizontal' aspects before progressing from Ashley and Mitchell's (2008) Step 3 to Step 5, when the interventions are selected.

The NTFP-PFM Project team is conscious of these criticisms and is exploring the potential consequences of the possible interventions to address the pressure points identified. However, assessing the proposed solutions 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 for the targeted communities as it is likely to increase and diversify household income, while simultaneously making a contribution to protecting the forest from agriculture clearance because of the way spice production can add value to the forest. The intention is not to encourage households and individuals to engage solely in korerima collection and production, but to add it to their portfolios of marketable activities. This could help households protect themselves from market shocks and seasonal variations in income. However, just reviewing interventions in terms of household incomes is not enough and more focus should be on how

such interventions might also expose the same actors to various risks or what environmental impacts could result (Bolwig et al, 2010).

The risks of forest harvesting could be lessened through developing the property rights to common forest resources which PFM provides. This security of access should promote good husbandry and sustainable use. If, through PFM, property rights to specific areas of forest, or forest products, can be assigned to groups of harvesters who work together, rather than in competition, risks – such as competitive early harvesting, would be lessened. In addition, it might be possible for harvesting groups to include women, thus opening up economic opportunities for them. However, assigning individual property rights to common forest resources within community-based PFM may be problematic. There is a need for greater understanding on how these rights are granted and this involves analysis of the power dynamics in the communities. For example, rights might be allocated to the more powerful and less vulnerable members of the community leading to greater inequality and social exclusion. Rights to harvest would also have to be managed carefully so that any deterioration to the spice resources is avoided.

Interventions to support the domestication and home garden production of korerima could, and already do, benefit women. The management of backyard production could be complimentary to their other tasks and could encourage female involvement in the value chain. Further, adding value to the produce through cleaning, drying and packaging could also help to create opportunities for women. However, the gender rules and roles of the community need to be explored to avoid potential unforeseen consequences. One potential unintended consequence could be that women become more tied to their homes, reinforcing unequal gender power balances in the communities. Women's participation in the supply channel might also upset existing community connections such as reciprocal arrangements between women, or kinship care arrangements. The project therefore needs to find out more about the

households, their resources and gender balances, as well as engaging women and minority groups in discussions, before committing to the possible interventions that might lead to consequential problems.

The marketing interventions to date largely focus on the PLCs and cooperatives 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 to 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, and how these can be improved through training and mentoring.

There is a focus in the literature of the role of lead firms in the value chain. At present there is no lead firm involved in the korerima value chain, but this may change as the government's spice strategy could well encourage corporate involvement. Chitundu et al (2009) concur that successful value chain interventions require the identification of a sizable and broad based commercial opportunity and believe there is a strong role for 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).

A potentially significant unintended consequence concerns the impacts on the local traders who currently buy korerima directly from the producers. The PFM strategy, with its emphasis on PLCs and cooperatives in order to obtain the benefits of collaboration and economies of scale to reach closer to the producers, could eliminate some of these actors from the value chain. Although these are not the target group for the project, they could lose out significantly and act in ways which would make the new

arrangements less viable. The project therefore needs to consider its responsibility for these chain actors. This will require having a greater understanding of their resilience and the 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 as has been reported for other projects (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 of this in his study of coffee systems in Indonesia.

It is also important to understand how and why communities and individuals respond to these interventions (Rich et al, 2010). The project needs to have insight into the various incentives and disincentives of adopting the value chain solutions. Adoption is likely to be influenced by an individual's own socio-economic situation and could vary significantly within the community. It is important that the assessment of potential interventions takes these issues into account. Further, there is a need for all concerned 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.

6. Lessons for Steps 5 and 6

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' and interventions to address these have been identified (ACP, 2010). However, they have not been robustly tested and the authors of this paper are concerned that these proposed interventions are derived from a purely economic perspective and largely ignore social and environmental factors. If the potential issues discussed above are dismissed, then the interventions planned by the project and government, while well intentioned, might not deliver the intended economic gains, and, from an environmental, livelihood and social perspective, might even make things worse.

The project is now exploring the potential solutions for the korerima value chain pressure points which the analysis has identified and is bearing in mind the various gender, equity and environmental considerations. It also has to ensure that adequate performance measures are in place. A key aspect of this will be the forest status monitoring which will be the responsibility of the community level PFM groups. Their work will be coordinated at the district level by the wereda PFM Association, made up of the community PFM groups, who are overall responsible for maintaining the forest and reporting the status to the government. Monitoring on the economic performance of the PLCs and Cooperatives will occur through their profitability and growth in turnover, although some socio-economic aspects may be more difficult to judge because of the vested interest of the economic elite. There is, however, at present a major focus at present on building democratic processes in the PFM, PLCs and Cooperative organisations through awareness raising and secret voting procedures which may help the majority prevent elite capture of these organisations.

7. Conclusions and Reflections

This paper shows that value chain analysis can be developed to identify solutions to pressure points and that these potential interventions can and should be analysed bearing in mind various criteria. One

reason why potential interventions are not routinely assessed against horizontal aspects is because it is difficult and time consuming. The experience of the project team concurs with the assertion of Rich et al's (2011) that while the guidelines on value chain analysis can aid the identification of interventions and policy alternatives, there is a need for more work regarding the evaluation of these options. While the Bolwig et al (2010) framework is useful for identifying issues that need to be considered, actually how to do this is problematic. The toolkit proffered by Riisgaard et al (2010) addresses these concerns, but because it is such a new approach, there are very few empirical studies that can be used as templates of good practice. Increasingly authors stress the importance of participatory and gendered problem identification and prioritisation within the context of the value chain and suggest methods to achieve this including environmental impact assessment, life cycle analysis, gender analysis inequality, vulnerability and marginalisation assessments, using focus groups, participatory mapping and diagramming and livelihood analysis (e.g. Tallontire et al, 2005; Rubin et al, K. 2009.). The aim of these methods of analysing potential interventions is to facilitate dialogue and mutual accountability between actors so as to promote equity and empowerment of the most vulnerable actors (Mayoux, 2003) and to ensure social, economic and environmental sustainability in these enterprises.

The NTFP-PFM project team's experience provides one example of a participatory approach using a combination of these methodologies to progress value chain analysis. However, this is time consuming and the findings are likely to be area and community specific. Nonetheless, , the team hope that the experiences with 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 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. It is also hoped that the experience of this project can encourage others to test the ideas of Bolwig et al (2010) and Riisgaard et al (2010) so that a better framework for taking forward value chain analysis and the interventions identified therein can be developed.

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