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PART 2 - VALUE CHAIN ANALYSIS TOOLS

GENERAL TOOLS

Tool 1 - Prioritising Value Chains for Analysis

Contents

Tool 1 - Prioritising Value Chains for Analysis

1. Introduction

Prior to starting a value chain analysis it is necessary to decide which sub-sectors, products or commodities should be prioritised for analysis. As resources for undertaking analyses will invariably be limited, it is important to identify appropriate value chains for analysis and follow up activities.

2. Objectives

To involve value chain actors in the learning process and select a limited number of value chains to be analysed.

3. Key Questions

1. What are the key criteria on which to base the selection of value chains to be analysed?
2. Which value chains are most appropriate to analyse?

Participants in assessment of value chain priority

Participants involved in this exercise should have a common understanding of the value chain's development in the region. It may be helpful to carry out a pre-evaluation by visiting sub-sectors, product or commodity partners to identify representatives, actors and/or key informants to ensure that the participants have (i) relevant knowledge and (ii) adequate representation on the value chains. It is advisable to keep participant numbers small. Likely participants are local policy and decision makers, farmers, private sector actors, service providers, development organisations and community representatives.

4. Steps

The prioritising process follows four steps that are common to processes of making allocation choices under a situation of scarce resources. The final priority can be determined on the basis of the ranking obtained. For each of the following steps, two methodologies will be proposed; a rigorous participatory methodology and a less rigorous methodology that could be adopted if time and resources are limited or participatory methods are not appropriate.

Step 1   Determine criteria and build understanding of priorities

Value chain analysis starts with the selection of a value chain. As the key entry point of the value chain analyses proposed in this toolbook is poverty alleviation and achieving pro-poor outcomes, the criteria selected would reflect this entry point. The first step is to make considerations of the priorities in the ranking of a potential value chain. These can include the following integrated criteria:

(1)   Potential of the value chains to improve livelihoods of the poor people;

- Present integration of the poor in the market (what are they producing, selling, employment)
- Potential of the product/activity for poverty reduction
- Potential for labour intensive technology
- Low barriers to entry for the poor (capital, knowledge)
- Low risk
- Poverty incidence and/or absolute poverty figures

(2) Market potential

- Strong domestic and/or international demand for the product
- Growth potential of certain products/activities
- Possibility for scaling up
- Potential for leveraging public investment with private investment
- Involves a large number of people

(3) Other criteria, such as

- The value chain actors have entrepreneurial capacity to achieve improvement.
- Environmental sustainability
- Within framework of national and regional strategies
- Social inclusion and gender

Take Note

These are not the only criteria that could give a pro-poor outcome, and the list above should be viewed as a starting point for deciding which criteria to use. The criteria used will vary according to the local conditions and situation.

If time and resources permit, then the decision of which specific criteria to use for value chain selection should be made in a participatory manner, with discussions among participants as to which criteria are most relevant for the local conditions and requirements of the analysis. This serves to increase ownership of the process and also can strengthen common understanding among participants in identifying the potential value chains for the final selection. Once selection of the criteria is agreed upon, participants should move to weighting of the criteria (Step 2).

If time and resources are limited, or it is not possible to undertake a participatory process of criteria development, then pre-selecting a smaller set of criteria for value chain selection prior to the participatory meeting should be considered. These could take the form of the first two integrated criteria discussed above - in other words the two selection criteria would be (i) potential for improvements of the livelihood of the poor and (ii) market potential.

Step 2 Weighting of criteria

Some of the criteria will probably be considered to have a higher level of importance in the decision making process and so should have a greater influence on the ranking of value chains.

Weightings are commonly assigned in two main ways:

1. Simple numeric– for example, 1, 2, 3 or 4 - where the relative importance of criteria is in direct proportion to the numeric weighting. This means that a criterion with a weighting of 4 is considered to be twice as important as a criterion with a weighting of 2, and 4 times as important as a weighting of 1.

2. Proportional, where all of the criteria have a combined weighting of 100 %, and the relative importance of each criteria is reflected in the proportion of the total weighting that is assigned to that criteria. For example, if there are three criteria, then they could be weighted as Criteria 1 (50%); Criteria 2 (30%) and Criteria 3 (20%).

Take Note

Regardless of which weighting system is used, a rough rule is that the more pro-poor you wish the selection of value chain to be, the higher the weighting that should be given to the criteria that emphasise pro-poor characteristics.

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If time and resources permit, deciding on the weighting of the various criteria should be undertaken in a participatory manner, with inclusion of all participants in the decision making process. As was the case with the selection of criteria, this is important in building ownership of the process and increasing understanding of the reason for value chain selection. However, if time and resources are limited then the weightings for various criteria can also be pre-determined prior to a participatory identification process.

Step 3 Identifying a list of potential products/activities

Once the criteria for selecting the value chain to analyse have been chosen and weighted, the next step is to make a list of all the potential value chains/ products/commodities in the geographic area under consideration. This list could be developed in a participatory manner with actors, who may or may not be the same as the actors who developed the criteria in Step 1. The value chains identified are usually based on products that are already produced in the area, products which are technically feasible to produce in the area, products which have a pro-poor focus, or products that are judged to have a good market (local, regional, national or international market).

The participants then discuss and share their understanding of the potential value chains identified and agree to make the list.

Box 1: List of potential value chains in Son La, Vietnam

The range of value chains identified may be quite broad. A value chain exercise conducted by the SNV Market Access for the Poor Program in Son La Province, Viet Nam identified the following value chains as having potential:

Mushroom	Longan	Mong apple
Local rice	Pumpkin	Village pig
Bamboo shoots	Medicinal plants	Honey
Handicrafts	Maize	

Source: (Boomsma 2006)

Take Note

The participatory process of identifying potential value chains can often result in a large number of potential chains being identified. To increase the efficiency of the value chain ranking undertaken in Step 4, it is advisable to reduce this "long list" of potential value chains to a "short list" of a more manageable size (potentially between three and six chains). The case study presented in the Useful Examples section of this tool demonstrates how this can be done.

Step 4 Ranking of products/activities

A set of criteria can be developed to differentiate between potential value chains depending on the purpose of the analysis. For example, Table 3 shows some criteria used by the International Finance Corporation Mekong Private Sector Development Facility (IFC/MPDF) in evaluating potential value chains, while Table 4 shows alternative criteria used by the National Economic and Social Development Board of Thailand in selecting value chains for further study and development

Once the criteria have been agreed upon, relative weightings of importance can be attached to each of them. For example, it may be decided that "Poverty and Sustainability" is more important than "Structure of Chain", so that the sub-criteria under the first of these two categories are worth 70% of the total score.

Once the weightings have been determined, then a matrix for ranking the value chains can be constructed; see Table 5.

Once the matrix is made, participants then rank each value chain on how well it matches the criteria. A common way of doing this is to have a numeric ranking of 1 to 5, where 5 can represent the maximum compliance with the criteria and 1 represents a minimum compliance; see Example 1. The assignment of the numeric scores can be done in a number of ways, including gathering numeric rankings from all participants in the actor group and then making a simple average.

Table 3: MPDF sub-sector selection criteria for value chain identification

Positive	Negative
• Multi-country potential • Reliable existing data available • Opportunities for cooperation with other development agencies and NGOs • Potential to attract additional funding • Links to strong private sector demand • IFC clients or interests • MPDF already has knowledge or expertise in the sub-sector • Impact potential: large workforce, low income, importance to the economy etc. • Presents expansion and replication opportunities	• No clear MPDF role • "Overcrowded" • Previous negative experience • Risk, reputation • Impact time frame too long • Insufficient resources

Source: MPDF

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Table 4: NESDB sub-sector selection criteria for value chain identification

Criteria	Sub-Criteria
Poverty and Sustainability	Availability of natural resources; Sustainable development Within framework of national and regional strategies (Clusters, OTOP – one town one product) Potential for labour intensive technology Number of people involved in industry (Poor people) Future potential
Structure of Chain	Extent of value adding potential (Profitability, Stability) Number of different products produced Length of marketing chain; Number of intermediaries Maturity of industry in region Marketing potential Lack of previous research Data availability Potential for "Lessons Learned" / Replication of mechanisms

Source: (NESDB 2004)

Table 5:   Matrix ranking of products by scoring

Criteria	Weighting (%)	Value Chain 1	Value Chain 2	Value Chain 3
Criteria 1	50 %			
Criteria 2	15 %			
Criteria 3	20 %			
Criteria 4	15 %			

Take Note

If there are a large number of criteria, participants, or value chains, more data is generated by the ranking process. Allow enough time to calculate the final rankings.

5. What Should be Known after Analysis is Complete

After completing these four steps, one should have a thorough understanding of the potential value chain development in the region and which value chains have a high pro-poor potential and market demand.

From experience we can say that, in general, value chains which call for:
- high levels of investment
- use high levels of knowledge and technology
- demand for high risk taking strategies are not pro-poor.

Useful Examples

Example 1: Value chain selection in Thailand.

A participatory priority setting exercise was carried out with staff from the National Economic and Social Development Board of Thailand (NESDB) staff and the North-East Economic Development Project (NEED) Steering Committee (NESDB 2004). Six commodities (rice, cassava, rubber, beef, silk, and broilers) were evaluated against 13 criteria; five criteria addressing the dimension of poverty alleviation and sustainability against the backdrop of the national strategies, and eight criteria addressing the dimension of the value chain structure.

Once the criteria were defined by the Steering Committee, the commodities were ranked against each criterion. Each commodity was ranked in relation to the other commodities. In this example there were six commodities and therefore a score of 6 meant that the particular commodity best met that criterion, and a score of 1 meant that the commodity did not meet that criterion.

Each criterion was evaluated through consensus of the Steering Committee. Once each criterion was evaluated, a simple average score was calculated, and the commodities ranked accordingly; see Table 6 below.

The results of the priority setting exercise indicated that silk and rice were the two commodities most appropriate for study under the pilot project.

Table 6: Participatory commodity priority setting exercise results

Dimension	Criteria	Rice	Cassava	Rubber	Beef	Silk	Broilers
Poerty and Sustainability	Availability of natural resources; Sustainable development	4	1	2	5	6	3
	Within framework of national and regional strategies (Clusters, OTOP — one town one product)	4	2	5	1	6	3
	Potential for labour intensive technology	4	3	5	1	6	2
	Number of people involved in industry (Poor people)	6	5	1	2	4	3
	Future potential	3	2	6	1	5	4
	Sub-Total Poverty and Sustainability	4.2	2.6	3.8	2.0	5.4	3.0
Structure of Chain	Extent of value adding potential (Profitability, Stability	3	2	5	1	6	4
	Number of different products produced	2	5	4	1	6	3
	Length of marketing chain; Number of intermediaries	1	5	4	3	6	2
	Maturity of industry in region	5	4	1	2	6	3
	Marketing potential	4	2	3	1	6	5
	Lack of previous research	1	4	5	6	3	2
	Data availability	6	4	1	2	3	5
	Potential for "Lessons Learned" / Replication of mechanisms	5	3	2	1	6	4
	Subtotal Chain Structure	3.4	3.6	3.1	2.1	5.2	3.5
	Ranking	3.8	3.2	3.4	2.1	5.3	3.3

Source: (NESDB 2004)

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Tool 2 - Mapping the Value Chain

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Tool 2 - Mapping the Value Chain

1. Introduction

After initial selection of value chains is complete (Tool 1), the next step is to map the value chain. This is a vital step in guiding the analysis of selected value chains. This chapter provides the tools and examples on how to capture the different dimensions of a value chain. To understand the value chain that is to be analysed, models, tables, figures and diagrams are used: 'A picture is worth a thousand words'. Making a value chain map is a way of making what is seen and encountered more easily understood. This chapter provides tools and examples on how to capture the different dimensions of a value chain.

2. Objectives

Mapping the value chain has a number of objectives:

- Gain a basic overview of the value chain to guide the full value chain analysis to be undertaken
- Identify constraints and possible solutions at different levels in the value chain
- Identify the location and position of the poor in the value chain
- Visualise networks to get a better understanding of connections between actors and processes
- Demonstrate interdependency between actors and processes in the value chain
- Create awareness of actors to look beyond their own involvement in the value chain

3. Key Questions

There is no such thing as a comprehensive, all-encompassing value chain map. There are many potential dimensions of the value chain that could be included in an initial mapping exercise: the product flows, the actors involved in the chain, costs and margins at different levels, etc. Therefore it is crucial to choose which dimensions are to be mapped, based on the available resources, the scope and objective of the value chain analysis and the mandate of the organisation.

The following questions can guide what dimensions to map:

- What are the core processes in the value chain?
- Who are the actors involved in these processes and what do they actually do?
- What are the flows of product, information and knowledge in the value chain?
- What is the volume of products, the number of actors and jobs?
- Where does the product (or service) originate from and where does it go?
- How does the value change along the chain?
- What types of relationships and linkages exist?
- What types of services are feeding into the chain?
- What is the location and position of the poor in the value chain?
- What key constraints exist at various levels in the chain and what are potential solutions to those constraints?
- How do products, information and knowledge flow through the value chain?

These questions will be used to provide the basis for the steps described this chapter.

> ### Take Note
>
> Many of the mapping dimensions covered in this tool are also addressed in other tools in this book. The difference lies in the depth of the analysis. The mapping tool is designed to provide an initial overview of the key aspects of the value chain. This initial overview will be used to guide the subsequent analysis of the chain, based on the later tools in this book.

In all dimensions that need to be mapped, the practitioner is to consider the position and role of the poor as actors in the value chain.

4. Steps

Step 1   Mapping the core processes in the value chain

The first question that must be asked in any value chain analysis is what the different (core) processes in the value chain are. In other words, what processes occur from inputs to raw material through to final consumption of end products?

The first step is to find the core processes in your value chain. As a rough guide, try to distinguish a maximum of six or seven major processes that the raw material goes through before it reaches the final consumption stage, including the provision of inputs to produce raw materials. These core processes will differ, depending on the characteristics of the chain you are mapping: industrial products undergo different phases compared to agro-products or services.

> ### Box 2: Example of mapping core processes
>
> One of the main products in Ninh Binh province, Vietnam is handicrafts made of sedge or sea grass. Typically, boxes or baskets are produced for export markets. As an example, the core processes in the basket export chain are as follows.
>
> | Input provision | Cultivation | Collection | Production | Export | Import | Retail |
> |---|---|---|---|---|---|---|
>
> *Source: Sedge handicrafts in Ninh Binh, SNV 2005.*

The example in Box 2 above shows a relatively simple linear value chain, with two major final products (baskets or boxes) produced from the raw material (sea grass). However, for many value chains there are more than one or two products produced from the initial raw material, each of which will follow its own set of processes to final consumption. In these cases the process map will be more complex, and involve parallel sets of processes. An example of this type of value chain is cassava, where the final product could be cassava chips for animal feed, or cassava starch for numerous end uses. Figure 5 below shows the potential complexity of a full map of value chain processes.

Figure 5: Example of mapping core processes in the cassava value chain.

This value chain demonstrates the potential complexity of a chain where there are numerous end products.
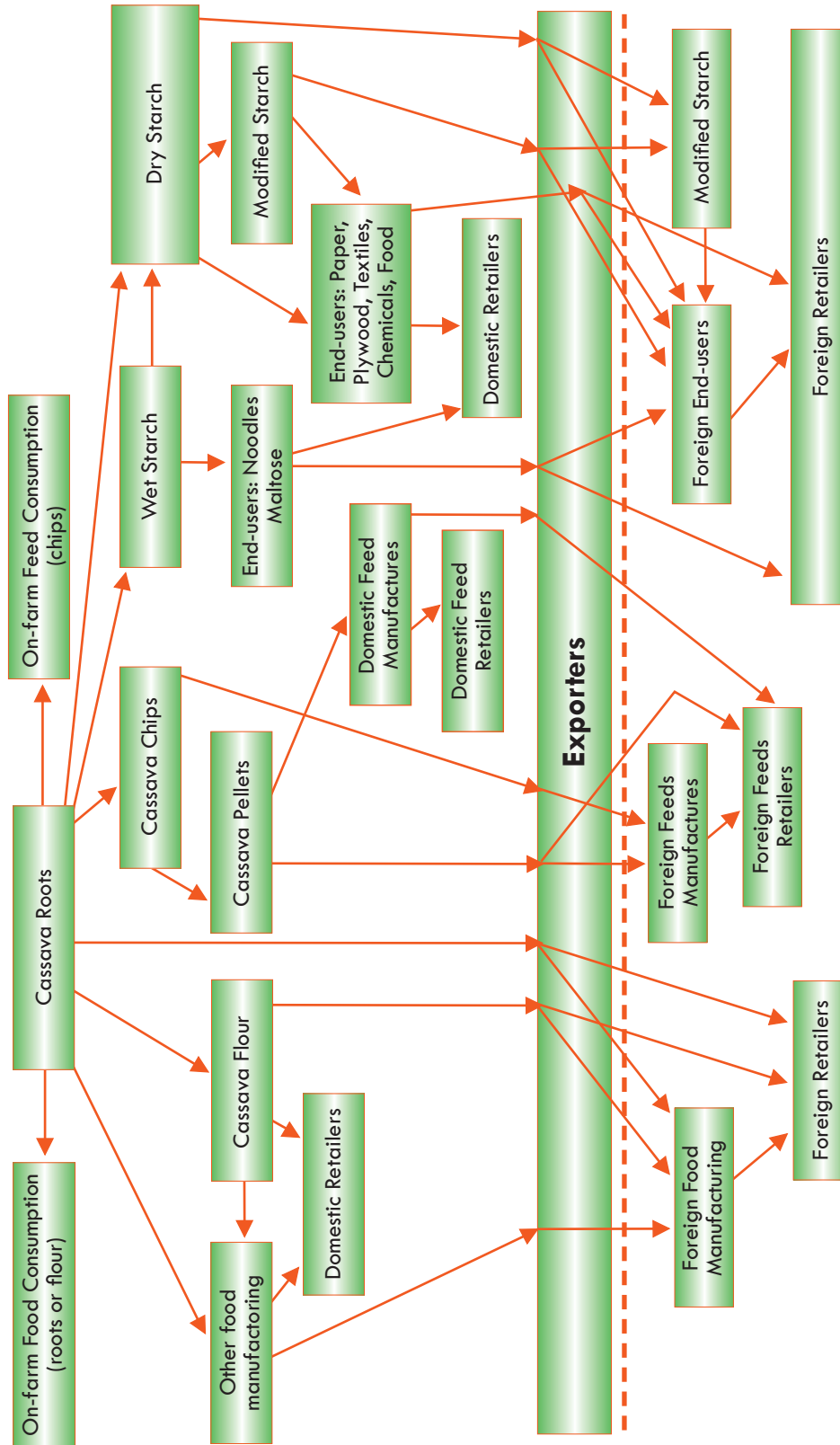
Take Note

Is the best way to view the map vertical or horizontal? Depending on the context, a choice needs to be made. There is no right or wrong. Regardless of which choice is made, try to be consistent throughout the analysis.

Source: (ADB 2005)

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Step 2 Identifying and mapping the main actors involved in the processes.

Now that the main processes are mapped, it is possible to move on to the actors - the people who are involved in the value chain. The second key question from above prompts this step: Who are the actors involved in these processes and what do they actually do?

How to distinguish between actors depends on the level of sophistication the mapping exercise is trying to reach. The most straightforward distinction would be to categorise actors according to their main occupation. For example, collectors are involved in collection, and producers are the ones that produce. This is a starting point, but does not give sufficient information. An addition would be to categorise according to different classifications, such as:

- Legal status or ownership (e.g. government, registered enterprise, cooperative, household)
- Size or scale (number of people involved, micro-small-medium sized enterprise)
- Poverty ranking
- Location (county, district, province, country)

Remember, when conducting pro-poor value chain analysis it is vital to identify the position of the poor as actors at various processes or levels in the value chain. In agricultural value chains it is often assumed that the poor are all primary producers, but in fact the poor may be involved in many other processes, either as small scale entrepreneurs or as labour.

Warning

In many value chains, especially in small or weaker markets, there is often no pure specialisation. One actor will take on several different roles. For example, a rice miller will also collect rice and act as input provider. Try to find out what the main occupation of this actor is and categorise accordingly.

Box 3: Example of mapping actors.

An example of mapping actors comes from the Mexican honey value chain from the Calakmul region to the domestic market. This map categorises actors based on legal status and scale.
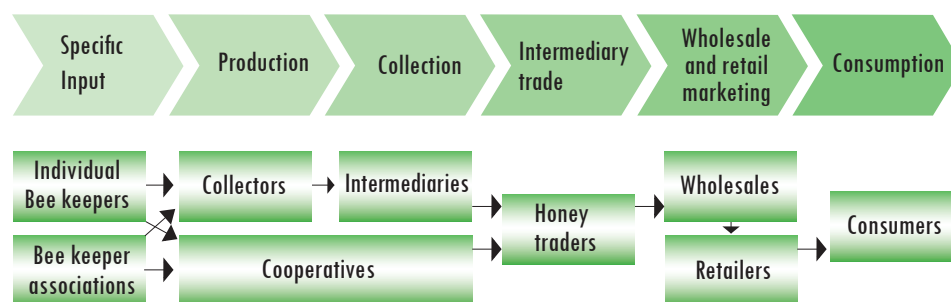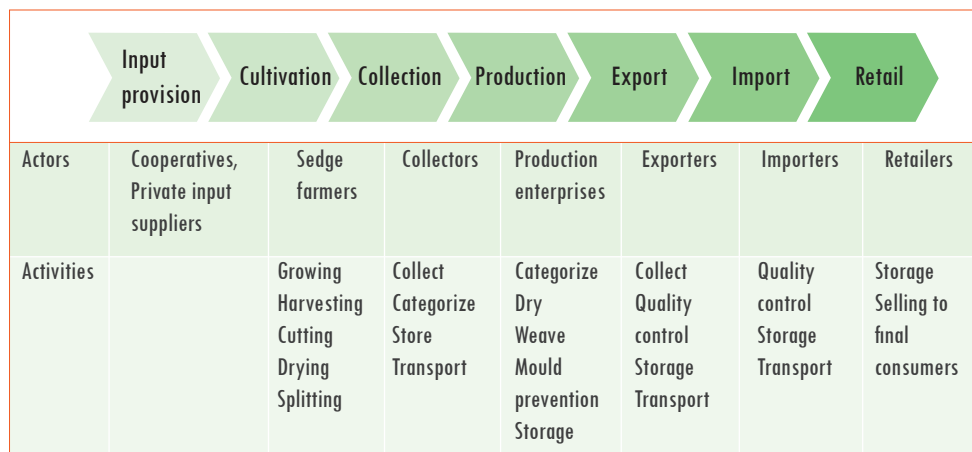

Source: A. Springer-Heinze, GTZ, 2005.

The result is a map of actors that is still fairly general. The map could be further developed by breaking down the core processes into the specific activities that are undertaken by the different actors that have been identified.

Every value chain has its own core processes and its own specific activities. The extent to which the chain is broken down to specific activities depends on the researcher's judgement. Eventually, it should result in an understanding of where there are gaps or overlapping activities, if there is a potential for upgrading, or simply a better understanding of the situation.

Box 4: Example of mapping of specific activities undertaken by actors from core processes.

The example of sedge handicraft in Vietnam is used again.

	Input provision	Cultivation	Collection	Production	Export	Import	Retail
Actors	Cooperatives, Private input suppliers	Sedge farmers	Collectors	Production enterprises	Exporters	Importers	Retailers
Activities		Growing Harvesting Cutting Drying Splitting	Collect Categorize Store Transport	Categorize Dry Weave Mould prevention Storage	Collect Quality control Storage Transport	Quality control Storage Transport	Storage Selling to final consumers

Source: (SNV 2005)

Take Note

Breaking down core processes into specific activities is useful when we turn to analysing costs, revenues and margins (see Tool 6 - Analysing Costs and Margins). The activities can be seen as the cost or profit centres of actors.

Step 3 Mapping flows of products

Once steps 1 and 2 are completed, the processes, actors and specific activities in the value chain have been mapped. The third step is to map the flows of products through the value chain. This involves identifying the products at each stage of the process as they are transformed from inputs to raw materials, to intermediate materials and to final products. Mapping these flows creates a clear picture of what forms of products are handled, transformed and transported at each process stage of the value chain. This can be quite simple with products: the stages that the tangible product goes through are simply followed, from raw material to final product. This is especially helpful if a researcher wants to know what stages are used to reach the final product.

Box 5: **Example of product flows in the pig value chain, Ben Tre Vietnam.**

Process	Inputs to sow-piglet production	Sow-piglet production	Fattening	Procurement	Processing	Consumption
Input Form		Feed, medicine, replacement sows	Weaners	Fattened pigs	Fattened pigs	Pork, offal
Output Form	Feed, veterinary medicine, replacement sows	Weaners	Fattened pigs	Fattened pigs	Pork, offal	

Step 4   Mapping knowledge and flows of information

Intangible qualities of value chains, such as information and knowledge, are generally more difficult to capture in a visual map. Be aware that these flows are often going both directions. For example: a trader tells a farmer about product requirements; a farmer gives the trader information about product availability. In **Tool 5 - Analysing Options for Demand-Driven Upgrading: Knowledge, Skills, Technology and Support Services,** tools are provided that help to track down what kind of knowledge or information flows through a value chain.
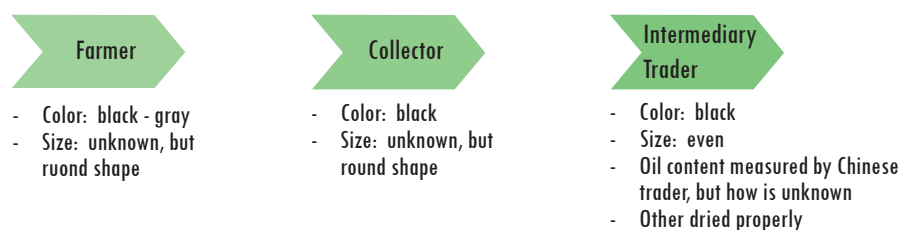
The role and position of the poor is crucial in this part of the mapping: do the poor participate in the exchange of knowledge? The example in Box 6 shows a map of the knowledge held by each actor in the value chain.

Box 6: **Example of mapping knowledge**

One of the cash crops cultivated in Northern Laos is soybean. These soybeans are mainly exported to China to be processed into animal feed or cooking oil. A crucial issue, mentioned by all actors throughout the value chain, was the inconsistent quality of the soybeans.

Mapping the knowledge proved to be a useful tool in this case. After interviewing farmers, collectors and intermediary traders (all based in Laos), it became clear that the actors had different views on what quality requirements there were and what quality really meant. A related issue was that the buyers (Chinese processing companies) had never met any of the actors on the Lao side of the border. The map looked as follows:

What are the quality requirements for 'good' soybeans?

Farmer	Collector	Intermediary Trader
- Color: black - gray - Size: unknown, but ruond shape	- Color: black - Size: unknown, but round shape	- Color: black - Size: even - Oil content measured by Chinese trader, but how is unknown - Other dried properly

Source: RDMA 2005

Mapping information involves showing the flow of information between actors at each process in the value chain, as shown in the example in Figure 6 below.

Figure 6: An example of the type of information flows

Actor	Farmer		Collector		Exporter
		◄ - - - - - - - - - - - - -		◄ - - - - - - - - - - - - -	
Type of information flow		Prices for various grades, timing of demand		International standards for product quality, demand for different grades of product	

Step 5   Mapping the volume of products, numbers of actors and jobs

Some dimensions in value chain mapping can be quantified. For example, what is the volume of products, the number of actors and the number of jobs?

The volume of products is closely related to mapping the product flow. The dimension of volume is added to following the product through the value chain. Finding out the volume of product makes it possible to have an overview of the size of the different channels within the value chain. The following examples in Box 7 and Box 8 map the volume as a proportion of the total volume of the whole sub-sector.
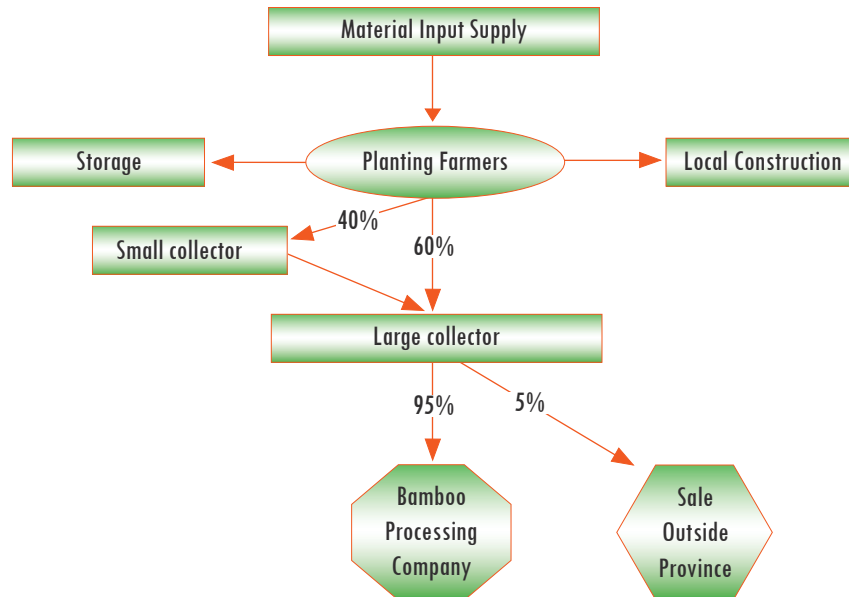
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Box 7: Example of mapping volumes.
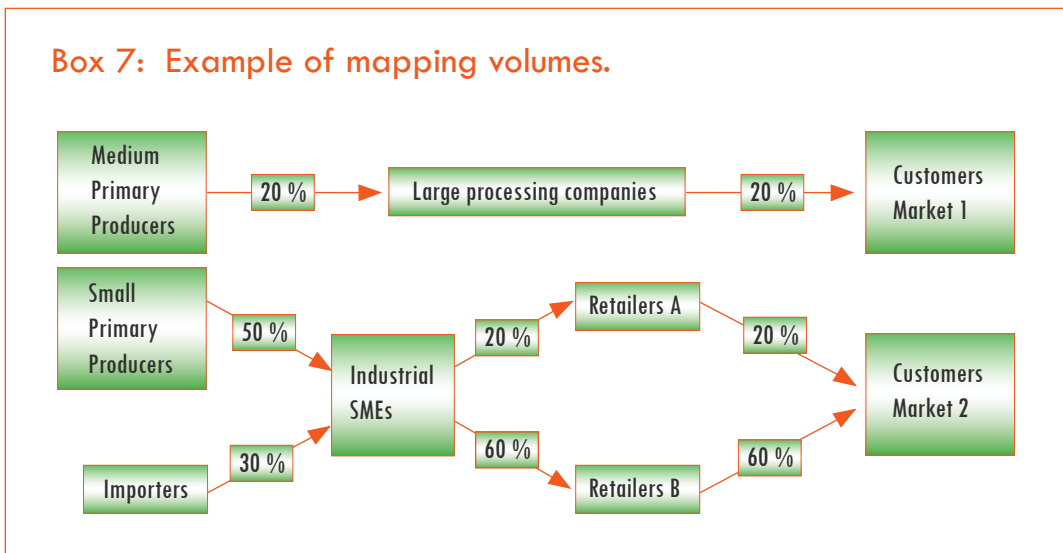
Box 8: Example of mapping volumes in a bamboo value chain.

By adding the proportional volumes of the product passing through different parts of the value chain it is possible to get an overview of the size of different parts of the chain.


Source: (IFAD, M4P et al. 2007)

Two more dimensions that are quantifiable are the number of actors and the employment opportunities they offer. These two dimensions are closely related to each other. Following on from listing the actors in Step 2 the next step is to find out the number of each type of actor. The number of poor, being a part of the actors in the different steps, is a dimension that can be covered in this stage of the analysis.
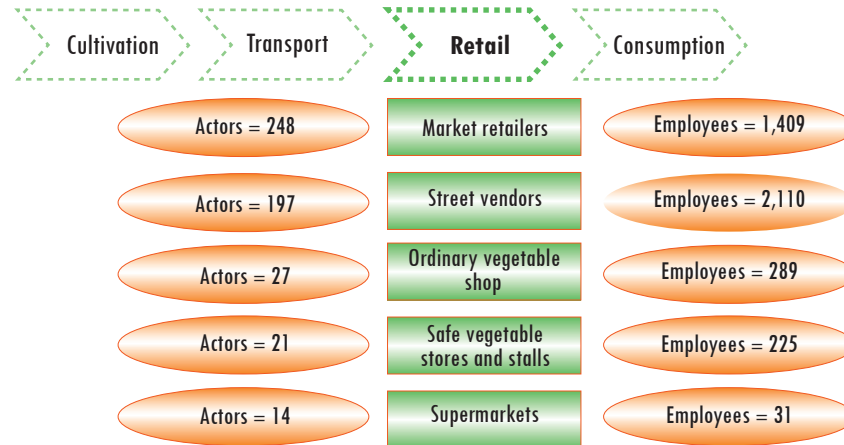
An example of volume mapping the catfish value chain in the Mekong Delta of Vietnam is presented in Box 9. In another example, Box 10 maps employment in the vegetable retail trade in Vietnam.

Box 9: An example of volume mapping in the catfish value chain

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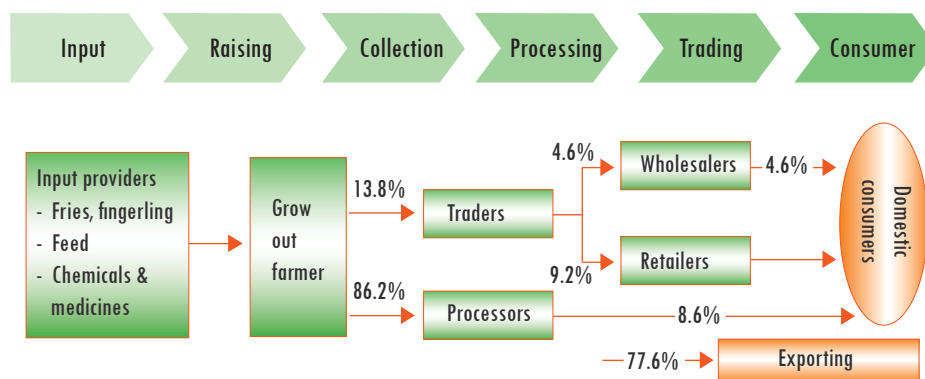
Box 10: Example of mapping the number of actors and employees involved in vegetable retail in Hanoi, Vietnam

Vegetable retail in Hanoi takes place through many channels. The following example shows that these different outlets differ in number, but also in number of employees.

Cultivation	Transport	Retail	Consumption
Actors = 248		Market retailers	Employees = 1,409
Actors = 197		Street vendors	Employees = 2,110
Actors = 27		Ordinary vegetable shop	Employees = 289
Actors = 21		Safe vegetable stores and stalls	Employees = 225
Actors = 14		Supermarkets	Employees = 31

*Adapted from: (Moustier, Anh et al. 2006, pg 200)*

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Warning

Measuring employment can be difficult, especially when part of the value chain is in the informal sector. Some problems that arise are how to count part time employment, and what constitutes full time employment. **Tool 8 – Analysing Employment Distribution** will deal with these and other matters.

Step 6   Mapping the geographical flow of the product or service

Based on the mapping of processes, actors and product flows, it is relatively straightforward to develop a geographical map, following the trail of the product or service that is to be mapped. The first step is to identify where each of the processes in the value chain are physically located (for example, where are the farms, primary processors, and secondary processors). Start at the place of origin (i.e. where it is cultivated) and see if it is possible to map how the product travels from intermediary trader to wholesaler, retailer and final consumer. If possible, a map of the region can be used to indicate the physical flow on it. Making this kind of map will make it possible to capture a dimension of the product flow (volume, margin, number of actors) and show the locational or regional differences. The picture Figure 7 below shows information about a sugar value chain transferred onto a geographical map of the province. Preparation of this map greatly facilitated the organisation of subsequent fieldwork to conduct the full value chain analysis.
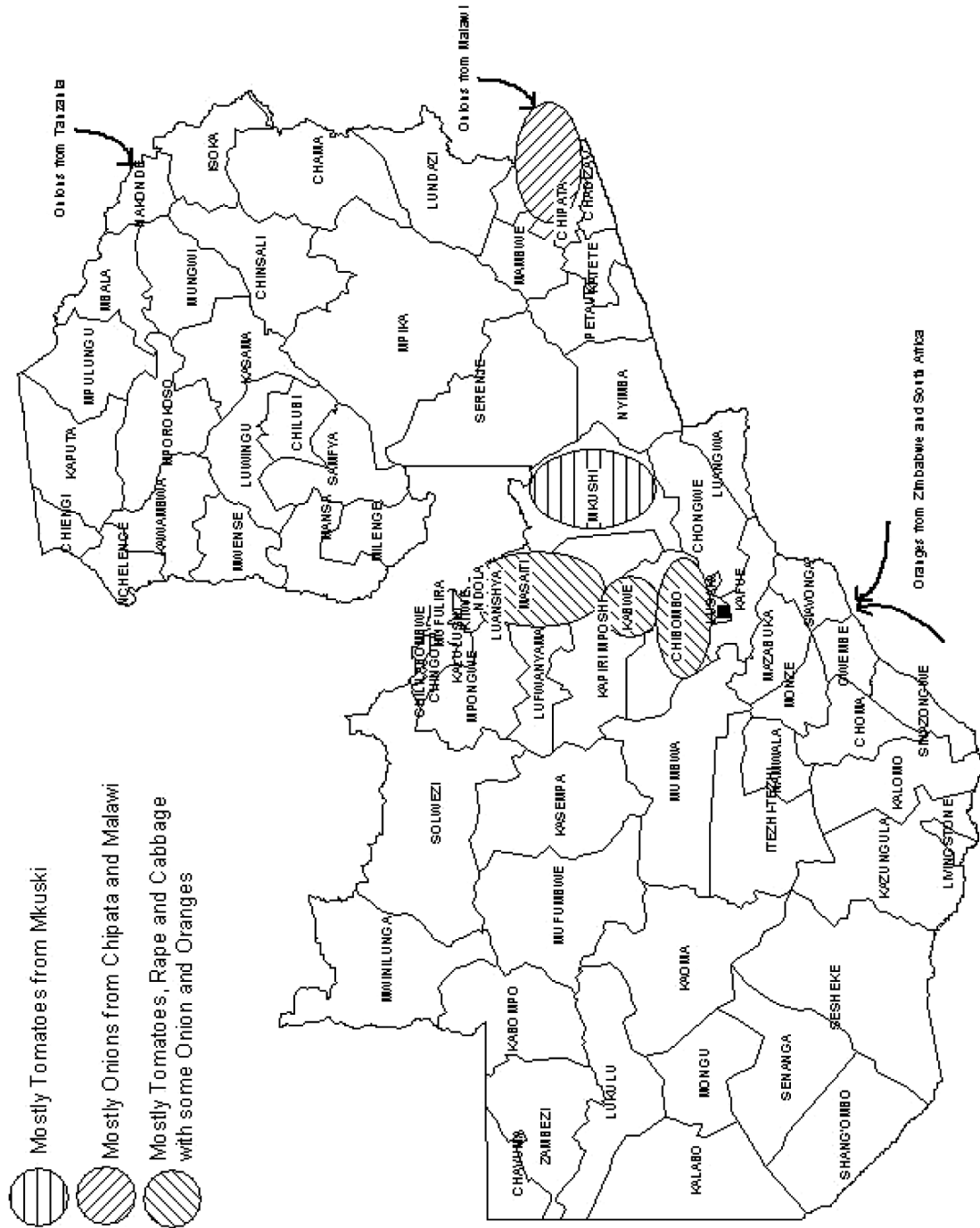
Figure 7: Example of geographical mapping of the sugar value chain.
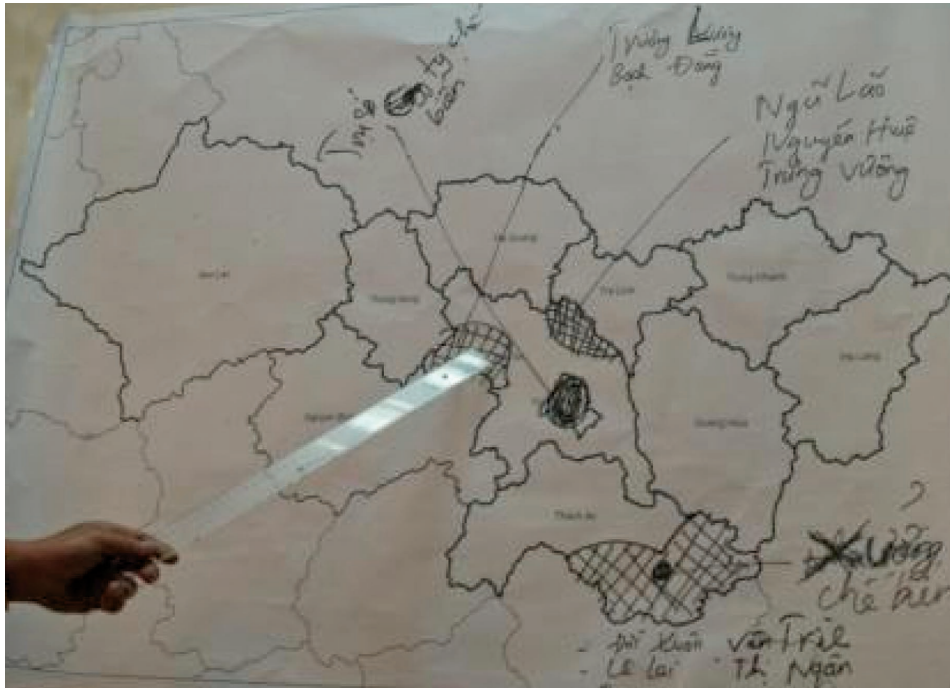
Source: Mapping Exercise for Sugar Value Chain, Cao Bang, Vietnam, (IFAD, M4P et al. 2007)

Figure 8: Example of geographical mapping of fresh produce supply in Zambia

Mostly Tomatoes from Mkuski

Mostly Onions from Chipata and Malawi

Mostly Tomatoes, Rape and Cabbage
with some Onion and Oranges

Source: (Hichaambwa and Tschirley 2006)

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Step 7   Mapping the value at different levels of the value chain.

A core element of value chain mapping is to map the monetary value throughout the chain. This is covered by the key question: How does the value change throughout the chain?

Value is something that can be measured in many ways, and this will be discussed in more detail in **Tool 6 – Analysing Costs and Margins**. The most straightforward depiction of a monetary flow would be to look at the value that is added at every step throughout the chain, providing an overview of the earnings at the different stages. Other economic parameters are, amongst others, revenue, cost structures, profit, and return on investment.

Box 11: Example of mapping value added throughout the chain.

In India, saris (women's dress) are made with handlooms. The following example is a map of the value chain in this sub-sector. The value is the price in rupees (Rs.) at which the sari is sold to the next actor in the chain.
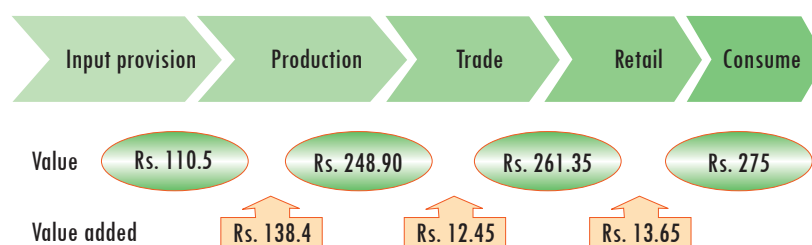
This example shows that producers (weavers) actually add the most value, both absolutely (Rs. 138.4) and relatively (125% value addition). However, this does not tell us about the profit margin of the producers. To assess that parameter, an analysis of costs needs to be made (see Tool 6 – Analysing Costs and Margins).

Source: (Padmanand and Patel 2004)

It is important to recognise that at the mapping stage of the value chain analysis very little accurate information may be known about costs, margins and profits at different process levels within the value chain. It is most likely at this stage of the analysis that only price information is known at each process level.

Step 8   Mapping relationships and linkages between value chain actors

Mapping linkages between value chain actors starts with mapping the actors in the value chain, as described in Step 2 of this tool. A next step is to analyse what kind of relationship actors have to each other. This is prompted by the following key question: What types of relationships and linkages exist?

Relationships can exist between different process steps (e.g. between producers and traders) and within the same process step (e.g. farmer to farmer). Relationships or linkages between similar actors can be mapped according to three broad categories:

1. **Spot market relations**: These are relationships that are created 'on the spot'. Actors make a transaction (including negotiations on price, volume and other requirements) with the duration and scope of that specific transaction. This is typical for transactions made at a fresh vegetable marketplace: buyer and seller meet, come to an agreement (or not) and break up the relationship. These can also be described as 'arm's length relationships'.

2. **Persistent network relations:** When actors have a preference for transacting with each other time and time again, we can speak of a persistent network relation. This comes with a higher level of trust and some level of interdependence. This relationship can be formalised by contracts, but this is not a necessity.

3. **Horizontal integration:** This goes beyond the definition of a 'relationship', since both actors share the same (legal) ownership. One and the same organisation (this can be an enterprise, or a cooperative) deals with different processes throughout the value chain. The ownership structure can be partial or full.

In order to map these types of relationships, different lines and arrows are used. The following example clarifies this.

Box 12: Example of mapping relationships and linkages.

The following example is based on the sedge handicraft sub-sector in Vietnam. Most linkages are persistent. This example is representative for sectors in which high quality requirements and differentiation (design of handicrafts) are crucial.


→ Persistent relationship
⇢ Spot market relationship
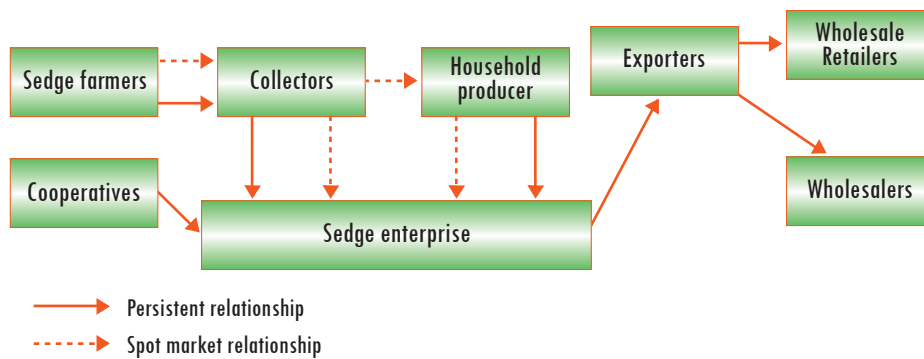
Source: (SNV 2005)

Step 9   Mapping services that feed into the value chain

A potential risk with value chain analysis is that the world surrounding the value chain is not taken into account. Crucial information might be found in the rules and regulations that are governing (parts of) the value chain or in services that are feeding into the chain. Mapping these services will give an overview of the potential for interventions outside the value chain itself. This is covered by the key question: What types of services are feeding into the chain?

Box 13: Example of mapping business services.

One of the major constraints of the sedge value chain in this example is the lack of services, especially in the first steps in the value chain.
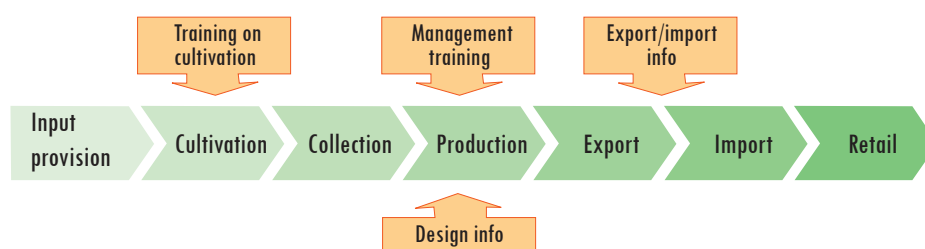
The sources and payment procedures of these services are different: embedded, fee based or for free (subsidised). A separate map can be drawn to make this visible.

Source: (SNV 2005)

Step 10   Mapping constraints and potential solutions

Constraints exist at almost all process levels of any value chain. For example, these could be constraints to greater efficiency, constraints to upgrading or constraints to greater involvement of the poor. Initial identification of these constraints should be made at all process levels and in addition, identification of potential solutions can be made.

Table 7: An example of mapping constraints and possible solutions.

	Input	Corn production	Procurement	Processing
Input		Seed Land Fertilisers Agronomic practices	Corn pips	
Activities	Supply of inputs	Corn planting Crop husbandry Harvesting Semi-processing Pip preparation	Packing Transporting	Drying Milling
Actors	Input suppliers (e.g. fertilisers) Extension officers (crop husbandry techniques) Agricultural research stations Farmer Unions Material supply agents	Farmers planting, managing the crop, harvesting and semi-processing	Commune collectors, District collectors, Province collectors	District trading companies, Small milling households
Difficulties		Untimely fertilisation Thorn worm epidemics Lack of production techniques Too high expenses for good quality seed Lack of capital	Lack of corn for procurement High transportation cost Difficult transportation High tax	Spoilt corn Lack of drying technology
Feasible solutions		Selling fertiliser on credit earlier Training agricultural promotion staff at village level Supply quality seed on credit Lending	Suitable tax policies	Investment in drying technology

Step 11   Making a value chain map matrix

Once mapping of the various dimensions of the value chain is complete, a value chain map matrix can be constructed which summarises the key information from the maps in one table. The matrix can be used as the basis for designing questionnaires, determining which actor groups to interview and which geographical locations to concentrate field work in. The matrix can also serve as an easy to interpret sector summary from a value chain perspective. Examples of a value chain matrix are given in Figure 9 and Table 8.

Figure 9: Initial matrix prepared after value chain mapping exercise

Source: (IFAD, M4P et al. 2007)

Table 8: Information transferred to final matrix

	Inputs	Production	Collection	Pre-processing	Factory processing
Inputs		Seed, fertiliser, plant protection drug Technique, soil, labour source Capital	Fresh leaves and buds	Fresh leaves and buds	Fresh leaves and buds Dried leaves and buds
Activities		Producing fresh leaves and buds	Collecting fresh leaves and buds Selling to factory	Drying Preservation	Buying fresh leaves and buds Pre-processing buds Selling finished products
Outputs	Seed, fertiliser, plant protection drugs Technique, soil, labour source Capital	Fresh leaves and buds	Fresh leaves and buds	Dried leaves and buds	
Actors	Seed company Fertiliser agency Plant protection agent Extension centre Bank	Farmer	Collectors	Local level small scale (household)	
Location and participation of the poor	Not much	Planting → Management → Protection → Harvesting	Not much	Some involvement	Limited (some workers)
Challenges		Plant protection Difficulties in getting good quality varieties Lack of technical knowledge	Difficult to transport	Preservation difficult Lack of funds for effective kilns	
Possible solutions		Periodical spraying Changing planting mechanism Setting up convention Technical training (plant production)	Upgrading roads	Investment in kilns	
Location		Thach An, Hoa An	Thach An, Hoa An	Thach An, Hoa An, Cao Bang town	Cao Bang town

Source: (IFAD, M4P et al. 2007)

5. What Should be Known after Analysis is Complete

This tool has given an overview of the different dimensions that can be mapped and offered suggestions on how to map them.

Developing initial value chain maps and a map matrix provides a firm basis for undertaking the full value chain analysis described in the following tools. In particular, after the mapping exercise is complete, practitioners should be able to determine which value chain actors should be interviewed, what information should be gathered, what significant information gaps exist, and what the geographic locations for field work are.

The following chapters provide tools to help analyse the dimensions that you wish to map.