VALUE CHAIN ANALYSIS AND DEVELOPMENT

A training manual

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TABLE OF CONTENTS

1 Introduction

1.1 Aim of the manual

The aim of this manual is to assist NGOs in integrating Value Chain Analysis and Development into their repertoire of analytical tools. The focus is on agricultural value chains.

Value Chain Analysis and Development is used by many organisations and programmes and a range of manuals have been published on it. This manual hopes to be different as it works with a straight-forward ten steps approach. In this ten steps all key-elements of the value chain approach as it developed over time are included (see chapter 2). The approach was developed during field work in Albania, Afghanistan, Ethiopia and Kosovo with a range of value chains in the sub-sectors of fruits, vegetables and livestock. The present manual is based on previous versions used in training courses provided in Kosovo, Ethiopia and Afghanistan. The aim of these courses was that participants could develop an action plan or a (national) strategy for previously selected value chains.

1.2 How to use this manual?

The ten analytical steps in this manual offer ten ways of looking at a value chain. For each step first of all the aim is explained. Why are we using this tool? Secondly the key-question is asked: How to do it ? Thirdly some examples from the field are given.

The easiest way of using the manual, is to ask yourself the following questions for each step:

1. What do we know about the issues that are addressed in this step?
    a. How do we know it?
    b. Any need to check this further?
    c. Summary of the data/available information/answers.
2. What do we need to know more:
    a. How will you find this additional information?
    b. Who will you ask the additional information needed?
    c. Formulate the key questions.
    d. Where and how will you check the correctness of the answers?

The tables below can be used to make an inventory of what is known about the value chain and what still needs to be found out. Filling out these tables on flipcharts that are hung in the training room allows you to keep track of where you are.

What do we know?

What do we know?	How do we know it?	Any need to check this further?	Short answer
The price of grapes throughout the year	Data of the Export Promotion Agency	Yes, it is not clear how this data is collected.	XX Afs./kg in low season/ YY Afs./kg in peak season
	Data of the Ministry of Agriculture	Yes, it is not clear how this data is collected.	XX Afs./kg in low season/ YY Afs./kg in peak season
Grape consump-tion in Kabul	Data of the Chamber of Commerce	No. We have a solid report.	XX kg/year per person

The next table can be used to fill out what is still to be found out.

What more we need to know?

What do you want to know?	Who to ask?	How to ask (method)?	Question	Control / Check	Answer
What are the main pests?	Researchers	Desk study	What are the main pests? How do they affect production and quality?	Farmers and traders	Mildew leads to low yields
What is the cost price of grapes?	Grape producer	Semi-struc-tured interview	Cash cost per year?	Trader/ researcher/ extension	XX Afs./kg
			What are the labour costs?		
			Production per hectare?		
What is the price of grapes when it moves from farmers to Kabul?	Consumer	Questionnaire	How much do you pay for grapes at harvest time?	Trader	XX Afs./kg
	Trader	Questionnaire	How much do you pay for grapes at harvest time?	Consumer	XX Afs./kg
			At what price do you sell grapes at harvest time?	Consumer	XX Afs./kg
	Grape producer	Questionnaire	At what price do you sell grapes at harvest time?	Trader	XX Afs./kg
Etc.					

At the end of the ten steps all these tables have to be combined to see what information needs to be collected from each of the stakeholders. In practice the amount of information that has to be collected is often huge. So one has to:

- Set priorities: Make sure you use all the information that is already available. In most cases much more information is available than one thinks; on the internet but also with other organisations. Do not waste time and resources for re-inventing the wheel.
- Cluster the information needs in practical units
- Decide the basic methodology: e.g. we have the resources for one farm management survey in our region; or to do a quick scan among exporters; or to organise two round tables to discuss the problems of processors etc.

Based on this one can:

- Decide what your own staff can do and for what specific experts have to be hired.
- Make an overall action plan on how the information will be collected and analysed.

Before the ten steps are explained in the chapters 5 till 14, chapter 2 gives some more background information on the Value Chain Analysis and Development. Chapter 3 gives a few notes on the selection of Value Chains and chapter 4 provides a general overview of the ten steps.

2   Value Chains Analysis and Development

2.1 What are value chains?

A value chain refers to the full range of activities that are required to bring a product (or a service) from conception, through the different phases of production, to delivery to the final consumer and disposal after final use[1]. Agricultural value chains cover all activities from input supply, production, processing, wholesale and retailing to the final consumer. A value chain encompasses all that needs to be done to get a bottle of milk or an apple in a shop in such a way that clients are willing to buy it. In simple words "from seed to feed".

In any value chain we distinguish primary actors and support actors. *Primary actors* are those who actually own the product; farmers, traders, processors, shop-owners. S*upport actors* are those who support the primary actors. This ranges from extension services, to banks and equipment suppliers. Lastly we have the *enabling environment*. This includes the law and regulations governing or influencing the value chain. The next graph visualises an agricultural value chain.

Graph: Main elements of a Value Chain
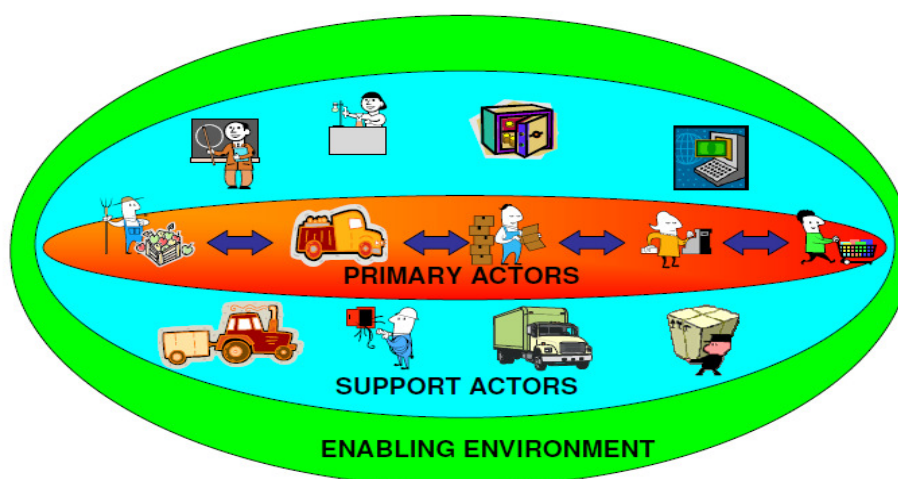
Source: Modified from SNV

The primary actors are, among others, farmers, traders, packers and shops. The symbols on the top side (from left to right) refer to education, research, credit and market information. We could label these 'soft' support actors. At the bottom we see the 'hard' support actors: those providing mechanisation services, electricity (and other utilities), transport and packing materials. In the most outward circle we have the enabling environment: rules and regulations (standards, inspection systems), agricultural policies (taxes, subsidies, land ownership etc.), general policies (macro-economic aspects; legal systems).

So the Value Chain concept refers to many interlinked actors and processes and an analysis of a Value Chain requires a comprehensive approach. To be successful a team of people with different backgrounds and expertises is needed.

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[1] Definition of Kaplinksy and Morris, 2001.

2.2 Why has the value chain approach become more important?

In the last two decades the value chain approach has become popular; first in industrialised countries and more recently in development cooperation as well. The question is why.
The main reason is globalisation. Increasing communication capacities (transport/telecom) and ongoing liberalisation processes allow products to be moved all over the world. Consumers with a lot of knowledge and desires can choose from a wide range of products from many different countries. They decide *what* and *where* to buy and from *whom*. Local suppliers face increasing competition as critical customers demand higher quality for a lower price. Quality not only refers to the physical product; it also refers to paying due attention to social and environmental aspects during production and trade.

The second reason for paying more attention to agricultural value chain is that food is becoming a more complex product: it is increasingly processed, packed and transformed into an array of (convenience) products. This requires coordination between all the actors.

Thirdly, public health concerns force those involved in agricultural value chains to set up quality standards and to install tracking and tracing system that allow the final consumer to know where the product came from and what happened to it.

Competition on local- and international markets is tough and all actors in any agricultural value chain have to cooperate to survive. The actors in a VC are interdependent, only together they can produce a high quality product at a reasonable price. Profits of individual actors are not only dependent on their own efficiency, but also on the efficiency of others in the chain, and on the efficiency of their interactions. Although these processes seem to be less pronounced in developing countries, there as well agricultural imports increased substantially in the last decade. In Afghanistan imports and exports are increasing, including of agricultural products. As policy makers and development partners seek ways to make smallholders more market oriented and competitive, the VC-approach has become more popular in the developing world.

2.3 The history of the Value Chain concept

Value Chain Analysis is a relatively new approach in agricultural development cooperation. Whereas 1980s was the decade of Farming System Analysis and Development (FSR&D) and the 1990s the decade of Participatory Rural Analysis (PRA), the first decade of the 21st century has become the era of the Value Chain Analysis (VCA). While in the 1980s the approach was more supply driven, with a focus on improving production, now a demand driven approach dominates, as VC-development focuses more on market based innovations.

VCA has different fore-runners: the oldest one is the French 'filière' approach which analysed the vertical links in the colonial agricultural systems. The focus was on commodities like rubber, coffee, cocoa and cotton. It analysed the links between producers and processors, traders and consumers. Most attention was paid to the physical flow of the products and prices at different stages.

A second major conceptual contribution came from Michael Porter who found that much of the comparative advantages of companies could not be explained by better management practices or better technologies but rather from having better forward- and backward linkages with suppliers and markets. He applied the value chain concept to companies (how efficient are different departments working together?) as well as to sectors. The question he tried to answer was: why are not all companies moving their production to countries with low labour costs? He found that the importance of linkages with other companies, quality standards and strong competition for quality prevented many industries to make such a move.

A third contributor is Gereffi who looked into the governance structures of value chains. He showed that *lead firms* in a value chain can exercise considerable power over other actors. Based on the costs for new business to enter into the market, he distinguished two types of value chains: those controlled by retailers through their distribution systems and trademarks and those controlled by producers through their (large) investments in production capacities. Companies with more power in the chain, manage to get better profit margins.

Gereffi also explored the optimum level of chain integration: when is it useful for a firm to control several steps in a value chain (e.g. production and processing by the same firm) and when is it more useful to have different players, each specialising in one of the steps (farmers produce raw materials and firms doing the processing). Specialisation is useful when transaction costs are low (the product is easy to make, standards are used, contracts can be enforced), while chain integration is useful when transaction costs are high and/or with complicated and expensive technological processes that need to be managed intensively.

A last contribution that needs to be mentioned here is the work of Douglas North on the importance of (formal and informal) institutions in reducing transaction costs and hence in promoting economic development. This drew more attention to the vertical linkages between firms in a value chain and to the importance of standards and enforceability of contracts.

In 2001 Kaplinksy and Morris combined all these elements in their 'Handbook for value chain research'. Although this manual is organised along completely different lines, many of the issues discussed here stem from this landmark publication.

3   Selection of a value chain

The first question in a VCA is of course which VC has to be analysed. This is outside the scope of the present manual. Generally the following criteria are used to select Value Chains:

- Optimising comparative advantages. Any production factor like the climate, soil, traditional varieties, or traditional knowledge and skills can represent a comparative advantages for an area. Such advantages need to be exploited. A typical Afghan example is carpet making.
- Income generation potential. This refers to the number of people involved in the VC and an assessment of the options to increase their income.
- Export potential and potential foreign exchange gains; this can also refer to 'export' from one province to another or to bigger places.
- Job creation potential (particular in rural areas)
- targeting specific groups and areas: e.g. gender aspects; ethnic minorities
- Enhancing sustainable development: replace ecologically or socially undesirable crops (e.g. tobacco or poppy etc.).

So the selection includes an assessment of *who* will benefit most from potential increases. Generally pro-poor growth is preferred; meaning that those value chains are selected in which many poor families are involved. On the other hand, experience shows that it is very difficult to improve value chain of low value produces. For example: as many people produce small amounts of milk and sell only minute amounts of (diluted and low quality) milk to processors or to urban consumers, it is very hard to improve the efficiency of the system. There is a kind of 'race to the bottom' as consumers are not willing or able to pay for quality. On the other hand: quality pomegranates tend to get a premium price on internal markets. This premium can be the justification for investments in pomegranates production, even though fewer people are involved and they might not be the poorest.

How to balance the different criteria remains a complicated affair; especially when insufficient data are available. The following is an example of a case where sufficient data could be collected to come to an overall assessment of the impact of investments in different value chains. In Kosovo a fruit and vegetable development strategy was designed, based on a VCA, using the ten steps described in this manual. The next table was one of the outcomes:

Table: The efficiency of investing in different sub-sectors in Kosovo

	Growth potential / (ha or MT)	Investments needed (Euro/ha or MT)	Total investment (million Euro)	Extra annual income generated (M. Euro)	Extra labour generated (1.000 days)	Extra annual income per Euro invested	Extra labour per 1000 Euro invested
Apples							
Standard orchards	330	10,000	3.3	1.8	69	0.55	21
Intensive orchards	240	15,000	3.6	2.3	99	0.65	27
Apple Stores (MT)	5,000	500	2.5	1.5		0.60	
Greenhouses	100	150,000	15.0	2,6	209	0.17	14
Table grapes	875	13,000	11.4	3.5	95	0.31	8
Ornamentals	3.4	300,000	1,0	0.5	14	0.51	13
Total/average			**36,8**	**12,3**	**486**	**0.33**	**13**

Generally speaking, apple production scored the best; for every Euro invested, farmers earn 0.6 Euro extra every year and 25 days of work are created for every 1.000 Euro invested. Table grapes do generate an average income; yet they do not generate much work. Greenhouse production has a good potential to create jobs, but financial returns are low. Ornamentals remain a small sub-sector with an average score.

This is all fine; yet the VC-studies also showed that the main constraint for virtually all actors was a lack of access to finance. And most investments only provide financial returns after a number of years. At the same time interest rates on bank loans were 15% or more; so in practice very few people were able to invest in those potentially attractive activities. Based on these data and findings the government decided to provide a 50% subsidy on investments in apple production and in greenhouse constructions.

This example shows how a VCA can assist in designing support strategies. Obviously the analysis leads to more diverse recommendations as well:
- Improve the nurseries so that they can produce better quality fruit-saplings
- Improve the inspection system for nurseries and quarantine diseases
- Improve the extension services and the applied research system
- Provide better access to market information.

The example also illustrates the type of information needed. In the case of Kosovo information was collected from different sources:
- Existing technical reports on trials with new technologies (intensive apples orchards; greenhouses; etc.)
- Import and export data for the main produces
- Surveys among producers of ornamentals and among greenhouse owners
- Market surveys among consumers
- Round table discussions with experts and with chain actors.

A VCA does not always have to lead to recommendation to support the VC. In the case of Kosovo, it was found that the potential of wine grapes was generally over-estimated and the present government support to this VC was even questioned.

In any case the selection and analysis of potential VC's is an iterative process: based on a first selection of (sub-) sectors with a comparative advantage, one can make an in-depth analysis of some VC's to assess the real potential. In this analysis more detailed information becomes available to further fine-tune the selection of VCs.

In practice the selection of a value chain to be analysed, will not only depend on its potential for pro-poor growth; it can depend on other variable as well:
- Objectives of the organisation or project
- Available information and experiences
- Chances to formulate successful interventions as you can assess now.

4   Overview of the ten steps

The number of methods and instruments used in Value Chain analysis is increasing rapidly. We use a ten steps approach that integrates all relevant issues in an overall logic. The steps are chosen in such a way that the outcomes can be easily translated into an action plan.

They are clustered in four phases:
- A. Description of the Value Chain
- B. Constraints in the Value Chain
- C. Support system
- D. Enabling environment.

The steps are shortly described here. The aim of each step is explained and the main issues that will be addressed in the steps.

Phase A: Description of the Value Chain

In the first three steps the Value Chain is simply described. This is needed to understand what is going on. Most of it consists of statistics on production, markets and prices. Sometimes this information is readily available; sometimes not and field work will be needed to collect it.

1. Mapping:
The aim is to identify the primary actors and the flow of the product. Who does what, and how much? Are different actors using different channels?

2. Benchmarking the final market:
The aim is to assess the actual and potential markets of the VC. Are the products competitive on the final market and how will this market develop over time? Develop scenarios.

3. Distribution of added value:
The aim is to understand how the price develops as the product moves up the chain. This leads to questions like: Who makes which costs? What is the profitability of the actors?

The outcome of phase A is an assessment of the potential market for the product from the selected VC. For example: will apples produced in our region have a chance to compete in the retail shops of the capital with imported apples in the next five years?

Phase B: Constraints in the Value Chain

The next four steps focus on the constraints of the primary actors of the VC: those are all actors that at one stage or another own the product and add value to it. This is the core, and most difficult part, of the analysis. As the competitiveness of a VC is determined by the efficiency of the primary actors and their interactions (both vertically and horizontally), the outcomes of these four steps is the foundation for designing interventions to improve the VC.

4. Individual enterprise performance:
The aim is to understand the constraints and the critical success factors at the enterprise level of the main actors. These can be economic, technical, human, finance and legal issues.

5. Vertical Inter-firm linkages:
The aim is to understand how the product moves from one actor to the next in the chain. What are the delivery terms? What type of business relations are established?

6. Horizontal cooperation:

The aim is to understand how similar actors work together in associations/ cooperatives. If so, the question is how do such (formal or informal) organisations function and what is their impact?

7. Value Chain coordination

The aim is to understand how the activities of the actors in the VC are governed / coordinated. Who is most powerful in the chain? Why? Is information shared?

The outcome of phase B should be a clear picture of the bottlenecks in the VC and of the chances to remove them. One needs a good understanding of the long term motivation of the primary actors as well as the potential of (short term) incentives to improve their performances.

Phase C: Analysis of the support actors

Support actors are those who deliver services to the primary actors. We make a distinction between commercial and non-commercial support actors. The assessment of the support actors should be related to their support to the VC at hand.

8. Commercial support system

The aim is to understand which commercial actors do support the primary actors with equipment, packing material, financial services (credit/pre-financing), technical advice and business development advice. How do they do this? How effective, efficient and sustainable are these services?

9. Non-commercial support system

The aim is to understand which non-commercial organisations support the chain with research, extension and education services? How are (irrigation) water and electricity provided? How is market information generated and disseminated? How effective, efficient and sustainable are these services?

Phase D: The enabling environment

The last step focuses on analysing the enabling environment, or the institutional setting. Again, the focus should remain clearly on issues that are relevant to the selected value chain.

10. Enabling environment

The aim is to understand to which extend the (macro-economic and policy) environment is stable and conducive for developing the chain. What are the relevant rules and regulations? What are the relevant policies and strategies of ministries and other authorities?

5   Actor mapping

5.1 Aim

The aim of this step is to identify the primary actors and the flow of the product. Who does what in the value chain and how much of the produce is flowing through the different channels that together constitute the whole chain? Are different actors using different channels? The next graph shows the relations between *primary actors* in a value chain.

Graph: A map of the primary actors in a Value Chain
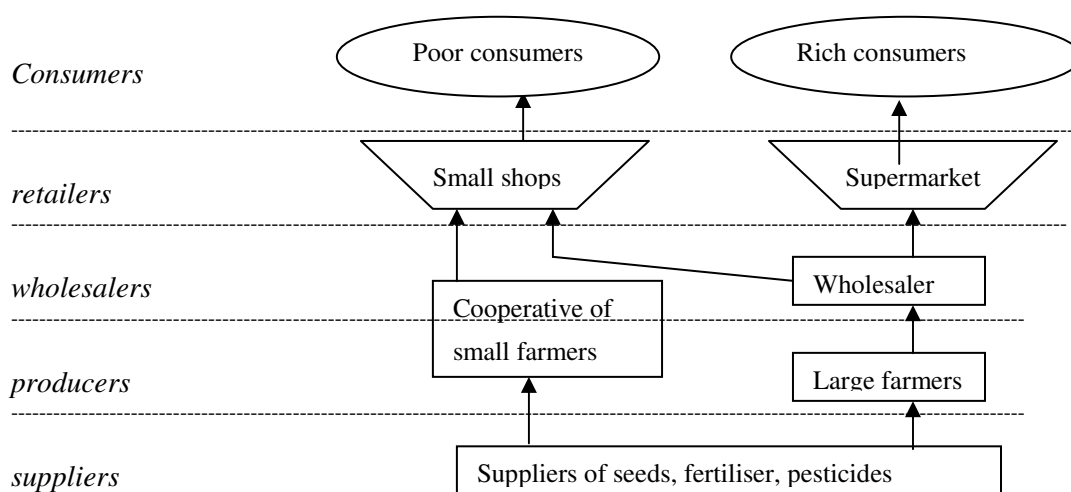
We see the basic functions performed in a value chain: input supply, production, whole sale, retail and consumption. We also observe that small farmers are working together in a cooperative, but this coop does not (yet) have access to supermarkets. In this case the coop performs two functions: production and wholesale; we call this *chain integration* (see chapter 11).

Mapping is a way of visualising the flow of the produce. Which dimension are shown depends on the situation. In this case the distinction between large and small farmers is relevant; in other cases other dimension might be more important; e.g. farmers from different area producing slightly different types of produce etc. Although many different aspects can be included in a map, it is generally better to limit it to the primary actors with some additional information on their numbers, the quantities they handle and, if relevant. geographic aspects.

5.2 How to do it?

Mapping is done as follows:
- identify key functions/activities (input supply/ production/ storage/sorting, grading and packing / wholesale/ retail etc.)
- identify actors performing each function
- map actors according to the functions they perform
- map inter-relationships between actors

The first step is to identify the activities and functions in the Value Chain. In the agricultural context the following basic set of activities/functions are relevant:
- input supply: trader selling seeds, fertilisers, animal feed etc.
- primary production: by small farmers or large, specialised producers
- intermediation and consolidation: local traders who purchase from small farmers
- processing: entrepreneurs who buy from farmers or from intermediaries

- wholesale: traders who buy from farmers or intermediaries
- retail: shop owners selling to the final consumers.

Next to these, several other functions can be found: exporters, auctions, etc. Commission agents or brokers are a special category. They buy from one actor on behalf of another actor; strictly speaking they often do not *own* the produce. Yet they can be very influential in the chain and therefore they are included in the analysis. At local level they are often called collectors: their function is to consolidate the small quantities of small farmers for a bigger trader/processor in town. On urban markets brokers consolidate sizable quantities of suppliers onto large shipments to big towns / capital/ exports.

After defining the different functions to be performed, the next step is to identify the actors who are doing this and quantifying how many of them are involved and how much they handle. In the case of farmers this can be '10.000 small farmers each producing 100 kg on pears', yet in the case of export a single firm can export 100 tonnes annually. So the practical issues to find out are:

a. number of farmers and their production; are there different types of farmers?
b. number of traders and their turnover; different types of traders?
c. number of processors and their turnover; different types of processors?
d. number of wholesaler and their turnover; different types of wholesalers?
e. number of retailers and their turnover; different types of retailers?
f. the relations between these actors (so how does the produce flow)
g. chain integration: are some actors performing more functions?.

It is important to make an inventory of all actors and channels and not to focus only on one defined target group (e.g. small farmers). As the other actors are influencing the whole chain as well, we have to draw a complete picture. Then the map can be made. An international system for mapping has been made, based on an generally agreed symbols. These are sued in the graph presented above. In practice however different organisation are visualising VC in different ways (see below for examples).

In any map we can insert a number of overlays in which specific dimensions of the Value Chain are further analysed. For example, we can show:

- Quantities at each level (e.g. 1.000 tons of fresh apricots at village level leads to 100 ton in the shop in Kabul)
- Geographical coverage (ex: inputs are imported via/from Kabul, production is in Kunduz village wholesalers are in Kunduz and Kabul etc.)
- Productivity: a processor can clean 1000 kg of nuts per day while transporters can handle 20 ton per day etc.

5.3 Examples

People use different ways to make a visual represent a value chain. Our first example shows how, in a Kenya, livestock is traded from smaller markets into the larger ones:

Livestock market intraction and flow map – Turkana
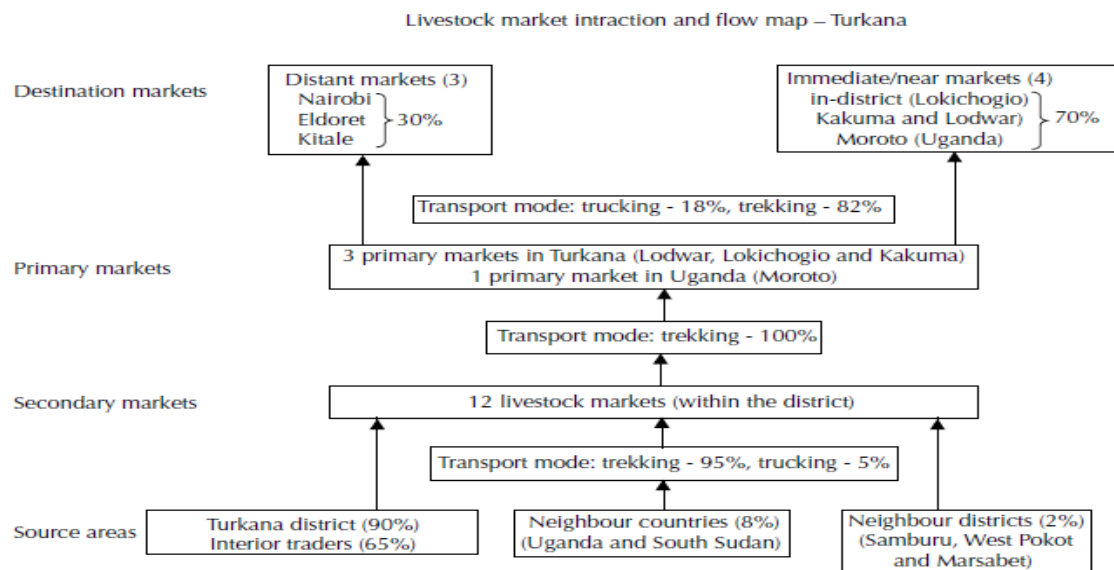
Source: Watson, D.J and J. van Binsbergen, 2008.

In this graph geographic information is combined with information on the numbers traded and the mode of transport. Like in the first example the flow is vertically represented. In the next example the VC is represented horizontally:
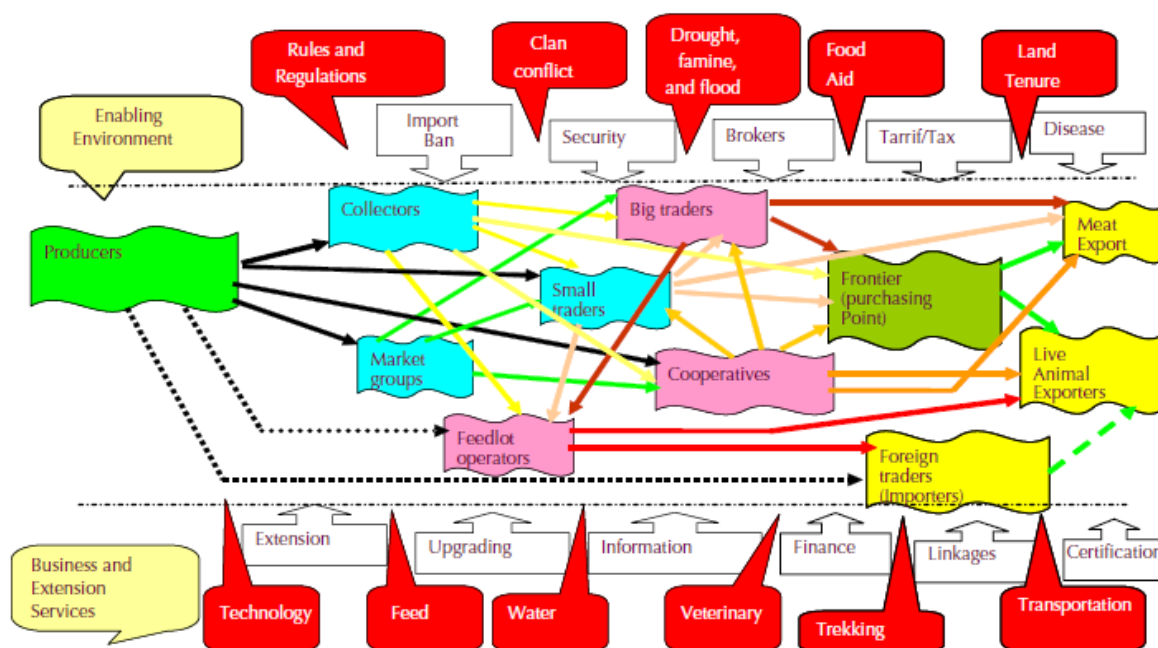
Source: Legesse et. al. 2008.

The graph visualises the Value Chains for live animal and meat exports from Ethiopia. Next to the flow of the produce it does indicate the support actors: Business and Extension Services (at the bottom) and the Enabling Environment (at the top). Yet, including too many topics leads to an information overkill and makes it impossible to explain the actual relations between the issues.

6   Benchmarking

6.1 Aim

The aim of this second step is to assess the actual and potential markets of the Value Chain. The overall performance and competitiveness of the Value Chain have to be assessed. Are the products competitive on the final market and how will this market develop over time? How are the different products doing on different market segments?

This assessment is needed to assess the room for manoeuvring. Based on that, some scenarios can be outlined: if we are able to do this (e.g. increase quality) we can achieve that (e.g. capture a market for 100 tonnes per year with high prices).

6.2 How to do it?

First of all we have to select and describe the relevant market segments. What are the most important markets for our value chain? Sometimes this is not immediately clear but a few discussions with traders and other stakeholders should lead to a short list of potential markets. Normally one should try to focus on markets where one can expect to get the maximum added value. Obviously one does not aim at supporting VCs with low quality produce and low margins for producers and traders. On the other hand, one should be realistic: aiming at selling top quality products to international hotels in Kabul without relevant experience and with limited resources will only lead to disappointing results.

Each market segment can be characterised by three aspects: the produce, the customer and the place where the client buys the produce. So the first thing to do is to describe these three dimensions for the key-market segments:
- Consumers: *Who* are the final clients or consumers: what is their age, sex, education, etc.? What is their purchasing power?
- Market channel: *Where* do they prefer to buy our selected produce: what type of shops/ outlets, and what is the context of the purchase?
- Produce: *What* are the key-qualities of the produce: appearance, taste, shelf-life, etc.?

An example of a market segment is that of high quality dried apricots (*Chapanamak*) sold in open markets in Kabul to people who will use them during festivities. Another example is the market of potatoes in district towns sold on street markets to the urban poor.

After defining one or a few market segment(s) we start with an analysis of short term market trends:
- What is the trend in prices?
- Do we expect a growth in demand?
- How do consumer preferences change over time?
- If they change, what are the driving forces behind that?
- How are imports-exports developing?

Secondly, we look at the long term competitiveness of the production from our target area:
- What are the long term comparative advantages of our area vis-à-vis other production areas?
- What are the relevant prices for land, labour, capital and (management) skills?
- And are these resources used efficiently?

To make these assessments, data are needed on a range of issues: local and international price trends, imports and exports, market volumes, farm management data with yields/ha, and income per labour day, prices of labour and wages etc. etc. Often such data are lacking, hence either a study has to be initiated or one has to work with 'guesstimates' of experts. In the latter case, any intervention should include a system to monitor some key-benchmarks (e.g. monitor the price difference of the product on the local and international markets).

6.3 Examples

Market segmentation is essential. Make a clear distinction between the different products and the different markets. A superficial market trend analysis of dried apricots in Afghanistan showed that exports were increasing. Thus one would be inclined to think that there is a possibility to increase the production of the best quality dried apricots, the so-called '*Chapanamak*' type of dried apricots. However the exports consist of poor quality dried apricots ('*bargac*') and the amount that can be exported depends primarily on the amounts produced in Iran and Pakistan; whenever they have a shortage they will collect more from Afghanistan. If they have no shortage; there is no export. *Chapanamak* apricots have no market outside the country; so the best market is Kabul. Increasing '*Chapanamak*' production without expanding the market in Kabul is dangerous, as it might only increase competition between the present producers and therefore suppress prices.

Another warning is needed on using too general price information on imported products. In the case of Kosovo apple prices increased substantially half a year after the harvest. Part of this was because local apples were poorly stored and therefore their price had to be increased over time. However at the same time imported apples came to the market. These were even more expensive and the price for apples, as monitored, went up even faster. This made investing in improved apple stores seem very attractive. Yet, one has to remember that the higher price paid for the imported apple was not only due to the fact that they were stored better, but also due their better initial quality and to much better packing. Again an example of the risk of using market information that is not specific enough.

Thinking in scenario's can be illustrated as follows. If Afghan pears are sold in Kabul for 20 Afs/kg while there is an increase in imported pears that are sold for 30 Afs./kg, then there seems to be room for a 50% price increase for Afghan pears, if the *quality* can be made the *same* as the imported ones. One dimension is to ask: why are people willing to pay more for imported pears? Let us assume that people say: because they are better packed. The question is then whether this is practically feasible to pack Afghan pears and at what costs: if the costs of packing Afghan pears costs 11 Afs/kg, the exercise become useless. Of course this is only a very rough first estimate of the situation. And one has to be careful not to judge too quickly. Maybe you will discover later that it is possible to reduce the cost of production of the Afghan pears; let us say to 17 Afs/kg in Kabul. Then 11 Afs/kg for packing is acceptable and one could aim at capturing the market occupied by imported pears.

7 Added value distribution

7.1 Aim

The aim of this third step is to understand how the price develops as the product moves up the value chain. After understanding the price determinants on the final market we have to know ask: how is the sales price on these final markets divided between the primary actors? Of course it is not only interesting to know *who* gets *how much* of the final price the consumers pay, it is also interesting to know how much profit each of the actors gets.

Unfortunately the relevant economic terms are often confusing people, as the same term is used in different ways by different sources. In this manual we use the following definitions:
- Added Value = Sales price – Purchase price
- Gross Margin = Added Value – Direct costs
- Profit = Gross Margin – Indirect Costs (also called Fixed costs)

The biggest problem in determining the profit is to estimate the fixed costs that are really related to the activity undertaken. If an owner of a small shop is selling hundreds of products, how much of his investments in the shop should be allocated to a seasonal product like fresh grapes? Labour costs are very hard to assess as well: how much of the time of a shopkeeper should be considered to be fixed costs for grapes? And what is the cost per hour or per day for a shop owner?

To know the exact profits of all primary actors is often too complicated and too time consuming. So the main aim is to understand first of all where we the gross margins are highest as there might be the best options to invest in improvements that benefit the whole chain.

7.2 How to do it?

One takes the following steps:
- Calculate for each primary actor their *added value* by:
  - o Identify the price at which they buy the product
  - o Identify the price for which they sell the product,
- Identify the main costs (direct and indirect) of the primary actors that are needed to perform the function in the VC.
- Calculate the GM and the profit of each primary actor
- Make an overview table or a graphic representation of the percentage of the final price that falls to each of the primary actors in the VC.

Generally one starts with a desk study to see if one can find reliable data on the following topics:
- Cost price for farmers and farm gate prices
- Price at district (wholesale) market; provincial towns and the capital
- Import and export prices
- Costs of transport, processing, lacking, sorting/grading
- Costs of marketing

After this information gaps are identified and a plan is made on how to collect any missing information.

7.3 Example

A general example of the costs and margins in a Value Chain could run like this:

Actor	Purchase	Sale	Value Added	Direct Costs	Gross Margin	Indirect Costs	Profit (absolute)	Profit (%)
Farmer	200	600	400	300	100	50	50	9
Local Trader	600	800	200	120	80	50	30	4
Trader capital	800	1300	500	370	130	100	30	2
Retailer	1300	1700	400	210	190	160	30	2
TOTAL			**1500**	**1000**	**500**	**360**	**140**	**10**

We see that in the total chain the direct costs were 1000 and the total Gross Margin of all actors together is 500. Of this GM, 360 are indirect costs and 140 are profits. So the overall profit in the VC is 10 %. The story behind each actor in this table is:

- Farmers buy inputs for 200. Their direct costs for land and labour are 300. Their overhead costs (e.g. the depreciation on assets like a store or a tractor) are 50. This means their GM is 100 and their profit is 50. Comparing the profit of 50 with an overall costs of 550, leads to 9% profit on investments.
- The local trader buys the produce for 600 and has 120 direct costs; probably most of this is transport and handling costs. He has some indirect overhead costs as well. Next to the depreciation of a store, this could be the costs of hiring a bookkeeper. His profit of 30 is smaller than that of the farmers; yet as his turnover will be higher his income could very well be higher.
- The trader in the capital buys the produce for 800. His high direct costs refer to the transport and to other value adding activities like sorting and packing. His indirect costs are higher as well, as he has a large store at the outskirt of the capital and more (professional) staff (administration; guards etc.). In absolute numbers his profit is the same as for the local trader, but as a percentage of his investments it is only half. Being a bigger trader his total income will be higher than that of the local trader.
- The retailer buys at 1.300. He has high direct costs as transporting small amounts in the capital is inefficient. He also has high costs due to losses in quantity and quality. Overhead costs are high as well, as he is renting a shop in the centre of the town. His profit in absolute amount is the same as with other traders; again as a percentage it is small.

This is a very typical example. The farm gate price (600) is only 35% of the final consumer price (1.700). As we will see below; in the concrete case of fresh apricots in Kabul and livestock marketing in Kenya this ranges between 18 and 37%. Often this low percentage leads people to believe that traders and processors make excessive profits at the expense of farmers. Although this can never be excluded, experience learns that this is unlikely, as long as there are no entry barriers for new entrepreneurs to start a trade or a processing unit (see chapter 8 on enterprise performance).

One of the complicating factors is to properly assess the costs of traders. As these are generally underestimated we provide the following lists of basic costs trader have, next to the obvious costs for purchasing the produce :

- Search: finding suppliers (this constituted 19% of all costs of grain traders in Ethiopia)
- Transport (often the biggest share of all costs for local traders)
- Maintaining the condition of the produce or the animals (storage; trekking etc.)
- Marketing costs (when finding a market is very difficult brokers are used)
- Financing costs
- Taxes and bribes
- Losses (quantity / quality)
- Risks: theft / robbery; changing prices and delays in payments

Annex-I gives a set of data on the margins of Afghan traders in fruit and in nuts. The conclusions are:

- Their Net Margin ranges from 5 to 10%. This Net Margin is the *Gross Margin* minus the *Losses.* It does not yet cover the indirect or overhead costs of the traders. This makes clear that in general the net profit of traders in Afghanistan is well below 5%.
- *Gross Margins* of small traders in small towns are higher than for large traders in bigger markets: while the latter had a Gross Margin of 13% the former need 21% to operate their business. In both cases actual *net profit* is very small.
- Fruit traders who invest more in adding value (e.g. sorting / packing) do not get better margins. Apparently consumers are not willing/able to pay more for better products. For nut traders the situation is better. The reason why traders still continue to invest in adding value activities is to maintain (or increase) their market share.
- Margins differ considerably between varieties of the same crop. Like always margins are better for quality produces.

Let us now move to the concrete costs structure of fresh and dried apricots in Afghanistan. The next two graphs give the data (in Afs./kg).
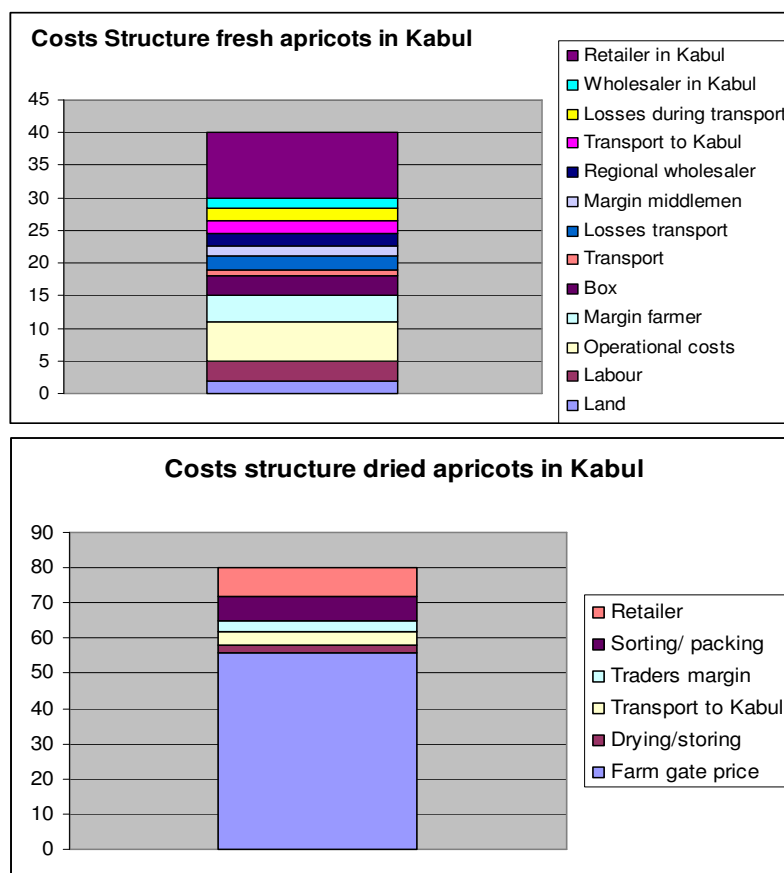
These graphs provide an indication for where one can find the best chances for improving the overall efficiency and competitiveness of the VC. For example the value added by the transport of fresh apricots is only a fraction of the final market price. Any innovation to increase the efficiency of the transport will not lead to a substantially cheaper produce. So the VC will not become substantially more competitive. Yet, the innovation can be profitable for the transport enterprise concerned.

In the fresh apricot chain the added value of the retailers is very high: 33% (they buy at 30 and sell

for 40 Afs./kg). So people accuse them of making excessive profits. Interviews however revealed that they have huge physical losses. Farmers mix good and poor quality fruits and squeeze too many fruits in weak boxes. Then traders transport them over very bad roads in the middle of the hot day. So many fresh fruits have to be thrown away by retailers in Kabul, either immediately or the next day. The graph on the dried apricots shows that the same retailers accept a much lower margin (10%) with dried apricots that are not getting spoiled so quickly.

Using both graphs we can deduct that for fresh apricot the best option is to reduce losses of retailers in Kabul; so farmers should no longer mix up qualities and the quality of boxes and transport should also be improved. If in this way the margins of retailers can be halved, the final price can be reduced from 40 to 35 Afs./kg. Or: if the price is maintained at 40 Afs./kg, farmers who sort, pack and transport their produce better can expect a 33% higher prices (20 i.s.o. 15 Afs./kg). For dried apricots the focus should be on the efficiency of apricot production and of the on-farm-drying process as the raw materials used there cover 70% of the final price.

The graphs also show that farmers get a much bigger share of the final price with dried apricots; yet there the profit is actually much smaller. One needs nearly 4 kg of fresh apricots to produce one kg of dried apricots. With a farm gate price of 15 Afs./kg the opportunity costs of one kg of dried apricots is nearly 60 Afs./kg, only for the raw material. One can see that the actual farm gate price for dried apricots is below 60 Afs./kg. Indeed Afghan farmers are only drying apricots as they can not find any market for the fresh apricots. This is generally the case in isolated mountainous areas. So the share each actor gets from the final price does not say anything about their profitability. The *profitability* of each actor has to be assessed separately. For farmers this is done by analysing farm management data. For other actors specific (feasibility) studies are needed.

Another way of presenting the cost structure of a value chain is the following:

	Bottom end (Dry season/grade 3)		Top end (Wet season/grade 2)	
	Price	gross margin	Price	gross margin
farm gate/pastoralist	300		1000	
secondary market		350		500
	650		1500	
main market		350		500
	1000		2000	
terminal market		700		800
	1700		2800	

Source: Watson and van Binsbergen, 2008

Although the terminology is again different (what is called Gross Margin here actually is the Added Value), it is clear that margins differ much over time. The authors also show in their study that people have very different views as to the prices at different stages in the value chain (with livestock this is even more common than with crops) and that different studies come to widely diverging profits for the actors. They quote one study which found a 52% profit for trader selling on the terminal market (in this case Nairobi), while they themselves came to 11%. The latter is surely more realistic.

8   Enterprise performance

8.1 Aim

The aim of the fourth step is to identify the main determinants of the performance at enterprise level of the primary actors in the VC. Enterprises include farming households. The key-questions are:
- What are the *constraints* for each of the primary actors in the VC?
- What are the *critical success factors* that make an enterprise or household successful?
- What are *potential innovations* for these enterprises?

8.2 How to do it?

Obviously this is a huge task. To generate a detailed understanding of the performance of all the actors requires a series of feasibility studies and surveys. Sometimes such studies are available, often not. So one has to approach this in an iterative way. First of all a quick scan can be done via a desk study to see what the main issues are. The findings can then be validated in a round table meeting with the key-players in the VC. After that it can be decided which actors deserve more attention.

To structure the analysis, we use the six basic dimensions of business development:

- **Inputs and Technology:**
  - Which inputs and raw materials are used?
  - What about their availability, quality and prices?
  - Which equipment is used?
  - How is the quality of the product maintained and controlled?
- **Knowledge and Skills:**
  - Does the enterprise have access to the necessary knowledge and information?
  - Does the staff has the necessary knowledge, information, skills and attitude?
- **Marketing:** How is the marketing organised? Look at the four P's:
  - Product: this refers to the *characteristics* and *quality* of the produce.
  - Price: how is the price set, vis-à-vis competitors?
  - Place: where is the produce sold or delivered?
  - Promotion: what is the image of the produce and is there any promotion?
- **Finance:**
  - Does the enterprise has sufficient access to capital to invest?
  - Does it have sufficient working capital?
  - What are the sources and pre-conditions of external capital?
- **Management and organisation:**
  - How the logistics are organised (raw material/ market delivery)?
  - Is the work organised efficiently?
  - Are the tasks and responsibilities in the enterprises clear?
  - Are people motivated to work (incentives / own initiative)?
- **Economics:**
  - What are the Gross Margins and the profitability at each level?
  - Which economic factors are crucial for the overall profitability: enterprise seize, access to (cheap) labour, location, natural resources, etc..

Based on these dimensions, for each enterprise one can assess the:
  a. *Constraints:* what are the constraints for the enterprise?
  b. *Critical success factors*: what make specific companies successful?
  c. *Potential innovation*: what could be done to improve the performance?

The two above mentioned axes can be combined in a table, as shown below.

Dimension	Constraints	Critical Success Factors	Potential Innovations
Inputs and Technology			
Knowledge and Skills			
Marketing			
Finance			
Management and Organisation			
Economics			

This table has to be filled out for each actor: inputs suppliers, farmers, traders, processors, wholesalers, retailers, exporters etc.

8.3 Example

This is one of the most complicated parts of a value chain analysis. One has to look at virtually all aspects of all actors. And many times the devil is in the details. For each of the dimension some short examples are given:

Input and technology:
- In many developing countries the availability and the quality of inputs is very poor; this is especially a problem with veterinary drugs and crop protection chemicals. On top of that, often input suppliers themselves lack the knowledge and skills to properly use the inputs they sell.
- Poor technology used by small farmers can lead to a low productivity and a too high cost price which means processors can not afford to buy the produce. In Afghanistan this was found to be the case for both milk and sugar beets in Baghlan. This means that the new dairy and sugar plants (created with donor support) are either idle or working very much below their capacity. Another example is a new processor of apricot juice in Kabul which is also not able to offer high enough prices to cover the production costs of farmers. Similar examples in Kosovo, Albania and Moldova include wineries and processors of fruit, vegetables and sunflower.
- At the same time many large, state owned processing companies have outdated technologies with too much staff who is neither skilled nor motivated. So even if farmers can produce the raw materials at competitive prices, such factories are not able to turn that into marketable products.

Knowledge and skills:
- Often farmers lack the skills and technology to produce high quality produce: e.g. in Afghanistan they lack simple equipment to measure the sugar content to harvest fruit at the right time. Many of them also do not know how to apply crop protection chemicals or how to prune trees properly. Of course one should not judge too quickly that farmers lack knowledge. In Tanzania farmers were supposed not to have the skills to use animal traction; yet a more in-depth analysis showed that using oxen for ploughing was not economically feasible.

Marketing:
- Marketing skills are also often lacking; virtually no attention is paid to *promotion* or to an explicit *pricing policy*. *Quality* receives insufficient attention; e.g. many Afghan traders do not pay according to the quality. Most farmers and traders alike do not know how to address new consumer demands (e.g. packing in smaller amounts). In Kosovo an initiative to invite people to harvest their own strawberries was very successful. People liked it and farmers had no cost for harvesting and marketing.
- Often sorting/grading and packing would be the first steps in improving the marketability of local produce. As explained in par. 7.3, data in Annex-I show that in Afghanistan investments in these activities hardly lead to higher profit margins; yet they do enable companies to get a bigger market share. At the same time many traders do not have access to proper packing

material. On the other hand: putting poor quality produce in a nice box is a waste of resources.
- Many actors in the VC lack market information; e.g. pastoralist in Afghanistan and Ethiopia with no access to price information in the main livestock market are in a poor negotiation position vis-à-vis traders. On the other hand: to collect reliable market data is much more complicated than most people think. And disseminating unreliable market information is in nobodies interests. The best thing NGOs can do generally is to collect relevant and adequate data over a longer period; these data sets can be very useful in making business plan for companies that want to invest and for banks that are considering to provide loans to the VC-actors.

Finance:
- As explained in the Kosovo case in chapter 3, many primary actors lack access to finance. Even when loans are available, it is often hard for farmers to obtain them. They have very limited collateral (banks are usually not interested in land and houses in rural areas) and banks have insufficient knowledge on the risks and profitability of agricultural activities. When credit is available, interest rates of 15-20% are common. Especially with perennial crops or long term investments in greenhouses this is often too high (see the Kosovo case in chapter 2).
- Also traders and processors often lack capital to invest. Stores are a typical example. All over Afghanistan people claim that more storage capacity is needed. At the same time, storage might not be as profitable as people think. Often it seems that storing fruits for 3-6 months after the harvest is financially attractive. However this potential gain can only be captured if the store can be used for other products in the remaining 6-9 months of the year. This means that one VC can only be successful if it is combined with working on other VC as well. This can serve as an interesting example of a Critical Success Factor: only store owners who have produce to store the whole year can store fruits or potatoes successfully.

Management and organisation:
- The management and organisation of large processing industries can be a major problem; especially in (former-) state owned factories with too much staff, unclear responsibilities and insufficiently motivated staff. In Afghanistan some large raisin factories seem to suffer from such problems.

Economics:
- While large companies can suffer from poor management; small companies run the risk of being inefficient. In Afghanistan several small dairies have been set up but few are large enough to profit from economics of scale in the processing itself and in the marketing. In a similar way exports of several products (pomegranates; melons) are limited due to a lack of sufficient quantities of high quality produce.
- Cheap labour is often too easily considered an advantage. Generally, cheap labour also means very low skills and a low level of motivation. Migration can greatly influence the availability of labour; in countries like Moldova, Albania and Kosovo labour is much more expensive than one would expect, considering the low levels of income. In Afghanistan the same can occur in areas where people can earn much with from the poppy business or where people can migrate easily to neighbouring countries (e.g. Iran).

This list can be extended with many other examples. At the same time one must analyse each issue carefully before jumping into conclusions. Let us take the example of the poor technology used by small farmers. Identifying this as a constraint suggests it could be interesting to seek innovations that could increase productivity (and reduce the cost price). High-tech solutions can generally increase productivity, but these are not automatically called for. Often they are too capital intensive. This moves the constraint to the financial dimension: is a farmer willing and able to take a loan? And the skills: if he gets a loan for better equipment, does he have the skills to handle it?

The complexity of the issues at stake often requires the support of experts in the area concerned. It is virtually impossible for a non-expert to assess the performance of an enterprise as it involves assessing the actual situation vis-à-vis a potentially improved situation. Experts are needed with a good insight in the potential gains of innovations. They have to understand the options for technical improvements and the economics of these improvements. One of the pitfalls of a value chain approach is that inexperienced people suggest improvements in those parts of the VC that they understand the least; e.g. farmer level experts suggest that exports can easily be increased and exporters assume that farmers can easily produce better products at a lower price.

9   Vertical links between enterprises

9.1 Aim

The fifth step is to see how the produce moves form one primary chain actor to the next. Or in other words: how are the actors vertically linked? The popular saying goes: a chain is as strong as the weakest link. In the case of a VC one could say: the produce flows as easy through the chain VC as the least smooth linkages. If pastoralists in Ethiopia can not trust the traders to whom they sell their animals, all other actors will suffer as the flow of animals can dry up just because of one rumour that suggests that local trader have colluded to lower the price. If apricot farmers in Afghanistan mix up all qualities as traders do not pay according to quality, all subsequent actors in the VC have to deal with a very heterogeneous produce. So one has to understand how the primary actors are dealing with one another.

9.2 How to do it?

Normally each produce is transferred at least four times from one actor to the next: from farmers to traders; from farmers or traders to processors; from traders or processors to wholesalers and from wholesalers to retailers. Each of these transactions can be analysed by describing the:

- **Contract**: is there a contract? Orally or written? What does it stipulate? What are the sanctions if a contract is breached?
- **Trust**: Do the partners trust each other and how is the trust between them maintained?
- **Delivery terms**: Is there a *minimum or maximum* amount to be delivered? Is delivery planned or is it chaotic and ad-hoc? If it is planned (or ordered), how is it organised?
- **Quality**: Are (minimum) quality standards applied? Are these known and announced in advance? Is there any inspection? If yes: Who does this and how?
- **Price**: is the price based on quality? Are prices transparent: do both partners have access to market information? Are prices announced or negotiated on ad-hoc basis?
- **Payment**: cash of credit? There are three options or a combination: a. Cash payment; b. Buyer pre-finances seller; c. Buyer pays later (e.g. when he has sold it).
- **Technical Assistance**: does any partner assist the other with knowledge or skills?
- **Dependency**: do the partners in the transaction depend on each other? E.g. if a farmer sells to some one else, what happens next year? If a trader/ processor does not buy this year as he has no market, what will happen next year?

The next table shows how these aspects can be applied to the different transaction in the chain. Of course the actual transactions can differ in each case.

	Farmer to local trader	**Farmer to processor**	**Processor to wholesaler**	**Wholesaler to retailer**	**Wholesaler to exporter**
Contract					
Trust					
Delivery terms					
Quality / inspection					
Price determination					
Payment					
Technical Assistance					
Dependency					

9.3 Examples

In many developing countries transactions between actors in a chain are problematic. Due to the lack of quality standards distrust can easily arise between sellers and buyers. Especially relations between farmers and processing industries are often very poor. A lack of standardisation on delivery terms, packing, grading/sorting is often problematic as well.

Many examples can be cited on how important these issues are in developing a VC:
- In Afghanistan some traders pre-finance farmers. For example in Shomali plains they pay farmers 20% a few months before the harvest. The agreement is that farmers deliver their grapes to the trader at the 'prevailing market price at the time of harvesting'. This can be seen as a dependency relation in which farmers are vulnerable, as they cannot negotiate better deals later on. This is enhanced by stories that traders do not show up in the village at harvest time in order to try to lower the prices. On the other hand; when prices are high in Kabul all traders will be tempted to get more grapes. Secondly traders are committed to finalise the deal: e.g. in 2009 most traders continued to purchase grapes even though they made a loss in Peshawar. Having made a down payment of 20%, their choice was either to lose the 20% completely or to accept a loss of 10% upon completing the transaction. Some traders also provide technical assistance to grape producers; e.g. by advising them on which pesticides to use or on how to prune the orchards. Some traders even implement such husbandry practices themselves.

- In the fresh apricot VC in Afghanistan the following applies:
  - Farmers harvest all apricots at the same time; irrespective whether they are ripe or not.
  - They separate the fruits in 3 grades: first, second and third.
  - Next they mix these qualities in one box: first quality on top of course
  - Then the box is moved up all the way to retailers in Kabul who then have to throw away one third of the produce (and therefore end up with very high gross margins).

These problems could be avoided if traders would buy the produce from farmers using quality standards and paying according to the quality. This would also stimulate farmers to harvest progressively (as the fruits ripen).

- A crucial problem for many milk cooperatives is to measure the quality of milk delivered by members. Simple devises (e.g. a density meter) can lead to major improvements.
- Many Ethiopian pastoralists only sell their animals via a broker. Selling directly to a buyer from another area is risky as the pastoralists do not know market prices very well and the transactions are usually on credit (pastoralists being paid once the animal is sold on). The broker is a trusted kinsman who knows the market prices and guarantees that the buyer will pay. Over time brokers got a powerful position; even though they are not always able to ensure the timely payment by the buyers. Interestingly, Ethiopian grain marketers do use brokers as well; but only in a quarter of the cases there is the same ethnic background. This reflects a more transparent and stable market for grains compared to live animals.
- In Moldova most farmers have only one option to sell their poor quality apples: to the regional processor. These are former-state owned companies that were privatised but not modernised. They suffer from many problems; the main one is a lack of working capital. So they tend to buy large amounts of apples on credit. When they are then not able to sell their produce (e.g. as Russia bans Moldovan imports or when the Chinese are much cheaper), farmers do not get paid. The response of the farmers was to create cooperatives to create some counter veiling power and it worked to some extend. They get better prices and they get paid better (still very late), while individual farmers sometimes get nothing.

10   Horizontal cooperation

10.1   Aim

The aim of this step is to understand how similar actors work together in associations/ cooperatives. The can range from farmers' cooperatives to export associations. The issues are how these organisations function and what their impact is on the Vale Chain.

The background is that all kind of organisations can play an important role in the value chains:
- Learning:
  - o   Information exchange and mutual learning
  - o   Support to members via extension programmes
  - o   Platforms for innovations through research and development
- Setting standards
- Reaching economics of scale:
  - o   Farmers cooperatives
  - o   Export cooperatives
- Planning in the chain (avoiding overproduction or scarcity).
- Lobbying and advocacy.

These organisations can be a primary actor (e.g. coops who own the produce) or as a secondary actors (e.g. study circle where farmers collect and share knowledge and information), yet as they have experience in mobilising the actors into action they deserve special attention.

10.2   How to do it?

First of all, make an inventory of all forms of cooperation or association of primary actors.

For each of them address these questions:
1.   What is the aim of the organisation?
2.   How is the decision making organised? Think about the statutes/bylaws; the tasks division between members, board and staff etc.;
3.   What do the members get out of it?
4.   What do the members contribute to it?
5.   Is the organisation sustainable in financial terms?
6.   What is the role of this organisation in the VC?
7.   What could be a potential role of this organisation in developing our VC?

10.3   Examples

The most popular form of horizontal coordination and cooperation is producers' organisations; often these are cooperatives, but it can also be a study circle, which limits itself to (mutual) learning.

In Afghanistan some 1500 farmers' cooperatives have been registered with the ministry of agriculture. They function mostly as a channel of (politically motivated) support of the state to provide inputs (seeds and fertilisers) to the farming community; on credit, at subsidised rates or a combination of both. Although the coops have an open membership, generally only a fraction of the farmers is member (less than 10%). Actually legally only land owners *can* become member, so the subsidies end up with better off farmers. As the government uses coops to buy support among farmers, most coops get away with not fully (re-)paying the governments for the inputs received.

Many projects in Afghanistan support the creation of coops; mostly marketing coops to sell their produce together; this is popular for fruits, milk and vegetables. For further discussions on

cooperative development the reader is referred to the twin manual on business planning for coops.

Some organisations are only dealing with knowledge and information. An interesting example is the Albanian National Seed Potato Association. Created by farmers and traders its objectives are to exchange information on the productivity and quality of the different potato varieties and to create trust between the traders and farmers. This was needed as the (imported) seed potatoes were very expensive and farmers needed reconfirmation of the potential profit. Traders from their side needed the feedback from farmers on the performance of different varieties under different ecological circumstances and management systems and they needed a platform to sell their seed potatoes. So the main activity of the Association was to organise on-farm trials and national level round table meetings were the results of these were shared and discussed. To further enhance the efficiency f the seed potato supply the farmers organised themselves in informal local groups to order seed potatoes together. It worked very well: the use of improved seeds increased quickly and the national potato production increased with 25% in three years[2].

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[2] For more details see: Holtland et al., 2001.

11   Chain coordination

11.1   Aim

The aim of this step is to understand how the activities of the actors in the VC are governed and /or coordinated. Underdeveloped value chains are based on simple ad-hoc transactions between a range of actors; only 'the invisible hand' of the private gains that motivates each of the actors functions as a coordination mechanism between the producers and the final consumers. However in increasingly diversifying markets with many actors involved in adding value some form of chain coordination is more efficient than a 'laisez fair' approach.

Coordination is always based on some form of power and while it is generally beneficial for the whole VC, too much power for one actor must be avoided as it can easily lead to a monopoly. Generally the power balance is in favour of those actors in the chain that are closest to the final consumer/client. One way to counterbalance too powerful parties there is to organise the actors involved in the production part; e.g. by creating a cooperative of farmers. Another way to avoid over-reliance on one actor is increase the transparency in the system; e.g. by publishing prices, by promoting the use of standards and using independent inspection systems.

The biggest advantage of chain coordination is an increased efficiency by avoiding waste: if farmers know what consumers want they could only produce this. Another advantage is that coordination can provide the primary actors the confidence they need to invest. If a cannery knows it can sell twice as much then it does today, it can invest to increase its capacity. The same counts for new products: if a farmer knows that traders will buy his total production of a new variety, this would enhance his willingness to invest.

The most advanced system of chain coordination is *chain integration*: for example when one company would grow fruits, process and bottle them and sell them to retailers. The advantage of such a system is that everything is under control; yet the disadvantage is a lack of specialisation and the huge capital investments that have to be generated by one player. As explained in par. 2.3 chain integration is only useful when transaction costs are high and/or with complicated and expensive technological processes that need to be managed intensively.

11.2   How to do it?

In terms of coordination we distinguish:
- *Market induced coordination*: Powerful actors at the top of the value chain, in direct contact with final consumers, demand specific products from the suppliers. In their turn suppliers demand specific products from producers etc. The source of power can come from:
  - **Customer relations / market intelligence**; generally strong with im- and export but can also be in capital or big towns.
  - **Large market share**; this can be a processor with a strong brand or a supermarket (chain) with a large turnover.
  - **Control over key technology**; if only one player has a store or a specific type of processing equipment it can exert considerable influence on all other players.
  - **Collusion of market parties** ; this means major market players secretly agree on how to avoid competition among them.
- *Policy induced coordination*: Government uses regulations to control the VC and or to ensure that VC is getting more competitive. We will look more into this in step 10 on the enabling environment.
- *Stakeholder induced coordination*: Stakeholders in a VC can agree among themselves (in a transparent way) to coordinate their activities: they can design (voluntary) quality standards and create ad-hoc or permanent platforms to discuss issues like marketing/-branding, production planning, exchange of information and even price settings.

11.3   Examples

Generally there is little chain coordination in Afghanistan; few actors have a large enough share of the market to influence the whole VC. Most coordination takes place via ad-hoc market based incentives.

In several cases individual exporters try to shorten the chain by contacting farmers directly and asking them to produce what they can sell abroad: e.g. certain types of dark grapes that have a good market in Japan or certain types of almonds with a good market in India.

A special case is the trade of Afghan grapes to Pakistan. Traders in Pakistan pre-finance large traders in Kabul who then pre-finance the farmers in Shomali plains. As discussed in par. 9.3 this has some advantages and disadvantages for all parties. This system could be used to coordinate activities; for example by encouraging farmers to grow specific varieties or to enforce a better grading of the grapes. This hardly seems to be the case.

An interesting example of chain integration is the plan of an international company to develop a fully integrated VC of pomegranates. They plan to invest in plantations and in processing capacity to satisfy the growing international demand for pomegranate juice. This might be more efficient than waiting till market forces have 'induced' thousand of small Afghan farmers and traders to deliver this product to the international market. On the other hand it requires huge, long term investments.

Chain coordination induced by the stakeholders is generally based on VC-based associations. In Afghanistan the Afghan Almond Industry Association is an example. Typical tools are training of farmers and traders, certification system of nurseries (to improve the quality of saplings) and a national marketing plan indicating which almonds are best grown in which region.

The Albanian National Seed Potato Association (see par. 10.3) is another example. By exchanging the results of on-farm trials and by connecting farmers and traders it coordinated the input supply which was crucial for the overall competitiveness of the VC.

NGOs often neither have the resources nor the mandate to engage in national level associations. They can however do the same at lower levels. Simply offering the opportunity to different players to meet in a local round table can go a long way of coordinating the VC. Processors or traders can announce what and how much they want to buy; farmers can express their wishes for inputs and what they have to offer to buyers while input suppliers can explain what they are able to sell.

When a limited number of players in the VC become too powerful, they can conspire against the others. This is called collusion of market parties; often farmers do accuse traders of 'agreeing the price among themselves'. It is however difficult to prove this. Studies generally show that as long as there are no entry barriers for new players, collusion of traders is rare.

12   Commercial support services

So far we focused on the primary actors; now we move to the secondary or support actors. From the perspective of the primary actors, the issue is how to improve their access to inputs and technology, to knowledge and skills, to capital and to markets.

12.1   Aim

In this step we talk about the secondary actors, those who supply services to primary actors, like:
- Suppliers of inputs, equipment, packing material, etc.,
- Financial services: access to credit for investments and working capital
- Business development services and advisory services
- Owners of physical market infrastructure (often municipalities)
- Market Information Systems.

The aim is to analyse the effectiveness, efficiency and sustainability of the services that are supplied to the primary actors in the selected value chain.

12.2   How to do it?

Fist an inventory of service providers is needed: this covers not only private advisory service and banks, but also producers of boxes or simple tools, mechanisation services, transporters, export support agencies, and municipalities, etc.

For each category an assessments has to be made:
- Assess the services that are provided:
  - Which inputs and equipments are available? Are better alternatives known to the providers? Can these be provided or procured? Are the suppliers innovating and looking for new options to support their clients?
  - What kind of financial services are offered to farmers, traders and processors? How much can be borrowed? Under which condition? Do these cover the demands and opportunity of the clients? Can the clients fulfil the conditions? Can the financial services and products be improved?
  - What kind of business advice is offered: on management, technology, and marketing?
  - What market infrastructure is offered and which market information?
  - What is the quality of the packing materials provided etc?
- Assess the link between the service providers and their clients (the primary actors)
- Asses the performance of the service providers, making a quick scan of their:
  - Management and organisational set up,
  - Human resources
  - Economics and profitability (or costs recovery).

Obviously each assessment should lead to a description of the present situation, as well as to the identification of potential improvements. Potential improvements should be related to previous constraints identified by the primary actors. So the results have to be compared with those of step 4. If banks claim they like to borrow more money to traders, but traders say they do not need additional capital, further probing is needed.

To make the assessment, one can start with studying existing reports and strategies. When needed the team has to make their own assessment based on:

- Dialogues and participatory evaluations with the service providers
- Surveys into the clients satisfaction of the service providers
- Round table discussions with service providers, their clients and independent experts.

12.3   Examples

As the foundation of a VC is the quality of the inputs and technologies uses, the suppliers of these are crucial support actors. Like in many other countries, in Afghanistan the first step in improving the perennial horticultural industry is to ensure better quality saplings or seedlings. The same counts for basic issues like fertilisers or crop protection chemicals.

One has to be aware that input suppliers can have their own problems with their raw materials supply. In Albania farmers complained about the low quality of the P- fertilisers. It proved indeed that the fertilisers sold had a lower P-content than claimed; this was a shock for farmers as well for the traders. As the traders did not have the means to check the quality of the fertilisers, it proved they had been cheated by their (international) suppliers.

Access to capital is crucial. In many countries the development of profitable activities is stagnating as people do not have enough capital to invest. In chapter 3 we saw how a lack of capital slows down the investments in the fruit and vegetable sub-sectors in Kosovo. The solution found was a subsidy on specific investments. NGOs tend to do the same; although usually for a much smaller target group. Other options are to subsidise the interest rate for specific loans; in Moldova a special credit line was opened for SMEs involved in agricultural marketing activities. An NGO assisted in developing the business plans and credit applications of these SMEs. It also provided cheap capital to a bank, which could only be used for these applications. At the same time the bank had to make its own independent assessment of the creditworthiness of the applicant as it was responsible for ensuring repayment of the loans. It works well for many years now.

Providing advisory services on a commercial base is very complicated in developing countries. Farmers and traders alike feel that such services should be free; especially as the quality of the advice is not always very high. In Albania and Moldova advisory services were set up that got to a one-third cost recovery. This seems to be a kind of maximum level for this. Actually this is higher than private agricultural advisory services in industrialised countries achieve as these either survive due to government projects or due to being embedded in input supply. Some form of costs recovery should be an aim for any NGO working on advisory services as it makes the system accountable to the clients. Factors that can contribute to better costs recovery are specialised advice (plant protection; investment planning), packing services (in a series of visits or embedded in inputs) and involving clients (farmers and/or traders) in the decision making process of the service provider (e.g. as board members).

13 Non-commercial support services

13.1   Aim

In step nine the aim is the same as for step 8, this time the focus is on non-commercial organisations that support the primary actors in the value chain. In agriculture this generally refers to:
   a. Research
   b. Extension
   c. Education services
   d. Market information
   e. Export promotion agencies
   f. Irrigation
   g. Public utilities: water, electricity and infrastructure
   h. Donors' projects and programmes.

Like in step eight the key-questions are how effective, efficient and sustainable these services are.

13.2   How to do it?

Like in step eight we work in four steps here:
   - **Assess the services: what services are provided?**
     - o What research is being done? What are the extension messages and which extension methods are used? Are the farmers satisfied with the information and knowledge? Are better alternatives known? Are researchers and extension workers innovative and looking for new options to support farmers?
     - o Is the education system adequate?
     - o What kind of market information is offered and how are exports promoted? How is market information collected and disseminated? Do these cover the demands of farmers and traders? Can the services be improved?
     - o How does the irrigation system function? What is the role of farmers in managing and maintaining the system, in water management and in paying for the water?
     - o Are public utilities (electricity, water, roads) adequate?
     - o Are donor programmes relevant, adequate, efficient and sustainable? Can any form of cooperation been foreseen?
   - Assess the link between the service providers and their clients (the primary actors)
   - Assess the performances of the service providers, making a quick scan of their:
     - o management and organisational set-up,
     - o human resources
     - o financial sustainability (how are they financed?)

As in step eight we are looking for potential improvements related to the value chain. How can the access of the primary actors to inputs and technology; to knowledge and skills; to finance and to markets be improved?

13.3   Examples

This is not the place to explain in details the benefits of public services like research, education and extension. Worldwide the importance of these for agricultural development is well documented. One example from the main crop of Afghanistan, grapes, should suffice. On farm trials with using a trellis system and applying Gibberellic Acid (GIB) on grapes in the Shomali plains lead to substantially higher yields. Although the GIB treated grapes fetch a lower price on the market, the overall impact on the income for farmers is positive.

The crucial role of public utilities is not always sufficiently clear to NGOs. Therefore the next table is included which shows the main constraints mentioned by 147 fruit and nut traders in 15 markets in Northern Afghanistan.

Table: Main constraints mentioned by 150 traders in 11 markets

Constraints	Total	Fa-khar	Pul-i-Khumri	Aibak	Shibir-ghan	Imam Sahib	Mir BK	Shekh Ali	Sari-Pul
Limited finance to run the business	**20**	3.0	2.8	2.9	0.9	2.9	2.3	2.5	3.0
Lack of storage capacity	**18**	2.6	2.4	1.9	2.3	2.2	2.2	2.0	2.0
Electricity	**13**	2.6	2.4	0.4	0.2	2.2	2.7	0.3	2.0
Water	**8**	0.5	1.4	0.9	0	2.3	1.6	0	1.3
High transportation costs	**7**	0.8	1.0	0.3	0.6	0	0.3	2.5	2.0
Lack of market information	**6**	1.4	0.1	0.5	0.6	1.7	0	0	1.7
Finding buyers/ markets to sell	**6**	1.1	0	1.4	0.5	0.6	0.4	1.2	0.5
Lack of proper packing material	**5**	1.0	0.8	0.2	0.2	0.2	0.7	0.7	1.0
Lack of market place	**4**	0	0.4	3.0	0.4	0	0	0	0
Losses in quality	**4**	0	1.3	0.1	0.9	0.3	0	0.3	0.7
Losses in quantity	**3**	0	0.9	0.1	0.9	0.9	0	0	0.2
Poor quality of Product	**2**	0.4	1.1	0	0	0.4	0	0	0.2
Finding farmers/suppliers	**2**	0	0.1	0.1	0.7	0.1	0	0	0.7
High rent of shops	**1**	0	0.6	0	0	0	0	0	0
Lack of equipment	**1**	0.3	0	0	0.2	0	0	0	0

Explanation: scores ranged from 0 (no constraint) to 3 (essential constraint)

As in many cases, the lack of capital is the main constraint; followed by a lack of storage capacity. After that we see that public utilities as electricity and water do represent major constraints to traders and hence to the whole value chain.

14   Enabling environment

14.1   Aim

The aim is to understand to which extend the macro-economic and policy environment is stable and conducive for developing the chain. What are the relevant rules and regulations? What are the relevant policies and strategies of ministries and of other relevant authorities?

14.2   How to do it?

The following aspects of the institutional environment can be examined:
   a.   Macro-economic environment
   b.   Legal environments, rules and regulations
   c.   International agreements
   d.   Policies and strategies of MAIL
   e.   Policies and strategies of donors and NGOs.

Which of these are the most relevant depends on the value chain selected. When talking about a short, local value chain (e.g. milk marketing in a regional town), aspects like the macro-economic environment might be less important. One should however be careful with this; because of the quickly increasing international trade, imported milk can reach regional towns and capture the top-market segment there.

In a globalising world rules and regulations have a huge influence on economic growth patterns. This is obvious for value chains that lead to exports, but is equally valid for products on local markets in developing countries. Unfortunately, positive policies and support from a ministry of agriculture can be easily undone by corruption and abundant red tape of its own staff or from other authorities that suppress (private) investments and innovations.

14.3   Examples

Macro economics have a direct impact on exports; as many developing countries have instable currencies, im- and export can change dramatically even in short periods. For example milk was imported from Kenya into southern Ethiopia for many years until the Kenya Shilling devaluated due to social unrest and suddenly milk start to flow from Ethiopia into Kenya. This kind of instability is undesirable as it means that investors run a high risk of betting on the wrong horse.

In Afghanistan the same occurs inside the country as the Southern provinces use the Pakistani rupee as their currency. As this devaluates more rapidly than the Afghan Afs. products from Northern Afghanistan become more expensive in Southern Afghanistan while products from the south became more cheap in the north. This can lead to a reversal of the flow of products; as fruits from the South become cheaper, the north will tend to focus more on fruits that can not be grown in the south.

Legal issues affect all kind of aspects of the value chain. One example is land ownership: like in many other countries pastoralists in Afghanistan and Ethiopia suffer from contested land rights. Arable farms increasingly occupy grazing lands and conflicts between ethnic groups lead to much insecurity.

International treaties and policies have a direct impact on agricultural trade of Afghanistan as well; e.g. Pakistan does not allow Afghan trucks drive in their country while India has reduced the import fee for several Afghan products.

Regulations can have huge impact as well. In many countries dairy factories have a very hard time to compete with small farmers selling unsafe milk as street vendors. When a government decides to ban these informal milk sales for public health reasons, this has huge consequences for the milk VC. Prices and quality go up and the increased margin allow for more investments.

Strategies and policies of governments and donors are important as well. We have seen the example of Kosovo where a VC analysis showed that more investments would be attractive for both investors as well aid for the country (by creating jobs and reducing imports). So a subsidy was granted which accelerated investments in orchards and greenhouses.

15   From VC Analysis to VC Development

15.1   Introduction

The ultimate aim of analysing a value chain is to identify ways to improve the overall performance of the chain. So upon completing the ten steps, all information has to be combined and priorities have to be formulated on how to support the VC. As many aspects have been taken into account in the analyses, an equally large number of potential interventions can be considered.

In principle three different types of VC development strategies can be designed:
- Support to the primary actors
- Support to the secondary support actors
- Support to the overall functioning of the Value Chain.

Of course this support can be combined and to some extent they might overlap. Still, for reasons of clarity they will be treated here separately.

15.2   Supporting the primary actors

The following types of interventions can be formulated, based on the outcome of the VC Analysis:
- Extension programmes for farmers focusing on improving the efficiency and quality of their production via better inputs and technologies
- Business support programmes for processors, traders, exporters, etc. The exact nature of the support will be based on the results from step four (enterprise performance)
- Support to exporters via support for export marketing via export promotion, matchmaking and market information.

These are traditional agricultural development programmes that will be primarily based on the outcomes of step 4: the performance of the enterprises. They need no further attention here.

15.3   Supporting the secondary, support actors

The VC approach can also be used to design (national) strategies for sub-sectors or a cluster of VC's. Then interventions are designed at a more general, strategic level. The following clustering is most appropriate:
- Access to inputs and technologies
  - Subsidise inputs (e.g. exemption of import duties, VAT, etc.)
  - Support input suppliers (e.g. Business Associations, training on using inputs)
  - Improve quality control of inputs (e.g. seedlings)
  - Design more appropriate technologies via applied research
- Access to knowledge, skills and information
  - Improve applied research on inputs and technologies
  - Support agricultural extension systems
  - Support Business Support Services
- Access to markets
  - Marketing studies and surveys
  - Export promotion
  - Improve physical markets
  - Market Information Systems,
  - Strengthen trade marks
  - Support companies making packing materials
  - Promote standardisation, quality inspection and certification systems

- Access to capital
  - Design new credit lines appropriate for the value chain/ sub-sector
  - Subsidise the interest of some well targeted credit lines
  - Direct subsidies for farmers, processors or exporters

These programmes are also rather traditional and will primarily be based on the results of step four. Actually one will notice that the clustering used here is the same as the four (external) dimensions in step four on the enterprise performance.

15.4   Value Chain Development

Many interventions to support primary - and/or support actors can be designed without a value chain analysis as well. The added value of a chain analysis is however maximised when interventions are designed that target the overall functioning and performance of the Value Chain as such. Only in that case one can speak of true Value Chain Development. Interventions to improve the performance of the VC integrate the finding of all steps with a focus on the results from step five to seven.

A first group of interventions focuses on **improving specific links in the chain**. Usually the focus is on the bottom of the chain as there the chain is less structured and many people are involved:
- Cooperative development to reduce transaction costs between farmers and traders or even to come to chain integration (when a coop performs more than one function).
- Contract farming or out-growers' schemes; another way to reduce transaction costs
- Improve trust among stakeholders via round tables, exchange visits, sharing information
- Matchmaking: shorten the VC by linking farmers to traders.

A second group of interventions target the **whole value chain**. These require an understanding of what happens all along the chain and to be successful such interventions require very good skills in facilitating multi-actor processes:
- Standardisation and certification. Although costly and complicated to set up, it greatly reduces transaction costs. Examples of simple improvements are grading charts for fruits and density meters for milk collectors. NGOs can contribute much to this when they start such initiatives locally with a cooperative or even a few bigger traders. An example of a complicated intervention is a national certification system (e.g. for organic farming).
- Quality enhancing programmes. Primary actors can be supported to enter higher value markets by providing training, tools to measure quality and/or technology to enhance quality. This requires a truly VC approach as all actors have to cooperate and often more than one actor needs support. Assisting farmers to improve the quality of their fruits is of limited use when the trader has no proper storage capacity etc.
- Export promotion via export cooperatives of producers or export associations of traders can have a strong influence on the whole VC. This can generate a lot of interest and it can motivate many actors, it requires an enormous amount of work. Often a combination of round tables, training, (informal) contracts with growers and quality control programmes are needed to get everybody in line. Unfortunately in practice export programmes regularly fail as too many things have to be organised at once. So one has to make a real good assessment whether a VC is really ready to export. A general rule is: one can not export successfully when the local market is not well developed.
- Market information systems. Providing market information to all actors makes the VC more transparent and allows for more rational decision making at all levels. Reliable production data is also relevant market information.
- Chain coordination via round tables, workshop and exchange visits. Making sure people understand what others in the VC are doing is still one of the most simple and powerful tools to enhance coordination and cooperation.

- Improved legislation. Enforcing health regulations (e.g. regulations on packing products) can sometimes have more impact on a VC than anything else.

Many of these interventions require a solid institutional embedding. Programme initially tends to cooperate with ministries of agriculture and/or Chambers of Commerce for this. At a later stage they often establish a VC-based association that can act as a private sector partner for the government and that can take several of the chain coordination functions: standards and quality control, organising round tables and marketing promotion.

In practice programmes combine a number of interventions to enhancing the strategic cooperation in the VC: e.g. set up a cooperative that provides extension services, enforces quality standards and sells the produce at higher value markets. Often NGOs start to work on assisting farmers to cooperate in marketing. This can be either through informal 'Interest Groups' or through formally registered marketing cooperatives. At the moment in Afghanistan, virtually all NGOs seem to be working on this. In the twin manual 'Business Planning for Cooperatives' one can read how this could be done.

15.5   Checks

Whatever support is designed, the advantages and disadvantages of this support for the whole value chain have to be assessed. This you can do by asking a few critical questions:

1. How will your planned interventions affect the whole value chain:
    a. Will it lead to another flow of the product? Will new actors get involved? If yes, what does it mean?
    b. Will it lead to another positioning on the final market in terms of the four P's of the traditional marketing mix: Product, Price, Place or Promotion? Will the intervention improve the quality and the price of the final product?
    c. Will it strengthen the links between the primary actors in the chain? If yes: *how*?
    d. Will the intervention affect the power relations in the VC and (as a result) the distribution of the value added and profit among primary actors? Will those who profit from the action be asked to contribute to the programme? Can concerns of those who lose out be accommodated?
    e. Will the planned intervention improve the horizontal cooperation?
    f. Will the coordination mechanisms in the VC be improved or changed?
2. How will those affected by the planned interventions be involved in the planning and implementation of it? Is it possible that to cooperate with others?
3. Does the intervention really use all information collected in the VCA?

Upon the actual formulation of an intervention it is of utmost importance that the expected impact on the overall performance of the intervention is reflected in the objectives and expected output and in the related indicators for monitoring. In practice this is often forgotten, so a simple example. Many NGOs aim at improving the input supply of farmers; all too often they do this by providing these inputs (at subsidised rates) themselves. A Value Chain approach requires them to involve the local inputs supplier: he should be supported to deliver the inputs to farmers. Many NGOs do not do this as it is too "time consuming". Yet if they take this issue seriously they would include an expected result in the Log-frame like: "local input suppliers are able to provide inputs in a sustainable way". Then this is not too time consuming: it is simple something that the programme has to strive for. And the programme will also actively monitor the progress in this respect.

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ANNEX Data on margins of Afghan fruit traders

A Market Baseline Survey of the HLP project of the WB into fruits and nut traders in 11 districts in Northern Afghanistan gave the following data on the turnover and margins on the different products.

Table: Financial turnover and Gross Margin per crop

Product	2007			2008			% of gross income per crop (2007 and 2008)
	Total Turnover (1,000 Afs.)	Gross margin (%)	Gross margin (1000 Afs.)	Total turn-over (1,000 Afs.)	Gross margin (%)	Gross margin (1000 Afs.)	
Apples	74,559	18	11,515	136,291	19	21,536	29
Apricot	8,669	25	1,732	12,734	22	2,280	4
Cherry	1,800	7	120	2,205	9	180	0
Grapes	57,735	19	9,178	78,762	18	12,062	19
Mulberry	91	6	5	264	17	39	0
Peaches	10,309	24	2,016	13,166	22	2,346	4
Pear	80	16	11	171	14	21	0
Plums	46	18	7	250	15	33	0
Pomegranates	3,486	32	851	2,903	12	307	1
Sub-total	**156,775**	**19**	**25,435**	**246,746**	**19**	**38,804**	
Melon	7,177	23	1,346	10,420	19	1,660	3
Watermelon	8,699	29	1,948	10,524	32	2,526	4
Sub-total	**15,876**	**26**	**3,294**	**20,944**	**25**	**4,186**	
Almonds	116,344	12	12,418	155,466	12	16,446	26
Apricot kernel	4,677	16	631	6,690	17	978	1
Dried apricot	58	9	5	159	10	14	0
Pistachio	33,887	8	2,597	43,503	11	4,393	6
Raisin	19,741	7	1,294	15,180	7	948	2
Walnut	3,703	21	636	4,979	18	764	1
Sub-total	**178,410**	**11**	**17,581**	**225,977**	**12**	**23,543**	
Overall total	**351,061**	**15**	**46,310**	**493,667**	**16**	**66,533**	**100**

Note: This table is based on adding up the data of all transaction of all traders; so large transaction count more than small transactions. The GM is percentage of purchase price.

In financial terms apples, almond and grapes are the most important crops by far with resp. 29, 26 and 19% of the Gross Margin. Of secondary importance is pistachio, apricot and peaches with around 5% of the overall Gross Margin.

There is a clear difference in GM between fruits (19%), melons (25-26%) and dried fruits and nuts (11-12%). The 147 traders had an average turnover of resp. 2.4 and 3.4 million Afs. in 2007 and 2008 (resp. 48.000 and 68.000 USD). The average total Gross Margin was resp. 6.300 and 9.100 USD.

There were substantial differences between the types of markets; as this table shows. A-markets are provincial markets (in towns like Mazar, Puli-Khumri and Kunduz) while B-markets are small district markets (like Sozm Qala and Bazarak).

Table: Differences in volume and GM of major crops between A- and B markets

Produce	Volumes per trader (1000 seer)				Gross Margin (% of purchase price)			
	A	A	B	B	A	A	B	B
	2007	2008	2007	2008	2007	2008	2007	2008
Apples	3,117	6,550	2,154	2,447	13	13	27	36
Apricot	292	354	361	504	22	18	27	25
Grapes	3,054	3,978	1,563	1,633	19	18	19	18
Almonds	649	817	192	214	11	11	15	16
Overall	**10,931**	**15,788**	**6,121**	**7,261**	**13**	**13**	**20**	**22**

Note: the total does not tally with the total of the mentioned crops as it includes a range of other crops as well.

Traders on A-markets have a 75-100% higher turnover and their gross margin is lower for apples, apricots and almonds. Only for grapes there is no difference. The GM per trader in A-markets in 2007 and 2008 was resp. 8,000 and 11,800 USD; roughly double of their colleagues in B-markets who scored resp. 4.800 and 6.600 USD.

The next table shows that there can be substantial differences between varieties.

Table: Key data on most important varieties

	Variety	Purchase Price (Afs. / seer)		Sales Price (Afs. /seer)		Margins (Afs. /seer)		Margin (% purchase price)	
		2007	2008	2007	2008	2007	2008	2007	2008
Apple	Beruti	154	155	183	185	29	30	19	20
	Golden del.	155	159	199	201	44	43	28	27
	Maling	128	145	152	173	25	28	19	19
	Nazukbadan	169	196	201	231	32	35	19	18
Apricot	Amiri	150	152	184	189	35	38	23	25
	Qaisi	116	140	156	175	40	35	34	25
Grapes	Kishmishi	140	159	172	188	32	29	23	18
	Hussaini	168	185	197	215	28	29	17	16
	Taifi	183	192	208	218	24	26	13	13
	Singulkhani	181	194	201	213	20	19	11	10
Almond	Satarbaie	1,907	2,508	2,219	2,986	312	478	16	19
	Abdul wahid	1,037	1,148	1,227	1,299	190	151	18	13
	Murawaji	765	810	870	930	105	120	14	15
	Qanbari	1,646	1,562	1,794	1,723	148	161	9	10
	Qahar baie	1,472	1,591	1,717	1,882	245	292	17	18
	Kagahzi	1,367	1,506	1,520	1,681	153	175	11	12

In the next table we compare the costs of the value adding activities executed by traders of the different products.

Table: Value adding activities for fresh fruits

Activity	Apples			Apricot			Grapes		
	%	Cost/ seer	% losses	%	Cost/ seer	% losses	%	Cost/ seer	% losses
Harvesting	5	11.0	1.0	0	0.0	0.0	14	7	1
Transport from farm	35	6.8	2.3	31	8.0	2.0	48	6	2
Cleaning	24	5.8	2.1	20	4.5	1.0	8	11	5
Sorting/ grading	51	6.1	1.8	46	6.2	2.4	40	7	3.4
Packing	43	15.0	0.8	29	11.7	1.3	34	11	3.3
Storing	17	7.7	3.4	12	10.0	1.3	8	3	2
Transport to market	34	9.1	0.5	29	6.3	0.0	25	7	0
Total		**61.3**	**11.9**		**46.7**	**7.9**		**52**	**17**
Weighted total		**18.3**	**3.4**		**12.8**	**2.5**		**13.4**	**4.1**

Note: data based on five FD per crop.

This table must be read as follows: 5% of the apple traders harvest apples themselves; for those who do so the costs are 11 Afs. per seer and 1% of the produce gets lost in the process. If a trader would perform all adding value activities, the total costs would be 61.3 Afs per seer and losses amount to 11.9%. However in the actual situation traders on average had 18.3 Afs. per seer of costs for the adding value activities that they did and they endured 3.4% losses in the process.
As noticed before only few traders do harvest themselves. Some one third transport the fruit. With grapes it is even half. A substantial share of apples and apricot needs to be cleaned. An indication of poor husbandry practices. About half the traders engage in sorting and grading and one third in

packing. The latter is expensive: carton boxes costs 10-15Afs/seer and wooden crates 20 Afs/seer. Only 8 - 17% is stored; usually this will be for short periods. Some 30% delivers the produce to the buyers. Undertaking all activities would costs 45-60 Afs./seer; in actual practice trader spend about 30% of this.

The next table shows the same for nuts.

Table: Value adding activities for nuts

Activity	Almond			Pistachio			Walnut		
	%	*Cost/ Seer*	*% losses*	*%*	*Cost/ Seer*	*% losses*	*%*	*Cost/ Seer*	*% losses*
Harvesting	0	0.0	0.0	0	0.0	0.0	0	0	0
Transport from farm	21	2.1	0.0	25	4.0	0.5	8	2	0
Cleaning	6	7.5	0.0	29	12.8	1.0	28	13	1
Drying	25	6.3	1.0	43	38.0	4.0	33	0	0
Sorting/ grading	57	12.3	1.3	25	2.5	1.0	67	2	1
Packing	39	6.6	1.3	64	7.5	1.3	42	5	1
Storing	72	2.0	3.5	92	1.8	0.0	25	7	0
Transport to market	29	9.8	0.1	44	9.0	0.0	25	4	0
Total		**46.6**	**7.1**		**75.6**	**7.8**		**34.0**	**2.5**
Weighted total		16.3	4.0		31.9	3.2		10.4	1.1

Note: Data based on resp. 4, 2 and 3 FDs

Compared to the fruits a few issues stand out:
- No harvesting and less transport from the farm
- some drying (apparently farmers deliver insufficiently dried produce)
- sorting and grading is similar: about half of the produce
- over half is packed; most in bags (of 3-5 Afs./seer; much cheaper than for fruits)
- much more storage (well over half is stored)
- one third is transported to the buyer.

The high level of storage might mean that margins are underestimated since the purchase- and sales prices used are average prices in the season. Many nuts will be stored for a couple of months and by that time the price will have increased considerably. Data on the changes in prices over time can be found in the reports on the FDs; such information is hard to generalise as the harvest season differs from one area to the other and making averages does not make sense.

With these data at hand the Net Margin of traders can be assessed: the Gross Margin minus the direct costs and the costs of the losses. The latter value is attained by multiplying the weighted average losses with the average purchase price of apples over 2007 and 2008. In the next table these data on adding value activities are combined with the Gross Margin and average purchasing costs (both an average of 2007 and 2008) of the produce.

Table: From Gross Margins to Net Margins

	Apple	Apricot	Grapes	Almond	Pistachio	Walnut
Purchase price (Afs./seer)	143	148	168	1481	2672	492
Sales price (Afs./seer)	178	178	199	1658	2923	574
Gross Margin (Afs/seer)	35	31	32	177	251	82
Direct Costs (Afs./seer)	18	13	13	16	32	10
Losses (Afs./seer)	5	4	6	87	95	8
Direct Costs as % of purchase	13	9	8	1	1	2
Net Margin (Afs./seer)	12	14	13	74	124	64
Net Margin (% purchase)	9	10	8	5	5	13

The net margin is 12-14 Afs/seer for fruits, or 7- 10% of the purchase price. For nuts it is only 5%, except for walnut that scores very well with 13%. The overall Net Margin on all these major crops is 7 % of the purchase price. The investments in value adding activities are only 10% for fruits and a minute 1-2% for nuts.

Looking at all data, the most interesting one is that less than 5% of the turnover is invested in value adding activities. The question is why? Is it economically attractive to invest in adding value? Phrased differently: are Afghan customers willing to pay more for better graded or packed products? Several attempts were made to see if there is any relation between investment in value adding and variables like purchase price, sales price, Gross Margin and Net Margin. The next table show the result of one such an attempt for apples.

Table: Relation between investing in Value Adding activities and margins in apple

Investment level	Average Volume	Purchase price	Sale price	Cost of Packing	Total cost	Gross Margin	Net Margin	Nr. of ob-servations
Zero	610	165	208	0	0	42	42	20
Medium	4,729	148	174	6	11	26	15	18
High	9,221	159	201	22	36	43	7	17

There is a clear relation between the size of the business and investing in value adding activities. Small traders in the districts (all, except one, zero-investors are in B-markets) are not adding any value and their margin is higher due to lack of competition and the very low turnover that forces all competitors to have higher margins. Bigger traders add more value, but their margin is lower. This is confirmed in the table on the next page.

The table shows that for fruits larger traders add more value, but they do not get a higher net margin, leave alone a better return on their overall investment. These traders tend to be in bigger towns where they have to do some form of grading and packing to face the competition; yet the better margins that one would expect for this is apparently offset by strong competition on price (while the seize of the business allows the trader to survive with lower margins). For the nuts the situation is slightly better. This is probably related as well to the fact that more of the nuts are sold to higher level markets (provincial towns and Kabul).

Table: relation between Value Adding and Margins in the main crops

	Volume (seer/yr)	Purchase price	Sales price	Gross Margin	Direct Costs	Net Margin	% Net Margin
Apples							
Shekh Ali	15,713	96	163	67	54	13	9
Pul I Khumri	10,191	138	161	23	21	2	1
Fakhar	7,169	189	218	28	22	6	3
Imam Sahib	963	144	178	34	13	21	13
Mir BK	658	146	178	32	8	24	16
Bazarak	523	181	226	44	5	39	21
Apricot							
Shibirghan	7,017	190	227	37	14	23	11
Pul I Khumri	2,700	132	161	29	20	9	6
Imam Sahib	1079	154	186	33	20	13	7
Shekh Ali	933	154	213	59	37	22	11
Fakhar	426	155	186	31	23	9	5
Mir BK	270	200	233	33	10	23	11
Mamud Raqi	220	95	118	23	10	13	12
Bazarak	112	174	212	38	5	33	18
Grapes							
Mir BK	11,901	111	138	27	19	9	7
Pul I Khumri	9,917	170	197	26	19	7	4
Fakhar	7,296	178	201	23	23	0	0
Mamud Raqi	6,818	107	122	14	11	4	3
Shibrighan	3,773	141	179	39	14	25	16
Imam Sahib	3,285	212	254	42	18	24	11
Almonds							
Aybak	3,447	2,636	2,960	324	75	249	9
Imam Sahib	1,807	2,543	2,979	436	23	413	16
Shekh Ali	825	340	385	45	21	24	7
Sozm Qala	153	721	942	221	35	186	25
Farkhar	104	1,300	1,371	71	18	53	5
Shibirgan	170	1,553	1,641	89	10	79	4
Pistachio							
Aybak	975	3,163	4,042	879	49	831	26
Fakhar	245	1,787	1,914	128	37	91	5
Walnut							
Aybak	913	475	575	100	47	53	10
Fakhar	587	474	532	58	23	35	7
Shekh Ali	200	700	750	50	17	33	5
Shibirghan	143	655	750	95	15	80	12

Note: the % net margin is the % over the total purchase price and direct costs