

Developing a Value Chain Diagnostics Tool for Common Practice at UNIDO

Expert Group Meeting Report

23-25 September 2009, Vienna, Austria



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Report of the

*Expert Group Meeting:
Developing a
Value Chain Diagnostics Tool
for Common Practice at UNIDO*

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1. Value Chain Diagnostic Tool for Industrial Development

A value chain can be understood as a set of businesses, activities and relationships involved in creating a final product or service. It builds on the idea that a product is rarely consumed in its original form but becomes transformed, combined with other products, transported, packaged, marketed etc. until it reaches its final consumer. In this sense, a value chain describes how producers, processors, buyers, sellers, and consumers — separated by time and space — gradually add value to products as they pass from one link in the chain to the next.

The value chain approach is becoming intensively used by development, government and private sector agents or agencies to both identify options for industrial development and implement development programmes. Its particular attractiveness draws from, among other things, its capacity to deal with a new business environment or improvements in existing industrial development.

Value chain development issues are very relevant to developing countries, as traditional production systems are usually isolated and struggle to build relationships with local, regional or global markets. In particular, small-scale entrepreneurs or small and medium enterprises (SMEs) find it difficult to leverage market opportunities provided by advances in information, technology and communication, as well as globalization. Moreover, liberalization and globalization have made developing countries' industries more vulnerable to intense competition from global players as well as other competitors within the same boundary. In addition, many SMEs lack capacities to comply with new business rules and quality standards, which constitute obstacles to their integration in national, regional or global value chains. The value chain development approach has lent itself to being the perfect methodology for developing industries of developing countries.

Although UNIDO technical branches have emphasized different aspects of value chain analysis in their work, there is at present no Value Chain Diagnostic Tool or guidelines appropriate for industrial development project identification. Furthermore, most of the existing value chains tools target broad-based development issues and are written for use by staff and consultants of specific agencies/organizations. Therefore, a Value Chain Diagnostic Tool would have the advantage that it provides a holistic understanding of the value chain while highlighting the intervention points for improvement. Through this, the whole range of obstacles to industrial development would be identified on the basis of a common rationale for intervention by UNIDO, governments and development agencies.

Expert Group Meeting

From 23rd to 25th September 2009 the Expert Group Meeting “Developing a Value Chain Diagnostics Tool for Common Practice at UNIDO” took place in Vienna. The working paper entitled “*Value chain diagnostics for Industrial Development: From theoretical approaches to common practices*” was the background material for this meeting. The paper reviews common practices in value chain analysis and development and provides some building blocks for a diagnostic tool for industrial development. A copy of the background paper can be obtained from: www.unido.org/ifi.

During the meeting, the experts presented their experiences, knowledge and expert opinions. After each presentation there were discussions in smaller groups and in plenary sessions. Through break-out sessions, the participants were asked to elaborate recommendations for the Tool on specific topics.

The inputs received from this Expert Group Meeting will be used to prepare the Value Chain Diagnostic Tool for industrial development and a manual to guide its use.

This Report

The meeting included very intense and high-level presentations and discussions. All presentations, discussion reports, additional literature and flipcharts are collected and available on the online discussion forum on Value Chain Diagnostic Tool (www.unido.org/forum).

This report is targeted to those seeking to understand the process of the development of the Value Chain Diagnostic Tool and the contributions the Expert Group Meeting made to this. The report describes the discussions, conducted over the course of the three days recounting the main inputs and essential discussions. Interested readers can find all further information on the above online forum, and even participate in the ongoing discussion with the experts. This report seeks to provide an overall impression and convey the high quality of discussions and presentations.

Workshop Methodology

First of all, experts were asked to react to suggestions made in the working paper that deal with their specialization. Secondly, two experts were asked to present on each dimension, or Analytical Heading, listed in the background paper according to their area of expertise, identifying parameters and indicators for the Value Chain Diagnostic Tool, and highlighting lessons from other tools for value chain analysis. Finally this was to lead to recommendations on how each dimension could be translated into practical steps.

The following six dimensions are described in more detail in Figure 2:

- Market, Marketing Options and Standards;
- Costs, Margins and Competitiveness;
- Income Distribution, Employment and Livelihood Impact;
- Linkages, Partnerships and Networks;
- Governance Structures; and
- Cleaner Production and Environmental Sustainability.

Following each presentation the floor was opened for discussion and participants gave a first reaction to the presentation. After this plenary discussion, the meeting then split into working groups (break-out sessions), one for each of the dimensions. After each discussion in the working group sessions, the participants reported their findings, proposals and questions in the plenary meetings. The conclusions and questions of this high-level exchange were noted and displayed around the meeting room, to facilitate participants' reflection throughout the course of the meeting.

Participating Organizations

The following organizations were represented at the Expert Group Meeting:

African Development Bank; Centre for Research in Innovation Management, University of Brighton; Food and Agriculture Organization (FAO); International Labour Organisation (ILO); Independent Evaluation Group (IEG), The World Bank Group; Institute of Development Studies, Sussex University; Management Development Institute & Institute for Competitiveness, India; Natural Resources Institute, University of Greenwich; Practical Action, UK; Rabobank International; Royal Tropical Institute (KIT); Swiss College of Agriculture; UNEP/Wuppertal Institute Collaborating Centre on Sustainable Consumption and Production (CSCP); The World Bank Country Office - Nigeria; The World Bank, Europe and Central Asia Region; YES BANK India; and UNIDO.

(A complete list of participants can be found in the annex).



2. Meeting Opening and Introduction

Official Opening of the Expert Group Meeting

Dmitri Piskounov, Managing Director, Programme Development and Technical Cooperation Division, UNIDO

In his opening words Mr. Piskounov welcomed all participants. He said the discussion on the Value Chain Diagnostic Tool has been ongoing for several years within UNIDO, and that there exist different schools of thought. The background paper was written on the basis of in-house consultations, with the goal of developing a common methodology for UNIDO. However, it has come to a point where concrete steps forward must be taken; he stressed that these were the results needed from the Expert Group Meeting. They should make practical recommendations for the next steps for the organization to take on the Value Chain Diagnostic Tool.



“We really need the results of this Expert Group Meeting. For a long time we’ve talked about value chains ... I would like to see the next steps after the conceptual debate ... The question “so what?” could be the slogan or motto of the Expert Group Meeting ... where are the next steps?”

“Each time [in UNIDO] we are approaching this question from different angles; now it is time to come up with a common methodological, conceptual approach.”

Actionable Value Chain Analysis in the Context of UNIDO Technical Cooperation Programmes

Philippe Scholtes, UNIDO Representative, Regional Office in India, UNIDO

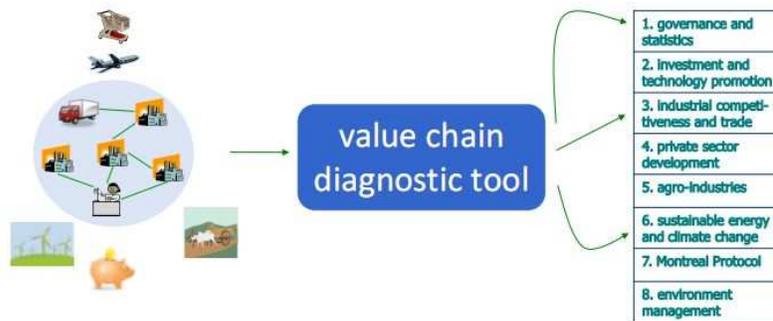
Mr. Scholtes emphasized that the value chain concept is an appropriate basis for the formulation of UNIDO’s Technical Cooperation services that consist of governance and statistics, investment and technology promotion, industrial competitiveness and trade, private sector development, agro-industries, sustainable energy and climate change, the Montreal Protocol and environment management, and that a Value Chain Diagnostics Tool to that end should exhibit a number of priorities, namely, comprehensiveness and practicality.



He gave an overview of UNIDO services and mapped them to different levels of intervention from firm level initiatives to macroeconomic models, arguing that SMEs, the principal clients of UNIDO services, are difficult to reach directly because, inter alia, of their large numbers. Interventions at cluster level through the UNIDO cluster development programme reflect existing or possible interactions between firms and service providers. However, clusters themselves are embedded in a web of business relationships between such clusters and outside parties, such as suppliers of raw materials, banks, energy service companies, logistics up to consumer. A multiplicity of interwoven value chains together completes the economic space. In this continuum of possible levels of intervention, value chain analysis offers an attractive compromise between a holistic, and a practical approach.

Figure 1: Level of value chain

the value chain level is both comprehensive and practical



Secondly, he emphasized how an industrial Value Chain Diagnostic Tool can be applied to the projects that UNIDO designs and implements. He argued that the Tool should be both comprehensive and practical, and be able to map the perception of the development constraints faced by SMEs inserted in a value chain onto UNIDO Service Modules. The Tool

should generate two outputs: a detailed description of the interactions among agents of the value chain from an economic, social and environmental standpoint, as well as substantiated indications of the UNIDO elementary services called for to improve the sustainable development prospects of the firms.

To that end, he specified seven critical properties which the Tool should have:

- Rigorous to inspire confidence in the effectiveness of the proposed programme;
- Objective to transcend internal divisions at UNIDO;
- Non-intrusive: Service Modules must remain highly specialized, distinctive services, that Value Chain Diagnostic Tool will merely deploy in a particular combination mirroring the needs of the SMEs along the value chain;
- Sector-neutral, to be applicable *mutatis mutandis* to any sector of manufacturing activity;
- Easily applicable: requires no expertise in that particular field;
- Fast to apply: cannot delay downstream programmes; and
- Should ideally lend itself to monitoring of programme execution.

Objectives and Expected Outcome of the Meeting

Patrick Kormawa, Coordinator, International Financial Institutions Partnership Unit and Advisor to the Director-General, UNIDO

Mr. Kormawa described the objectives and expected outcome of the Expert Group Meeting. He introduced the new industrial realities affecting developing countries, such as technical barriers and standards, new markets and marketing channels, regional economic cooperation and new systems of production dictated by innovation and technology, and proposed some options for industrialization. Industrial value chain analysis is one of the tools that can help in the decision process of industrialization, for example in the areas of enhancement of competitiveness and specialization or strengthening agro-industry and agribusiness. He also noted UNIDO's role and involvement with value chain analysis and development over the years, and the necessity of a consolidated UNIDO Value Chain Diagnostic Tool.



The objectives of the Expert Group Meeting are to:

- Get expert views on the suggested tool for value chain diagnostics;
- Share knowledge on existing value chain analysis and diagnostic tools;
- Identify dimensions and indicators for a holistic (rapid) Value Chain Diagnostic Tool for UNIDO;
- Develop an outline of the diagnostic tool; and
- Establish a network of experts to continue dialogue and knowledge-sharing.

Introduction to the Framework

Frank Hartwich, Swiss College of Agriculture, Author of the background paper

Mr. Hartwich introduced the main issues discussed in the underlying working paper, such as various value chain concepts, and also approaches to analysis as they can be found in the literature and are carried out within UNIDO. He presented a sketch for a common procedure to value chain analysis (see Figure 2). It suggests that after having identified the value chain to be analysed, a preliminary mapping should be conducted providing information on the product flow and the actors involved.

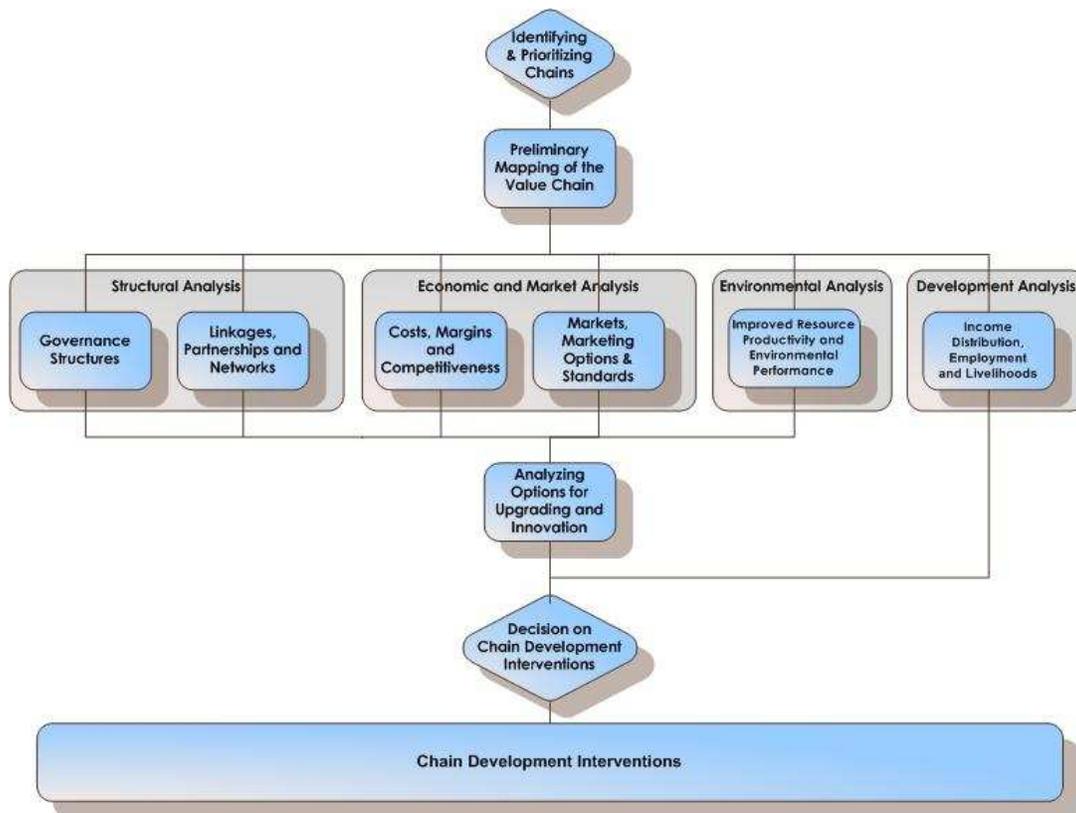


The diagnostics shall then focus on six overlapping dimensions that deal with:

- (1) Market and marketing aspects focusing on existing and potential markets and the types of standards that need to be met for the commercialization of the product;
- (2) Economic aspects where the focus is on costs, margins and parameters of competitiveness;
- (3) Information on income distribution, employment and livelihood aspects of a chain;
- (4) The linkages, partnerships and networks that exist in the chain and that allow for an exchange of products and information;
- (5) The governance structure and the way the value chain is organized and dominated by certain buyers and suppliers; and
- (6) Environmental aspects such as cleaner production and other opportunities for more productive and sustainable use of natural resources and reduction of environmental impact.

All this information is then reprocessed to analyse options for development, upgrading and innovation in the chain. Using all these different dimensions in value chain analysis allows for a holistic value chain diagnostic system. If one were to select only some of those dimensions one would risk omitting important value chain development bottlenecks and opportunities.

Figure 2: Flow chart for generic value chain analysis



Source: working paper

Mr. Hartwich explained that one of the main tasks for participants would be to discuss possible ways of analysing the value chain in relation to those six dimensions. Both the presentations as well as the working groups will provide ample space to discuss if and how issues of these dimensions can be analysed in value chain diagnostics and which issues and indicators to use in this.

The logic of the workshop foresaw that there would be two presentations from experts on each of the six dimensions which would then be discussed at the tables and in plenary. After the first three rounds of presentations the meeting would break up into working groups that discuss the first three dimensions separately and develop suggestions for dimensions, issues and indicators for each of them. Likewise a second working group session would discuss the fourth, fifth and sixth dimensions and develop suggestions for dimensions, issues and indicators to be used in a holistic Value Chain Diagnostic Tool.

3. Markets, Marketing Options and Standards

Value chain actors should take into account existing market conditions and standards as well as opportunities for marketing products in the short-, mid-, and long-term. A prospective market analysis can help in the development of a strategic vision.

The possibility to access markets also depends on prevalent standards, rules and trade regulations. A careful analysis of how these regulations and standards work and how they can be successfully implemented among chain actors in developing countries therefore constitutes an important part of value chain analysis.

The following elements are common in the analysis of marketing options and market requirements in a value chain context:

- Existing and potential market requirements and practices, and options to respond to these;
- Opportunities for niche market production and the associated costs; and
- Benchmarking to study a market and strategies of competitors.

With regard to quality and standard issues, the following elements are typically analyzed:

- Existing rules and regulations;
- Current product quality;
- Roles and efficiency of accreditation authorities;
- Standard setting and metrology practices;
- Benchmarking to identify best practices of market compliance with standards;
- Costs and benefits of quality control and traceability measures;
- Options for implementation of quality management, standards and conformity assessment; and
- Knowledge and awareness of rules, norms and standards, and identification of key gaps.

Market Rules and Standards

Ben Bennett, Natural Resources Institute, University of Greenwich

To consider market access, we must examine what the barriers are that can prevent such access — the focus is on rules, standards and regulations. There are several trade and standards issues which affect market choice and access, the first being product compliance levels. There is much variation across products in terms of compliance needed; it can be high, medium, or low. In general though, the cost of meeting compliance tends to increase as one moves up the value chain.

Secondly, developmental status is important, as there is great variance in costs of compliance depending on the end-user. It becomes more complicated as products move from least developed to developed markets.

A third issue is that of infrastructure for compliance. National Quality Systems are composed of several elements, from metrology and standards, to conformity assessment, to accreditation, and are part of a national quality infrastructure that links to the international system (ISO, International Accreditation Forum (IAF) etc.), and is applicable to all national value chains.

The fourth factor is trade agreements, which are more important than compliance in gaining market access. They can be considered as a driving force spurring sector development.



The fifth factor, trade facilitation, relates to “behind the border” issues, which may constrain trade even more than border barriers (for example, a very bureaucratic process for exporting).

Finally, sector qualities and marketing norms are an important factor. Quality may exert a downward pressure on price, for example minimum quality minimum value products (such as herbal remedies). Lead actors can act as quality drivers (or quality fixers), and this is where the importance of relationships in value chains becomes clear — for example, in the relationship between Bangladeshi textile firms and UK textile brands, UK firms led the quality standards required of their input suppliers in Bangladesh. It is important to note in setting standards and norms, however, that these can be meaningless if there is no enforcement, and where free-loading is easy.

The dimensions for the Tool suggested from this analysis are a specification of which standards or rules are relevant for which market or products; what critical elements of the National Quality System are needed or expected; what the relative compliance costs are as a proportion of total value added; whether or not compliance is worthwhile (is there fundamental competitive/comparative advantage?); power and governance issues, i.e. details of who owns the rules and rule-setting process; and a measure of how dynamic the standards/rules are for certain sectors.

Marketing in Value Chain Analysis

Michiel Arnoldus, Royal Tropical Institute (KIT), Netherlands

The emphasis was on the imperative of focusing on the end-consumer from the outset — “if the consumer doesn’t want it, we don’t make it”. Any value chain analysis should start with the market, finding out what the consumer wants and going from there. The processes of marketing and marketing research consist of analysis, segmentation, targeting and positioning.

The issues suggested were the consumer (demands and behaviour, trends and segments), competitors, substitutes, and marketing channels (purchase criteria, marketing channels). Indicators for these include, for example: product specifications, packaging, price, consumers’ viewpoints and preferences, strength of substitutes/competitors, reliability of supply and volumes (see Table 1).

Some practical tools for marketing analysis were introduced. In-store interviews, consumer focus groups and in-store visits can be used to obtain an understanding of consumers’ behaviour, needs and social interactions as well as rules of retailers and product categories. Discussions with category buyers of large retail chains are useful in gathering reliable statistics and gaining insight into retailers’ decisions. Qualitative research is essential for the interpretation of quantitative data.



Figure 3: Marketing options



and assessment of issues and opportunities of the market. The strategic options are defined in terms

Once markets are analysed, they are segmented into actionable units for value chain analysis (see Figure 3). Demographic, geographic, psychological, socio-economic and behavioural variables of consumers, preference of products and channel as well as product trends are also taken into consideration at this stage. Selection of criteria for such actionable segmentation is crucial.

Then marketing options are proposed through external and internal analysis

of market, consumer segment, product type, marketing channel and appropriate technology. The options are then translated into execution strategy and an action plan for the execution of the strategy is developed.

Impressions of Discussion

Many of the issues raised related to a more in-depth analysis, rather than a Value Chain Diagnostic Tool; for instance, which of the value chain actors needs to understand the end-consumers' demand? There is a legitimate need for the external agency — i.e. UNIDO — to gather information on market trends to prioritize and select value chains, but we must be careful not to confuse this role with that of market actors. It is these value chain actors who must know how to commission market research, how to understand consumers' needs and wants, and how to do marketing.

The issue of sequencing, and the division of work into two stages was raised. The first stage, looking at macro and trade data, could be conducted over two weeks, determining whether to proceed to the second stage, consisting of a more detailed analysis. Nonetheless, ignoring the end-consumers' point of view risks selecting the wrong chain on which to focus.



Report from the Break-out Sessions on Markets, Marketing Options and Standards

The results of the group session were a set of issues, sub-issues and indicators (see Table 1). For the practicality of the Tool a two-stage development is advised, with only a broader market analysis in a second stage. In that way, one can concentrate in the first phase on critical indicators.



Table 1: Analysing and segmentation: issues and indicators

<i>Issues</i>	<i>Sub-issues</i>	<i>Indicators</i>	
<i>Consumer</i>	<i>Consumer demands and behaviour</i>	<i>Product specifications</i>	
		<i>Image and social status</i>	
		<i>Packaging</i>	
	<i>Trends</i>	<i>Price</i>	
<i>Usage (moment, place, solution)</i>			
<i>Competitors</i>	<i>Segments</i>	<i>Shopping (preferred channels, purchase points)</i>	
		<i>Decision making behaviour/hierarchy</i>	
		<i>Labels and standards</i>	
<i>Substitutes</i>		<i>Strong and weak points, as perceived by consumers</i>	
		<i>Strong and weak points, as perceived by retailers</i>	
		<i>Strategies</i>	
<i>Marketing channels</i>	<i>Purchase criteria</i>	<i>Segments/markets they are strong in</i>	
		<i>Strong and weak points versus our product</i>	
		<i>Segments/markets they are strong in</i>	
	<i>Types of channels</i>	<i>Product specs</i>	
		<i>Reliability of supply</i>	
		<i>Availability</i>	
		<i>Ease of purchase</i>	
		<i>Cost</i>	
		<i>Service</i>	
			<i>Relationships</i>
			<i>Strategy</i>
			<i>Purchase criteria used</i>
			<i>Consumer segments serviced</i>
			<i>Strong and weak points</i>
			<i>Preferred suppliers</i>
			<i>Margins</i>
<i>Volumes</i>			
<i>Growth</i>			

The accessibility of the Tool will improve if it is set up like a checklist of questions to be asked, rather than using indicators. For example, the Tool should ask what standards/rules apply to which markets and products, and the indicator should provide a list and ranking of these. Measurability should be a constant factor for attention during the further development of the Tool (see Table 2).

Table 2: Questions and indicators

<i>Questions</i>	<i>Indicators</i>
<i>What is the product?</i>	<i>Product specifications</i>
<i>Where is it sold?</i>	<i>Marketing channels, location, convenience</i>
<i>What are the intangible values of the product in the market?</i>	<i>Brand, image, values, traceability</i>
<i>Who is the consumer?</i>	<i>Demographics, socio-economics, psychological, behaviour</i>
<i>What does the consumer want/need?</i>	<i>Needs, wants, perceptions, problems, trends</i>
<i>What is its price?</i>	<i>Price, trends, market cycle, price promotions</i>
<i>What market segments are there?</i>	<i>Combination of people, product and marketing channel</i>
<i>Market share</i>	<i>Market share of products, substitutes, producers, retailers, segments</i>
<i>Who are the different suppliers/competitors?</i>	<i>Product, channel, consumer segment, price</i>
<i>What are the perceptions of the different products?</i>	<i>Score/rank on consumer criteria</i>
<i>Which packaging is preferred?</i>	<i>Size, material, information, design</i>
<i>Which standards/rules apply to which markets and products?</i>	<i>List and rank</i>
<i>How dynamic are they?</i>	<i>Frequency of changes</i>
<i>Does your product comply with the critical local and global quality standards?</i>	<i>Standards it complies with and does not comply with, ranking of importance</i>
<i>What is the cost of compliance?</i>	<i>Percentage of total value added</i>
<i>What elements of the national quality system are present/needed?</i>	<i>UNIDO benchmark tool</i>
<i>What are the purchase criteria of retailers/ market channels?</i>	<i>List purchase criteria and rank</i>
<i>What promotion strategies are used?</i>	<i>Message, media, intensity</i>

4. Costs, Margins and Competitiveness

Comparisons of costs, margins and other parameters of competitiveness within value chains and beyond are at the core of most value chain analyses. Cost refers to the spending of a value chain actor, while margin refers to the money an actor receives from the value chain, minus the cost.

Competitiveness is a concept that compares the ability of firms to perform certain value-adding activities, and can be extended to the level of subsectors, industries, value chains or entire countries. The analysis of competitiveness in value chains often uses Porter’s “Five Forces”, as well as SWOT analysis, total quality management measures, or Delphi Study methods. A more rigorous economic method to compare the competitiveness of whole sectors is the Domestic Resource Cost (DRC) ratio. This is the shadow value of non-tradable factor inputs used in an activity per unit of tradable value added.

The following parameters are common in the analysis of costs, margins and competitiveness in value chains:

- Costs, revenues and (profit) margins per actor;
- Opportunity costs, financial costs and financial ratios for different types of actors;
- Costs of entry into the chain, e.g. operating and investment costs for starting a business;
- Monitoring of changes in costs and margins over time;
- Benchmarking to identify costs, margins and competitiveness of leading actors in the chain and in other leading chains; and
- Quality and nature of competitiveness, by going beyond quantitative data analysis and detecting sources of individual and systemic competitiveness.

Approaches and Parameters for Costs, Technology and Competitiveness

Evgeni Evgeniev, The World Bank, Europe and Central Asia Region

The goal of the Value Chain Diagnostic Tool is to be able to assess the upgrading opportunities of industries and firms, and consequently to show ways to induce industrial development through public policies and private sector initiatives. Linking to global value chains offers opportunities but also threats to industries and firms from developing and underdeveloped economies. Thus, finding the proper tool to study cost, technology and competitiveness may convey huge benefits to development. Indicators can be segregated into upgrading and dependency indicators, linking closely to the analysis of governance structures.



Table 3: Upgrading indicators – ways to measure competitiveness

Type of analysis	Parameters
Product upgrading	Firm level (new products, product quality) Industry level (higher value added products)
Process upgrading	Investment in machinery/new technologies, public and private R&D, absorptive capacity for new knowledge, technology and innovation
Functional upgrading	Brand, Design, Certification, Standards
Organizational upgrading	Managerial and staff skills and knowledge, vocational training, firm-level training
Market served	Low-income Countries (LiCs) Middle-income Countries (MiCs) High-income Countries (HiCs)
Policy and institutional environment	Government strategies, legislation, business regulations, international trade instruments, business representation and interest, state-sector collaboration, supporting infrastructure (quality, education, physical, etc.).

Upgrading indicators relate to product, process, functional and organizational upgrading, as well as markets served and policy & institutional environment (see Table 3). Parameters to measure these are, for example: introduction of new products and product quality; investment in new machinery and technology; brand, design, international standards; managerial and personnel skills; studying value added of exports to low-income countries, middle-income countries and high-income countries; reviewing sectoral legislation and business regulations (national and sector-specific), and international trade instruments.

Dependency indicators relate to ownership, domination of buyers, type of contracts between foreign buyers and domestic producers (e.g. subcontracting arrangements), dominant export markets, dominant processors and marketers and suppliers, place of origin of inputs and domination of intermediate agents (see Table 4). Parameters to measure these are, for example: percentage of foreign/local ownership; percentage share of each buyer in domestic producer's portfolio; percentage share of subcontracting vis-à-vis semi-subcontracting or direct exports, among others. Both upgrading indicators and dependency indicators are useful in measuring quantitatively and qualitatively domestic and international competitiveness at the firm and at the industry level. The less dependency exists the more upgrading opportunities can proliferate and be utilized.

Table 4: Dependency indicators – ways to measure competitiveness

<i>Type of dependency</i>	<i>Parameters</i>
<i>Ownership of dependency</i>	<i>Foreign (% share)/ Local (% share)</i>
<i>Domination of buyers</i>	<i>% share, High (H), Medium (M), Low (L)</i>
<i>Type of contracts</i>	<i>Subcontracting (% share) Semi-subcontracting (% share) Direct exports (% share)</i>
<i>Dominant export markets</i>	<i>% share, High (H), Medium (M), Low (L)</i>
<i>Domination of processors and marketers</i>	<i>% share, High (H), Medium (M), Low (L)</i>
<i>Domination of suppliers</i>	<i>% share (H, M, L)</i>
<i>Place of origin of inputs</i>	<i>Foreign/local, % ratio dominating</i>
<i>Domination of intermediate agents</i>	<i>% share, High (H), Medium (M), Low (L)</i>

Structuring Costs, Margins and Competitiveness

V. Padmanand, Independent Consulting

Competitiveness compares the ability of firms and value chains to perform certain value adding activities.

Parameters common in the analysis of costs, margins and competitiveness are: costs, revenues and profit margins per type of actor; opportunity costs, financial costs and ratios for different types of actors; costs of entry into chain; changes in costs and margins over time; benchmarking of costs and margins to leading actors or chains and quality and nature of competitiveness. In this regard, financial/economic operating and investment costs and margins per activity should be analysed for tradables in case of global benchmarking and non-tradables for national benchmarking.



Indicators of the business environment should also be integrated into the Tool either as a separate dimension or as drivers of costs. The key attributes of the business environment in this regard are factor conditions (human resources, raw material, capital and energy), related and supporting institutions, demand conditions (domestic and global) and regulatory environment.

Other drivers of costs are economies of scale, learning and spillover, linkages, and location. It was further proposed that the objective of the interventions, which the Value Chain Diagnostic Tool will assess, ought to be to gain sustainable competitive advantage within the particular value chain. This would require an indicative comparison of assets, costs and profit margins of representative and lead firms along the chain, vis-à-vis those in similar chains in a benchmarked country.

Measurements of costs would be in item-wise operating costs per unit of output (typically costs in terms of procurement, finance, energy, marketing and other overheads, fixed investment and working capital per unit and margins and value-added). All of these measures and indicators could be included in a value chain map, cumulating at the national level. Value chains with higher financial and economic profit margins should be prioritized. These interventions can vary strongly, depending on the business environment and the country context.

Impressions of Discussion

Some participants raised the question of the availability of the kind of data necessary, in particular for SMEs in developing countries. Unit value analysis that is already performed on a country/industry basis could, however, be useful.



Report from the Break-out Sessions on Costs, Margins and Competitiveness

The group agreed that this dimension examines where value is added in the chain. The tool must enable UNIDO to identify which value chain to analyse and if the chain is sustainable in the long term. The identification should be based on:

- Country specification (land, climate, etc.);
- Relative weight of the country globally;
- Current status of the value chain;
- Comparative advantages; and
- Growth opportunities of the chain.



The main indicators for assessing where the value is added per link in the chain are:

- Cost per link in the chain;
- Margin per link in the chain; and
- Prices of inputs and outputs of each link.

The division of risks, rewards, and profitability over the chain must also be considered. A crucial issue is the availability and the quality of the data for the indicators, for example the cost structure, input prices, prices of final products, data on value added, on each link in the chain. This data is often difficult to gather, or is of questionable quality and consistency across value chains.

The diagnostic work, of identifying sectors on which to focus, would take a set of indicators based on trade and industry data (such as using Revealed Comparative Advantage (RCA-Index), world market shares) and match the competitive advantage of a country with the global demand.

5. Income Distribution, Employment and Livelihoods

It is important in any value chain analysis exercise to monitor potential socio-economic impacts on all stakeholders. Value chain development can contribute to improved livelihoods. Analysing incomes and employment within the value chain is central to understanding how the participation of marginalized groups and less developed regions are affected through the operation of the chain and how they may become affected by any value chain development interventions. In addition, livelihood analysis examines a wide range of factors that affect people's livelihoods.

The main parameters of the analysis of value chains in relation to the wider impacts on people and society include:

- Identification of target populations that are to benefit from value chain promotion;
- Net income at each level of a chain, and as a percentage of total added value;
- Net income for different groups of actors (small, medium, large) at each level of the chain;
- Incomes of different actors across different chains;
- Employment at each level of the chain and its variability over time;
- Impact of chain governance on income and employment;
- Putting income in the context of stakeholder livelihood strategies; and
- Effect of participation and non-participation in the chain (e.g. health, education, communication, access to water, etc.) on livelihoods.

Industrial Value Chain Diagnostics: Income and Employment

Merten Sievers, International Labour Organization (ILO)

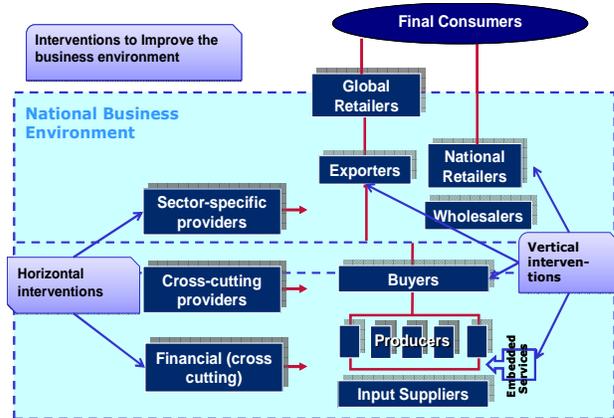
Size matters for enterprises: most employment is created by small and micro enterprises, which also tend to have more difficult working conditions for their employees. In looking at employment, one should consider both quantity and quality when assessing the employment potential in a particular value chain. If the goal is to have a massive impact on employment or poverty reduction, then the selected value chain should involve a large number of people. The selection criteria suggested following a market development approach, are size (number of firms and potential employment), relevance to the poor and employment (high number from disadvantaged groups), and prospects (the potential for change, e.g. “stepping-up” — productivity, market share, work quality, “stepping-out” — new markets, employment creation). Other considerations to determine if intervention potential exists are priorities, capacity and feasibility.



The joint ILO/IFC Better Work Programme examines two sets of criteria, needs-based and operational, for selecting value chains with which to work. The first set, needs-based criteria, include labour standards (are these poorly observed?); whether the industry is labour-intensive or employs a large number of workers; whether livelihoods in poor households will be significantly improved as a result of intervention; and whether there is potential for improving the competitiveness of enterprises, particularly through increased productivity/quality and market access.

Operational criteria determine whether the intervention can be made successful. These include whether industries and locations have sound economic potential; the capacity and commitment of governments, employers' and workers' organizations, buyers and traders to engage; sufficient social stability in the location; the potential for a compliance-related market driver; potential for job growth; whether “Better Work” approaches can be adapted; potential for scaling up; and the potential to achieve synergies with existing IFC, ILO, and external programmes.

Depending on the value chain, the employment potential may be at a different point in the chain, and a different level of intervention may be appropriate (see Figure 4). The “decent work” indicators of the ILO, relating to fundamental rights and norms, social dialogue, social protection, and employment, can be used as indicators in the diagnostic tool to assess the quantity and quality of employment in the value chain. It is important to match the diagnostic tool to UNIDO’s objectives, and employment aspects probably come closest to poverty reduction. The Donor Committee for Enterprise Development (DCED) would be a good resource for the Tool, as its results Measurement Group has recently developed measurement indicators on private sector development, covering scale, net income, and net additional jobs created.



A Conceptual Framework for Agro-Value Chain Analysis and Development

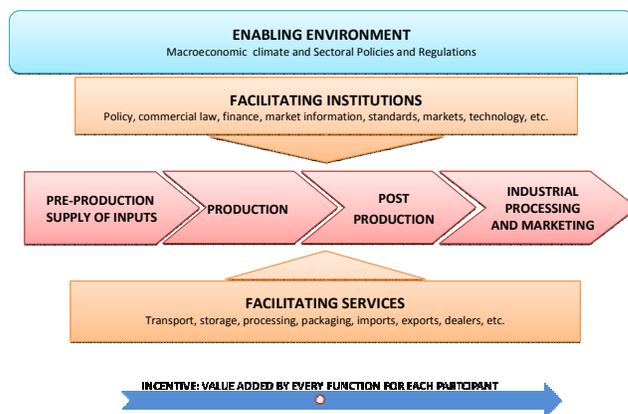
Chakib Jenane, Agri-Business Development Branch, UNIDO

The presentation explained the conceptual framework for agro-value chain analysis and development, used by the Agri-Business Development Branch of UNIDO.

The concept of “value chain” can be understood as “the entire range of activities required to bring a product from the initial input-supply stage, through various phases of production, to its final market destination”. The production stages entail a combination of physical transformation and the participation of various producers and services. Figure 5 shows a simple schematic of a value chain, but in reality chains tend to be more complex and involve numerous interlinked activities, with firms operating across geographies.



Figure 5: Value chain concept: Importance of value addition at each stage



Value chain analysis is important for UNIDO’s work, as an in-depth understanding of how chains work can help to increase the impact of interventions. For example, past interventions in post-harvest systems have focused on isolated technical solutions, limiting the impact of the intervention. Value chain analysis is a powerful tool which increases understanding of the overall trends of industrial reorganization; shows that power relations are crucial to understanding how entry barriers are created, and how gains/risks are distributed; and evaluates the flow of

goods, information, and finance through the various stages of the chain to identify opportunities for improvement. It also provides an integrated view of different levels which tend to otherwise be separated.

The first step is the selection and prioritization of value chains — requests for analysis are received from UNIDO’s partners, after which UNIDO conducts a desk review to identify the most promising prospects. The selection is refined by applying priority criteria, weighing their relative importance and establishing ranking scores (see Figure 6). A sound understanding of the market is also necessary.

The second step is an analysis of the value chain, including mapping, analysing the technical capabilities, and the economic performance of the chain. Mapping facilitates a clear understanding of the sequence of activities and the key actors and relationships involved. It can also be used for a SWOT analysis of the chain.

The third step is to formulate an upgrading strategy, covering cost leadership, product differentiation, and economic growth/poverty reduction.

Figure 6: Selection and prioritizing of value chains

Weight %	Criteria	Score for each value chain (1 to 5)		
		Value chain 1	Value chain 2	Value chain...
Poverty reduction, X	Fits the country’s strategy for poverty reduction			
	Potential for employment generation			
	Number of small producers in the sub-sector			
	<i>Sub-total(A)</i>			
	<i>Poverty impact $\mu=(X \times A)/100$</i>			
Economic growth potential, Y	Contribution to GDP – export earnings			
	Potential for domestic/international demand			
	Prospects for public and private investments			
	<i>Sub-total (B)</i>			
	<i>Economic growth impact $\alpha = (Y \times B)/100$</i>			
Pragmatic aspects, Z	Market demand			
	Extent of value adding potential			
	Production costs in comparison to competitors			
	<i>Sub-total (C)</i>			
	<i>Pragmatic aspects $\beta=(Z \times C)/100$</i>			
<i>Total score(A+B+C)</i>				
<i>Total score based on weight $(\mu+\alpha+\beta)$</i>				

Impressions of the Discussion

One point raised was the possible trade-off in chain prioritization between the viability of a chain, and its impact on poverty. In addition, it is not necessarily the case that raising net income in a value chain, or participation in a chain, leads to poverty reduction or improved livelihoods. The issue of having criteria for judging success of interventions that would feed into the diagnostic tool (“learning”) is important.



Report from the Break-out Sessions on Income Distribution, Employment and Livelihoods

The group felt that ideally the dimension should feed into different levels of analysis, and be a key factor in selecting chains. It is important to decide what will be used for rapid diagnostics and for in-depth analysis. The meaning and scope of livelihoods need to be more clearly defined, and the analysis of trade-offs should be considered explicitly. The indicators suggested were:



- Income: is the chain generating income for the target population? How could it do so?
- Employment: is it generating employment for the target population (poor, women, youth)? How could it do so?
- Livelihoods: is it allowing poor people to enhance the productivity of their assets (skills, capabilities, institutional assets)? How could it do so?

A more explicit consideration should be given to the existing skills base at each link in the chain to assess options for enhancing competitiveness. Other indicators that were considered important for selecting chains were scale/impact and indirect effects (i.e. on poverty).

The trade-offs identified in selecting value chains were between growth and poverty-reduction objectives, as well as choosing chains that are either labour-intensive or exhibit high productivity growth potential.

6. Linkages, Partnerships and Networks

Interactions in value chains can be classified into vertical linkages and horizontal linkages; the first refer to relationships *between* actors along the chain, while the second refer to linkages among the actors in the same stage of the chain. Linkages within a value chain are mostly business linkages (e.g. contracts between sellers and buyers), and can be of formal and informal character. They also exist with regard to the exchange of information and governance.

The analysis of interactions among value chain actors not only identifies how actors are linked with one another, but also the reasons for those linkages and whether they are beneficial or not. Strengthening the linkages between the different actors in the value chain lays the foundation for improvements in coordination, cost reduction, product quality and marketing. Important parameters in linkages analysis include:

- Nature of contractual relationships between the actors;
- Frequency and quality of interaction;
- Common practices of communication and information exchange;
- Clusters and networks of industrial agglomeration and specialization; and
- Level of trust among actors within and across stages of the value chain.

Definitions and Indicators

Alexandra Röttger, Food and Agriculture Organization (FAO)

As a support for discussions, Ms. Röttger reiterated the definition of linkages as vertical and horizontal business linkages through formal or informal contracts. She also gave clear definitions of partnerships (collaborative mechanisms among public or private value chain partners who agree to share resources, knowledge and risk in order to achieve more efficiency in the production and delivery of products and services) and networks (social structures with interdependency between the actors; can be measured with social network analysis, influence mapping for more complex networks).

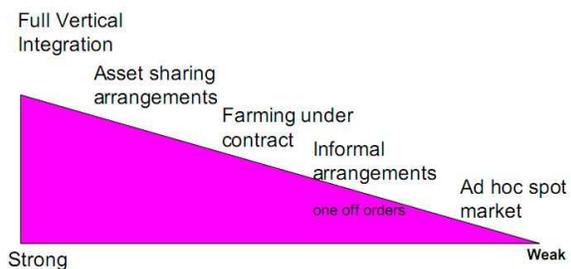


Practical examples of each of these are, firstly, linking arrangements in agribusiness in Africa, which range from vertical integration, usually traditional or high value export crops to spot market, little planning and less stringent quality requirements (see Figure 7). Secondly, partnerships can be informal, such as producers' groups, or commodity working groups; or formal, such as cooperatives and associations. Thirdly, networks arise where collaboration is necessary to better achieve common or compatible results; they collaborate, coordinate and transfer profitability. Common examples are apex bodies of producers' organizations (they can be hosted at Chambers of Trade and Industry).

Figure 7: Linking arrangements in agribusiness

Example: Linking Arrangements in Agribusiness

(Source: Strengthening farm-agribusiness linkages in Africa, FAO 2003)



There are four suggested parameters, each with their own set of indicators.

The first of these concerns the nature of contractual relationships, and the frequency and quality of interaction. Indicators for this would be the intensity and collaboration of relationships; the length of contracts, nature of ordering procedures; the existence of lead firms, their attitudes and commitment; and the degree of sector organization.

The second parameter is common practices of communication and information exchange, whose indicators are intensity of information flows in both directions; the nature of communication along the chain; and methods of communication.

Thirdly, clusters and networks of industrial agglomeration and specialization constitute a parameter. Their development is dependent on business opportunities, trust and commitment by all actors, and the indicator links to performance indicators of the chain (competitiveness, costs, quality control, equity).

The fourth parameter is the level of trust among chain actors within and across stages of the value chain, which despite its importance, cannot replace legal structures. The indicator for this would be surveys and experiments to measure such trust.

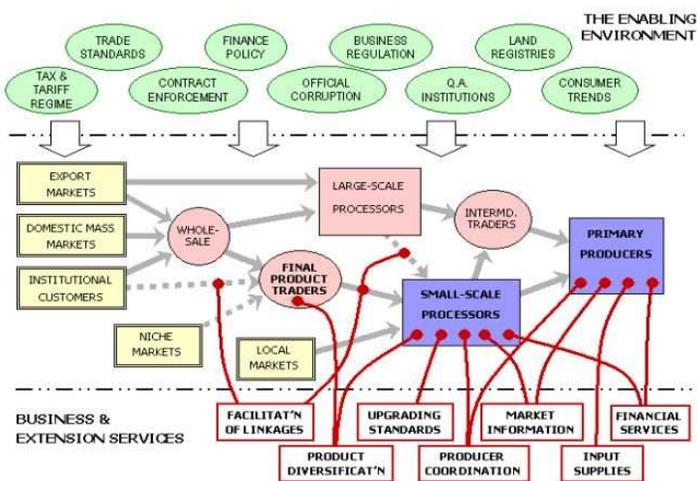
Market Chain Actors and Links

Alison Griffith, Practical Action

A preliminary mapping of the value chain is a rather rapid technique that helps identify the various actors in the value chain, their functions and degree of power, and the interdependencies among them. It is important to understand the relationships present in the chain and in the whole market system. Preliminary mapping can be used to locate actors in the chain, understand interactions and identify constraints and possible solutions at its different levels. The approach of Practical Action is to use mapping of the linkages and relations as a tool to improve these.



Figure 8: The Marketing Map (a generic schematic)



The process of mapping and diagnosing should be participatory, as it can be a powerful way to build trust and understanding between actors in the value chain.

Notable is the demand-led perspective. It shows the flow of *income* from markets to primary producers, rather than the flow of *goods* in the opposite direction (see Figure 8). It helps users of the map to think about how market chain linkages and functions can be improved to facilitate the flow of income to target producers.

The indicators suggested for relationships include: the quantity of relationships; frequency of interaction; types of contracts or agreements; quality of interaction; perception, confidence and knowledge.

The Relationship Matrix (see Table 5) (originally developed by Strategic Development Cooperation - Asia) can be a useful tool for understanding and measuring change. It was designed as a Monitoring and Evaluation (M&E) tool to bring more systematic “rigour” to qualitative measurement of relationship changes. Practical Action Bangladesh adapted and used it in a different way i.e. as a tool for actors to come together to agree and pursue mutual objectives. They agree on the dimensions that are important to the relationship and for each they discuss where they are now and what they want to achieve; then they meet every three months to discuss progress. Practical Action is working on the format — making it more measurable; balancing short term targets and longer term strategic vision.

Table 5: Relationship Matrix

RELATIONSHIP MATRIX		
Baseline, Current, and Future Picture of Relationships		
BETWEEN PRODUCERS AND TRADERS		
Baseline	Current	Future
Transactions and Purchasing		
Spot selling and purchasing.	Relationships beginning to develop. Each trader has informal network of suppliers. Commitments from traders to take product from regular suppliers.	Long-term trading partnerships and relationships established and are growing business for both actors.
Value-added services and Co-operation		
Traders provide limited skill development and learning to producers that is locally appropriate.	Traders monitor production and delivery stages. Training and mentoring services to solve production bottlenecks. Buying stations set-up to reduce transportation costs and/or 'walking'.	Interdependence and partnership. Both parties work together to exploit cost, quality, technical, and marketing advantages.
Quality control		
Quality control rarely done. X% of rejects or price penalties	Quality control conducted at buying stations	Quality control the norm. Low (y %) rejection rates
BETWEEN TRADERS AND PROCESSOR		
Baseline	Current	Future
Information Sharing/Transparency		
Limited, one-way flow of info.	Info on demand in the short and medium term but on ad hoc basis. Processors uneasy about providing traders with info on market and company operations.	Flow of information enables joint efforts to respond to demand, including innovation, to jointly take advantage of market opportunities.
Basis of Competitive Offer		
Price and supply availability	Quality improvements: reputation for quality products from geog area. Economies of scale and lower costs of transaction.	Quality, cost efficiency and price, dependability and reliability, socially responsible trading practices.

Impressions of Discussion

Several speakers noted that it is very difficult to quantify indicators of linkages, partnerships and networks, such as trust. Other points raised were that mapping needs to also show the different levels on which industrial/business associations function (e.g. local, national etc.), and that the end-consumer is a very important component. Cluster maps were suggested as a possible framework for mapping value chains.



Report from the Break-out Sessions on Linkages, Partnerships and Networks

The presentations and discussion distilled the following list of indicators:

- Nature of contractual relationships and agreements between actors:
 - Length of contracts and agreements;
 - Non-financial and financial services;
 - Subcontracting agreements;
 - Resource-efficiency services;
- Frequency and quality of interactions:
 - How regular are interactions?
 - Trust and transparency (relationship matrix tool);
- Specific role of actors:
 - Who is the buyer? Who is the supplier?
 - Number of buyers/suppliers;
 - Can suppliers be selected?
- Communication and information exchange:
 - Surveys, focus groups, existing research as sources to obtain information on how chain actors communicate, how chain relationships are developed;
- Clusters, networks and their specialization;
- Level of trust among actors.



Methods and sources of data were also proposed during the session. Participatory methods such as stakeholder workshops and key informant interviews are useful in measuring frequency and quality of interactions and Interviews and surveys are often used to identify roles of actors. For the indicator of communication and information exchange, methods such as survey and focus groups are effective. Existing research or surveys as well as UNIDO cluster development tools are good sources of information.

Another issue that arose during the discussion was gender, which had not been mentioned elsewhere.

It was also felt that the Tool should examine linkages on a local and national level for innovation systems, as well as the institutional environment of the state sector in which value chains are embedded. Regarding methodology, it is important to involve particular issues at particular points in time, an example being environmental considerations, which should be involved as early as possible.

Finally, it was questioned whether benchmarking of how actors interact is needed for the Tool — the interaction between actors has both quantitative (easy to measure) and qualitative aspects (for innovations).

7. Governance Structures

Governance relates to the formal and informal arrangements between participants of a value chain. The instruments of governance range from contracts between value chain participants, to government regulatory frameworks, to unwritten norms that determine who may participate in a market. The main parameters in the analysis of governance structures are:

- Demand and supply conditions of the value chain;
- Rules and regulations for the operation of the value chain;
- Impact of rules on value chain participants;
- Dominant coordination arrangement(s) in the value chain; and
- Power relationships and dominant agents.

Strategic Management Considerations for Value Chains

Jeff Readman, Centre for Research in Innovation Management, University of Brighton

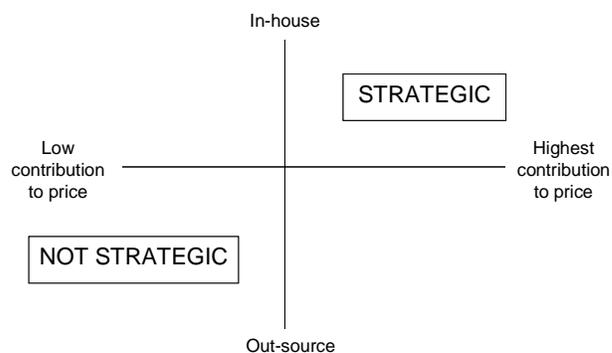
Putting value chain analysis in the context of industrial organization theory, Mr. Readman discussed two sets of determinants of firm behaviour: transaction costs, and resources and capabilities. Both influence firms' surroundings and their relations with these. In the case of transaction costs, integration in the chain depends on the frequency of transactions, the uncertainty of market exchanges, and asset specificity. This third factor (asset specificity) is a measure of how unique the transaction is — if the assets in question are highly specific, then the transaction will be brought in-house (to reduce costs); however, if asset specificity is low, transactions can be outsourced without much cost.



The second set of determinants of firm behaviour concern tangible and intangible resources and assets (for example, technology and brand-names) and capabilities (the routines to effectively use the resources). Competitive advantage derives from these capabilities being valuable and difficult to imitate. For instance, if there exists a very high capability level in a certain area, that transaction will be in-house, whereas a lack of capabilities necessitates outsourcing the transaction.

A governance structure based on these sets of determinants can be presented diagrammatically as a plane, with asset specificity on the horizontal axis, ranging from low to high, and capabilities on the vertical axis, ranging from limited to high.

Figure 9: Value chain - where to upgrade



Where assets are specific and capabilities are high, transactions should be in-house. Where the opposite is true, outsourcing is a better option.

Extrapolating this diagram to a value chain perspective, one can discern where it is most strategic to upgrade. For each activity in the value chain, one ascertains the contribution to the final price and whether activities are in-sourced or outsourced (see Figure 9). Where contribution to price is high, and there exist good in-house capabilities (high asset specificity and

capabilities), then it is strategic to upgrade in the value chain. However, if the contribution to price is low, and the transactions are outsourced, upgrading is not strategic.

The industrial organization of the value chain (buyers, suppliers, rivalry) is certainly important, but efforts must also be directed towards developing activities that contribute to the final price, resources and capabilities, and developing capabilities to manage supply chains and market relations.

Value Chain Governance Structures

Lisbeth Navas-Alemán, Institute of Development Studies, Sussex University

It is important to investigate the governance structures of value chains, as governance offers both opportunities and obstacles for industrial development in developing countries. Governance occurs for two main reasons, the first being product definition (when buyers pursue product differentiation, there is a need to provide suppliers with precise product specifications and ensure these are met).



Secondly, the risk of supplier failure creates a need for governance (as non-price competition increases, buyers are vulnerable to shortcomings in suppliers' performance e.g. quality, response time). Indicators of governance types are asymmetry of information, dependency, and power asymmetry.

Figure 10: Finding out what kind of governance exists in a value chain

Selected Indicator	Question
■ Asymmetry of information	■ Do you know for how much your product sells in the UK/USA/India?
■ Dependency	■ How much of your output goes to your main buyer? How many other buyers do you have?
■ Power asymmetry	■ Does your buyer allow you to use your own brand on your products?

of information, dependency, and power asymmetry.

There are some practical frameworks to find out what kind of governance exists in a value chain. They help determine and predict what kind of value chain governance a producer or a buyer is exposed to. For example, to measure the indicator for asymmetry of information, a question can be asked to the producers if they know for how much their product sells in the overseas market (see Figure 10).

Hierarchical governance structures are defined as those with vertical integration within a firm — this may mean the ownership of one firm (or parts of it) by another. A selected indicator for hierarchies is direct managerial authority. The next category, captive or quasi-hierarchies, are those in which the producer is subordinated to one or a few buyers, and in which there are strong power asymmetries and a long-term relationship. The indicators may be that they exhibit high buyer dependency (the main buyer takes more than 30 per cent of producer's output); high degree of buyer concentration; the buyer sets production parameters for the producer; there are few direct sales from producer to buyer; intermediaries keep producers away from final markets; the producer's performance is tightly audited/monitored by the buyer; the producer's exit options are more restricted than the buyer's; the buyer provides technical assistance; there is asymmetry of information; there may be "antagonistic cooperation"; and the buyer's competence in essential chain activities is higher than the producer's.

Hierarchical governance structures are

Networks, in turn, are structures in which there is coordination of activities between firms, but mutual interdependence. It is a typical structure for strategic alliances. Indicators for networks are that there is no buyer or producer dependency (the producer may have various buyers, but if the producer has few buyers, the buyer is likely to have few producers), and there exist few "exit" options on both sides. There are also no asymmetries in knowledge (the producer has knowledge that is valuable to the buyer and hard to substitute, and vice versa). Lastly, market governance structures are defined as those involving "arm's length" relations between firms. Indicators for this may be that there is low buyer concentration, and low producer concentration, the buyer is not involved in product definition,

and there is no technical assistance. Repeat transactions are possible, but information flows are limited.

Particular governance structures are also often associated with geographical markets, e.g. hierarchy with export markets, quasi-hierarchy with export (sometimes domestic) markets, networks with domestic/export markets, and market governance with domestic or regional markets. However, past trends should not be taken as the only basis for associating governance structures with determined geographical markets. It is possible to find market chain governance between a developing country producer and a developed country buyer, for instance.

Participation in different governance structures may result in process, product and/or functional upgrading, depending on the commercial strategic logic (cost reduction, differentiation, one market/many markets). Recognizing what kind of governance exists in a value chain can help to discern appropriate upgrading strategies — for example, insertion in quasi-hierarchical or captive value chains offers a fast-track route to process and product upgrading but hinders functional upgrading. In addition, there may be different types of governance within a firm depending on its interactions with different parts of the value chain, or even across value chains. There is growing evidence that multi-chain firms tend to achieve better functional, product and process upgrading, yet policies for multi-chain firms are yet to be designed.

Impressions of Discussion

Participants underlined that the governance of the entire value chain was at issue, rather than governance of individual firms. This point also concerned the level of advice which international organizations such as UNIDO provide — this is at the institutional level, rather than at the level of firms. In this regard, UNIDO must promote awareness at regional or national level of what is happening in industrial value chains. Another point raised by several speakers was the important role that the external environment plays in determining how value chains function (e.g. government policy, regulation, etc.).



Report from the Break-out Session on Governance Structures

The three key issues to consider in governance structures are:

- Asymmetry of information
- Dependency
- Differential abilities within the firms



There are also the issues of power relations and enforceability. Following from these issues, five indicators to governance structures were outlined:

- Information
 - Knowledge of final buyer/producer
- Rules/parameter setting
 - Founding rules vs. technical parameters
- Enforcement
 - This links closely with rules/parameter setting, such as with World Bank guidelines, Transparency International rankings
 - Should we collect information on this or rely on those already providing it?
- Capacity/skills
 - To organize, manage, analyse, negotiate; technical capacities, innovation
- Dependency
 - Concentration of buyers, suppliers, range of products
 - Availability of alternatives
 - Knowledge/skills
 - Finance
 - Risk

The sources of data to measure governance structures include the World Bank databases, Transparency International and RCA. It was also stressed that one must be clear on what kind of analysis is being done, e.g. whether it's for a national, global or local value chain. Benchmarking becomes easier at the level of national value chains, for instance. In the discussion, several speakers noted that the role of UNIDO as an international organization is to provide technical assistance, but not at a firm-level, and stressed that governance must look at whole industries. Typologies of standards, for example, are part of governance structures. This also chimed with a point made about the need to distinguish value chain governance from the overall business environment.

8. Cleaner Production and Environmental Sustainability

Cleaner production and environmental sustainability have become key challenges in modern supply chain management. On the one hand, national legislation and international standards require chain actors to comply; on the other hand, modern consumers are becoming increasingly concerned about the origin of products and the way they are made. There is a growing consciousness that environmental standards also provide opportunities, for cost saving as well as for the development of new business.

Common parameters in the analysis of environmental issues in value chain development include the following:

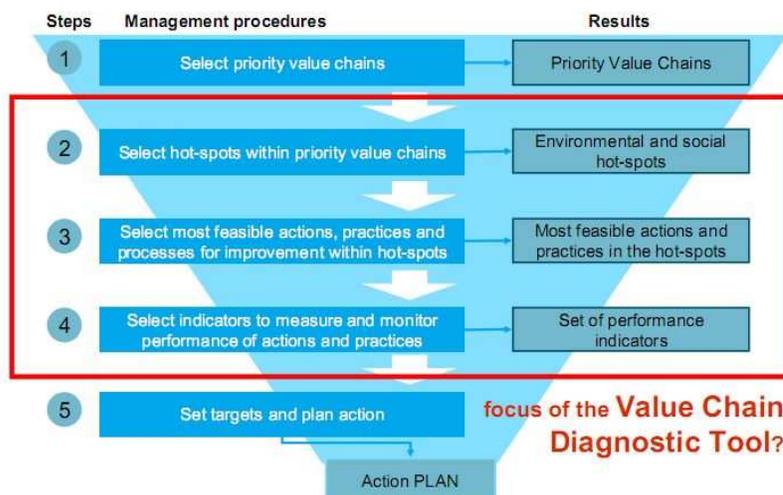
- Land used for production and processing;
- Efficiency of energy use;
- Sources of energy;
- Water use and contamination;
- Quantity and quality of chemicals;
- Waste production and management;
- Possible effects of production and processing on ecosystems;
- Pollution potentials such as acidification, eutrophication and others; and
- Greenhouse gas emissions.

Analysing Options for Improved Resource Productivity and Environmental Performance: Sustainable Consumption and Production Perspective

Burcu Tunçer, UNEP/Wuppertal Institute, Collaborating Centre on Sustainable Consumption and Production (CSCP)

The concept of value chains' "backpacks" was introduced to highlight their true level of resource consumption, which is often hidden. Sustainable consumption and production thinking suggests that we decouple the use of resources from economic growth, while continuing to improve the quality of life.

Figure 11: Sustainable value chain management: A practical step-by-step process to find priorities, feasible options and indicators



Priorities ("hot-spots") should be identified along the value chain — these can be upstream and downstream, rather than the current focus on the middle part of the chain. The step-by-step process described in Figure 11 allows for selecting feasible actions, practices and processes for improvements in these hot-spots. The Value Chain Diagnostic Tool is applied

after priority value chains are selected as the first step of management procedure. The Tool is to first select environmental and social hot-spots within the priority value chain. Then most feasible actions, practices and processes for improvement within hot-spots will be selected. The Tool will then provide

Figure 12: Sustainable value chain management: Select hot-spots

Hot-spots	Agriculture/Raw Fiber	Manufacturing/Production	Distribution/Retail	Use/End-of-Life
Raw materials	●●●●●	●●	●	●●●●●
Energy	●●●●●	●●●●	●●●●	●●●●●
Water	●●●●●	●	●	●●●●●
Landuse	●●●●●	●	●●●	●●●
Waste	●	●	●	●●●●●
Emissions to air	●●●●●	●●●	●●●●	●●●●●
Emissions to water	●●●●●	●●	●	●●

instructions how to set performance indicators to measure and monitor performance of actions and practices of value chain intervention. Once the Tool has identified such indicators, an action plan will be developed for value chain development.

Figure 12 is a case study of a typical

textile/cotton value chain in selecting and identifying hot-spots. The industry’s environmental impacts are most severe at the start of the supply chain. The growing of cotton requires heavy use of agrochemicals and water as well as biodiversity loss (scored in “land use”). During the whole life-cycle, the consumer holds the best possibilities for improving the product’s overall environmental profile. The individual consumer’s consumption patterns and environmental awareness are therefore crucial.

The recommendations emerging for the Value Chain Diagnostic Tool are listed below:

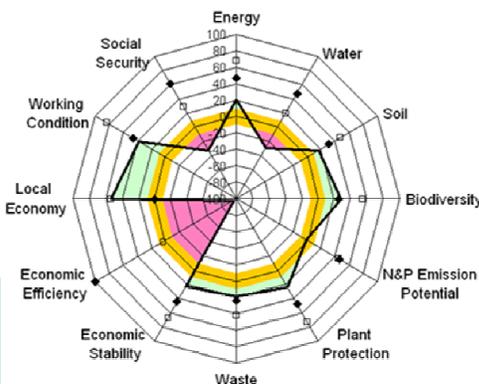
- Follow a life-cycle approach, with the emphasis on both production and consumption. Good environmental practices have to be taken up both by SMEs and consumers.
- Locate priorities to distribute time and financial resources effectively. It is not recommended to rush to cover all life-cycle phases and environmental aspects.
- Conduct simplified hot-spot analysis to locate priorities efficiently.
- Select the most feasible practices and actions to improve the hot-spots. Overview of common sustainable consumption and production practices should be used as indicators.
- Drive indicators to measure and monitor performances.

Approaches and Parameters for Assessing Environmental Sustainability in Value Chains: Reflections and Suggestions

Jan Grenz, Swiss College of Agriculture

Response-Inducing Sustainability Evaluation (RISE) is an indicator-based

Figure 13: The indicator set



method for holistic sustainability assessment of agricultural production at farm level. It was presented as a method to incorporate sustainable production into value chain analysis. There are four stages: preparation and questionnaire-based data collection; data processing; analysis; and a feedback discussion and identification of measures.



The indicator set of RISE covers natural resources (energy, water and soil), agronomy (biodiversity, emission potential and plant protection), economy (waste, economic stability and efficiency), and the social situation (local economy, working conditions and social security) and can be described in a chart (see Figure 13). The red space indicates poor performance, while green indicates better performance.

The lessons learned from RISE are firstly, that insights from a model do not imply effective impact. Additionally, it highlights that reducing the environmental impact of activities must also pay off economically to be sustainable. Finally, drawing upon the existing standards and tools is crucial — examples given were ISO 14000, Global Reporting Initiative, Ecological Footprint, Commission on Sustainable Development (CSD) indicators, Eco-Management and Audit Scheme (EMAS) and Life Cycle Assessment (LCA), and Swiss Agriculture LCA.

Suggestions for the Value Chain Diagnostic Tool are to strive for an impact from the beginning, even if it means statistical rigour is reduced; go for an analytical approach with elements of compliance; a fixed set of core indicators; and have simple and transparent aggregation and weighting procedures.

Impressions of Discussion

It was suggested that environmental impacts be integrated into economic drivers of costs. Another suggestion was to take a sample of each group of actors in the value chain to conduct the diagnosis.



Report from the Break-out Sessions on Constraints to Cleaner Production and Options for Environmental Sustainability

Assuming that the initial mapping exercise and prioritization have taken place, ways to examine the environmental aspects were discussed. It was stressed that the analysis should be participatory (involve stakeholders) and the boundaries of the analysis (how far down the value chain do we wish to look?) should be set and agreed with stakeholders. It should be a simplified LCA, covering the following areas, and looking at performances and practices related to each:



- Materials;
- Energy;
- Water;
- Biodiversity;
- Emissions; and
- Waste.

Based on a selection of “hot spots” a benchmarking exercise should be conducted, with a set of parameters, identification of costs (of environmentally-unsound practices) and possible benefits of practices to relevant stakeholders. Areas to be improved are then identified. A set of possible interventions were also listed (e.g. setting new standards through cleaner process technology, alternative technologies, training workers in Environmental Management Systems etc.) — these would be more relevant for the design and implementation of detailed technical assistance projects, rather than the diagnostic stage. Indicators for change should be developed and, to encourage learning, policy recommendations should be considered.

Data collection and reporting on indicators can be key problems, though difficulties vary across value chains and actors (large firms vs. small firms). The tool should be able to specify baseline data, in order to later measure change in indicators. It is also important to build on existing initiatives, whenever possible (e.g. many transnational companies are conducting similar analyses).

It was suggested to change the wording of this dimension to Environmental Life Cycle Improvement, to better reflect the approach. UNIDO already has data which can quantify material intensity of production (ratio of the share of value added to cross-output). The OECD average could be taken as the world’s “best practice”, and compared to producers of the same commodity elsewhere. Another suggestion was to have a screening checklist for environmental aspects to prioritize value chains.

9. Implementation of the Tool

From Diagnostics to Value Chain Development

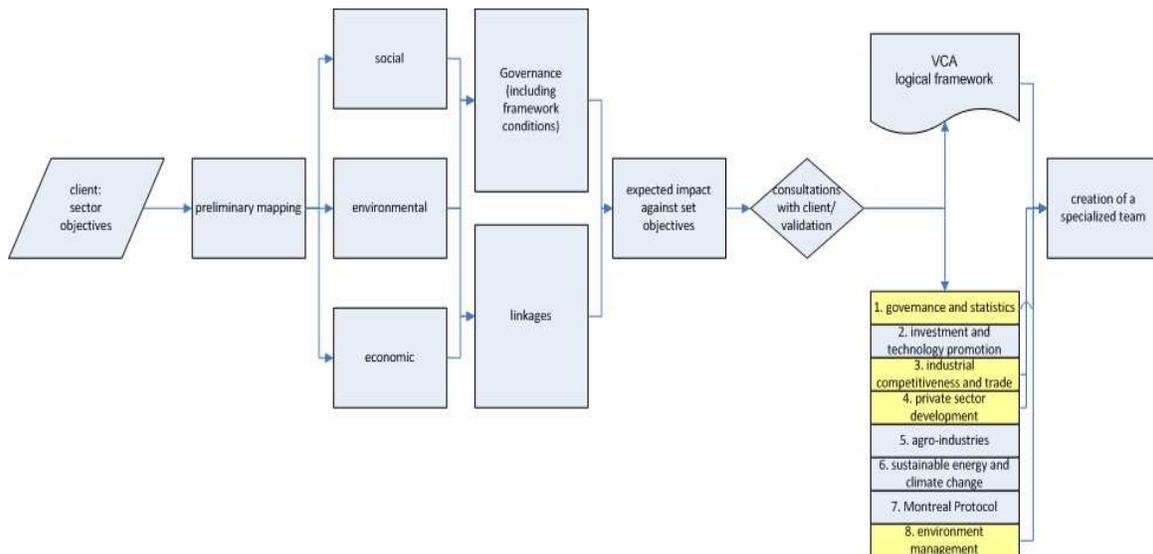
Philippe Scholtes, UNIDO Representative, Regional Office in India, UNIDO

Mr. Scholtes presented actionable value chain analysis in the context of UNIDO's technical cooperation programmes. Typically, client Member States come to UNIDO with requests for development of a particular sector or a value chain. The Tool will most likely be applied on the basis of such requests, thus this should be positioned realistically within a project cycle.

For a design of the UNIDO Value Chain Diagnostic Tool, it is important to understand the sequence of steps in a project cycle and the resources that can be reasonably allocated to each one of the steps (see Figure 14).



Figure 14: Value Chain Diagnostic Tool



The Tool is meant to be applied at the first step in the project cycle that can be implemented rapidly — say, within four weeks — at low cost, and without specialized skills in any of the elementary services of UNIDO. It produces — after validation by the client — a description of the interactions among agents along the value chain, as well as a logical framework to support the deployment of particular services of UNIDO in an integrated fashion tailor-made to the specific needs.

Building upon these outputs of the Value Chain Diagnostic Tool, a team this time of specialists will formulate detailed project documents in their respective disciplines. This operation can typically take four months. Additional specialized services will then be injected all through the execution of the programme, which can last over four years for a large-scale intervention.

Financing Value Chain Development, Risks and Rewards in the Feed-to-food Value Chain

Albert Vernooij, Rabobank International

Rabobank has the largest bank active in the agriculture sector worldwide. Rabobank's approach to value chain financing focuses on risks and rewards. It conducts a risk assessment, by looking at the position of the firm relative to peers, as well as relative to suppliers, buyers and market share. The model that Rabobank uses focuses on the cost structure of each link in the value chain, the impact of volatility, effects on costs and margins for each link, how much value is added per link, and how prices are transferred over the chain. Out of this model comes the cost competitiveness of each link, including the division of profitability over the chain, fairness of this division based on costs and margins, and the long-term sustainability of each link in the chain (including the quality of management). Rabobank uses value chain analysis for evaluating commercial customers in the food and agriculture sector. Looking at the characteristics of the feed-to-food value chain, the cost price structure, the value added and effect of volatility on margin is examined over the chain, from feed to farming to processing.



The Value Chain Diagnostic Tool for UNIDO should provide insight into the cost structures of each link in the chain, the relative weights of different production areas, and the division of costs and margins over the chain. Data inputs needed for the Tool are the reference prices of the main products, and the main components of cost structure. It can be a tool for UNIDO to manage risk, determine the sustainability of value chains, and gain insight into how to increase the competitiveness of the whole value chain.

Monitoring and Evaluation for Value Chain Diagnostics

Ade Freeman, Independent Evaluation Group (IEG), The World Bank Group

It is very important for UNIDO to decide the type of monitoring and evaluation framework it wants to use upfront — is it traditional (focusing on inputs, activities, outputs), or results-based (focusing on outcomes and impacts)? A framework for Result Based Monitoring and Evaluation should cover several areas. The first is to consider a project impact pathway. This specifies a cause-effect relationship, i.e. how a project investment is expected to lead to the desired results. The key assumptions about the linkages between outputs-outcome-impact should also be discussed and specified at the diagnostic stage.



The second area to cover is an agreement with clients and key stakeholders on outcomes to monitor and evaluate. Outcomes are results that eventually produce benefits — these are not directly measured, but are reported on. These outcomes should be translated into a set of key indicators.

Thirdly, key indicators must be selected to monitor outcomes, in order to indicate progress (or lack thereof) towards a specific target. These indicators help to answer two fundamental questions: How will we know success or achievement when we see it? Are we moving toward achieving the desired project outcomes? Indicators may comprise quantitative or qualitative variables, and must be SMART (specific, measurable, attainable, realistic and time-bound). At the diagnostic stage, after agreement on the outcomes and selection of indicators, the effort can focus on collecting data on indicator variables that already exist and can be used in a rapid analysis of baseline conditions.

The fourth area to cover is to set baselines, which should be derived from the outcomes and indicators agreed upon and selected. These provide a basis for comparison, and a starting point or guide to monitor future performance. The fifth area is selection of realistic targets that can be used to plan for

Table 6: Evaluation design options

<i>Type of comparison</i>	<i>Basis of comparison</i>	<i>Adequate</i>
<i>Before/After</i>	<i>Changes over time in project area</i>	<i>+</i>
<i>With/Without</i>	<i>Changes between project area and non-project area</i>	<i>++</i>
<i>Combine Before/After and With/Without</i>	<i>Difference of changes over time & project area</i>	<i>+++</i>

improvement — preferably there should be a single target for each indicator. Mr. Freeman stressed that at least a notional sense of expected results and targets is necessary for the diagnostic tool. Several government and donor strategy and policy documents such as poverty reduction strategy papers and country assistance strategies provide desired improvements and targets for sectors and sub-sectors. This information must be collected at the diagnostic stage as they provide useful insights into current policy thinking on the desired improvements performance that is expected in achieving the desired results in specific sectors, sub-sectors, or supply chains.

While the choice of method usually comes after the evaluation questions have been specified and agreed upon, it is useful to start a discussion of evaluation design options at the diagnostic stage to get an early sense of possible evaluation approaches and data collection strategies (e.g. assessing changes over time in project areas, or changes in between project and non-project areas, or both) (see Table 6).

Operationalizing monitoring and evaluation at the diagnostics stage requires engagement with clients and stakeholders to agree on key outcomes that can be translated into monitorable indicators, collecting baseline data on key indicators and targets from secondary sources, and exploratory analysis on alternative evaluation design, strategies and methods for data collection, management, and analysis.

10. Wrap-up Session

Synthesis of the Working Group Results

Amit Kapoor, Institute for Competitiveness, and Management Development

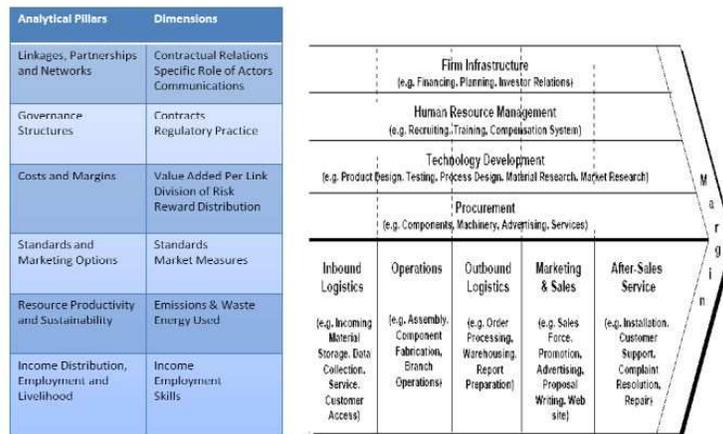
Mr. Kapoor reflected his first impressions and thus sought to convey the direction for a deeper understanding of the Value Chain Diagnostic Tool.

The most interesting exercises of the three days were the discussions on the dimensions.

In terms of getting to a quick-to-use diagnostic tool, there needs to be a smaller number of indicators, and the Tool should make use of existing indicators and easy available data.



Figure 15: The analytical pillars and dimensions



Issues that remain to be resolved are overlaps in the suggested indicators areas. The dimensions used during this Expert Group Meeting were useful for structuring the discussion, and probably later the value chain analysis, but a decision on whether to collapse the dimensions or keep them as good grounds for analysis, has to be made.

The emerging tool can be used for monitoring, priority setting, and getting an initial grip on the situation.

Finally, although there were inputs of many practitioners and experts in this meeting, the exercise is still hugely embedded in theory — the challenge is now to build it up and to implement it in a practical way, and to get the right set of indicators.

Towards an Outline of the Tool

Frank Hartwich, Swiss College of Agriculture

Mr. Hartwich summarized the results of the workshop regarding the structure of the industrial Value Chain Diagnostic Tool to develop. It must be linked to UNIDO's mandate and the definition of sustainable industrial development. In such a way it is clear on what the Tool seeks to achieve and now further definition of priorities in value chain development need to be performed at that stage. The main objective of the Tool would be to identify a broadest range of bottlenecks and opportunities to value chain development.

The discussions had shown that the dimensions can be reorganized to present four "pillars", namely, Economic, Environmental, Social and Governance and Linkages. Some indicators can be linked to more than one pillar, thus making the analytical structure



less hierarchical and more holistic. Mr. Hartwich then proposed elements of an outline of the Tool including objectives of the Tool, scope of its application, process of chain selection, overview of the framework, data collection methodology, documentation guideline, and consideration to the further process.

Finally he emphasized that the Tool is intended as a rapid (that could mean anything from two weeks to two months) but holistic assessment tool covering all aspects of value chain development at an early stage before defining which development interventions to carry further. Stakeholder participation may need to be important during the conduct of the diagnostics but more so after its use when project interventions are prioritized, planned and implemented.

Next Steps, Timeline and Closing

Patrick Kormawa, Coordinator, International Financial Institutions Partnership Unit and Advisor to the Director-General, UNIDO



The Value Chain Diagnostic Tool will be a holistic and cost effective tool; it is not intended as a “Quick and Dirty” tool, as it will be built from a well thought-out conceptual basis and operational applications. It will be a tool designed by researchers and development experts and has a multidisciplinary input, using the experiences of other tools.

The Value Chain Diagnostic Tool is not prescriptive, but descriptive. It can be applied for different purposes, like policy advice, priority setting or project identification, depending on the objective of the user.

The process for designing the Value Chain Diagnostic Tool has proven to be very useful; it provided an opportunity for sharing knowledge between UNIDO and external experts. We received input from external experts, as well as a validation of our ideas. During this Expert Group Meeting UNIDO has learned from the experiences of the participants and acquired a huge amount of information relevant to the development of the Industrial Value Chain Diagnostic Tool. Now choices have to be made, related to scope, scale and resources.

The Expert Group Meeting produced a wide range of results: there is now a consensus on the usefulness of the Tool. It should be generic, rapid and holistic. We reached consensus on the dimensions. We gathered an extraordinary amount of valuable inputs to define dimensions and a long list of issues/indicators. We also received ideas for methods and sources of information.

And finally, a worldwide network of experts on value chain analysis has been established. UNIDO will set up an online discussion forum, where all the participants will be invited to contribute further to the discussion.

There are several remaining tasks to do. The definition of the dimension of the Tool has to be made. Related to that it should be decided which themes should go into the Tool, which indicators and how detailed indicators will be needed. The complicated matter of crosscutting issues (Gender/Environment/Sustainable Production/Poverty alleviation) has to be cleared. The place of the Tool in the project cycle has to be defined. Then there is the drafting/testing/adjustment and developing of a manual needed. For these activities the following time schedule is drafted:

Table 7: Time frame

<i>Network established</i>	<i>3 to 4 weeks</i>
<i>Synthesize inputs and produce a report</i>	<i>5 to 8 weeks</i>
<i>Detailed draft outline /version – 00)</i>	<i>4 to 5 weeks</i>
<i>1st draft diagnostic tool</i>	<i>4th Quarter '09</i>
<i>Test tool</i>	<i>1st Quarter '10</i>
<i>2nd draft diagnostic tool</i>	<i>2nd quarter '10</i>
<i>Revision and publication</i>	<i>3rd quarter '10</i>
<i>Dissemination</i>	

Closing of the Meeting

Jebamalai Vinanchiarachi, Principal Advisor to the Director-General, UNIDO

“On behalf of the Director-General of UNIDO, I would like to thank all participants for spending their valuable time and taking active part in the proceedings of the Expert Group Meeting. It was also good to see a large number of UNIDO staff interacting actively in group meetings and general discussion. The organizers deserve a word of appreciation for making the event a grand success. The ideas that transpired during the Expert Group Meeting certainly created inspirations and aspirations for translating innovative thoughts into deeds for using a set of value chain tools as an effective means of fostering sustainable industrial development.

Thank you.”



11. Annexes

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Expert Group Meeting

Developing a Value Chain Diagnostics Tool for Common Practice at UNIDO

F0704, Vienna International Centre,
Wagramer Strasse 5, A-1400 Vienna, Austria
23-25 September 2009

Wednesday 23rd September

8.00 - 8.45 Registration of participants and Welcome Coffee/Tea (F0704)

Session 1: Opening

- 8:45 **Introduction to the EGM**
Dmitri Piskounov, UNIDO
- **Introduction to the workshop methodology**
Thomas Becker, Facilitator
 - **Value chain analysis for industry development**
Philippe Scholtes, UNIDO
 - **Objectives and expected outcome of the meeting**
Patrick Kormawa, UNIDO
 - **Introduction to the framework and working paper**
Frank Hartwich, Swiss College of Agriculture
 - **Clarifications and suggestions**

10:35 Coffee/tea break

Session 2: Approaches & parameters for value chain diagnostics tool for:

- (a) Governance Structures**
 - (b) Linkages, Partnerships and Networks**
 - (c) Costs, Margins and Competitiveness**
- 10:45 **(a) Governance Structures**
Jeff Readman, Centre for Research in Innovation Management, University of Brighton
Lizbeth Navas-Alemán, Institute of Development Studies, Sussex University
-- Discussion --
- (b) Linkages, Partnerships and Networks**
Alexandra Rottger, FAO
Alison Griffith, Practical Action
-- Discussion --
- 13:05 Family Photo - Lunch VIC restaurant
- 14:25 **(c) Costs, Margins and Competitiveness**
Evgeni Evgeniev, The World Bank, Europe and Central Asia Region
V. Padmanand, Independent Consulting
-- Discussion --
- 15:35 • **Instruction to the group work**
Thomas Becker, Facilitator
- 15:50 • **Group work – Breakout session**
Output: agreed variables and a short report/presentation
- (a) Governance Structures (F0817)**
 - (b) Linkages, Partnerships and Networks (F0814)**
 - (c) Costs, Margins and Competitiveness (F0704)**
Coffee/tea will be served in each room
- 17.15 • **Wrap-up of the day**
- 17:30 - 19.30 Welcome cocktail

Thursday 24th September

Session 2 continued:

8:45 Reporting from previous day's sessions

Session 3: Approaches & parameters for value chain diagnostics tool for:

(d) Markets, Marketing Options and Standards

(e) Constraints to Cleaner Production and Options for Environmental Sustainability

(f) Income Distribution, Employment and Livelihoods

9:45 (d) Markets, Marketing Options and Standards

Ben Bennett, Natural Resources Institute, University of Greenwich

Michiel Arnoldus, KIT (Royal Tropical Institute)

-- Discussion --

10:55 Coffee/tea break

11:05 (e) Constraints to Cleaner Production and Options for Environmental Sustainability

Jan Grenz, Swiss College of Agriculture

Burcu Tuncer, UNEP/Wuppertal Institute Collaborating Centre on Sustainable Consumption and Production (CSCP)

-- Discussion --

12:15 Lunch

13:35 (f) Income Distribution, Employment and Livelihoods

Marten Sievers, ILO

Chakib Janane, UNIDO

-- Discussion --

• Instruction to the group work

Thomas Becker, Facilitator

• Group work – Breakout session

Output: agreed variables and a short report/presentation

(d) Markets, Marketing Options and Standards (F0817)

(e) Constraints to Cleaner Production and Options for Environmental Sustainability (F0814)

(f) Income Distribution, Employment and Livelihoods (F0704)

Coffee/tea will be served in each room

• Reporting

17:25 • Wrap-up of the day

Friday 25th September

Session 4: Implementation of tool

8:30 • From diagnostics to value chain development

Philippe Scholtes, UNIDO

• Financing value chain development

Albert Vernooij, Rabobank International

• Monitoring and impact of value chain Development

Ade Freeman, IEG Independent Evaluation Group, The World Bank Group

-- Discussion --

Coffee/tea break

Session 5: Wrap-up session

10:00 • Synthesis of working group results

Amit Kapoor, Management Development Institute & Institute for Competitiveness

• Towards an outline

Frank Hartwich, Swiss College of Agriculture

• Next Steps

Patrick Kormawa, UNIDO

• Feedback to the meeting

• Closing

Jabamalai Vinanchiarachi, UNIDO

List of abbreviations and acronyms

CSCP	UNEP/Wuppertal Institute Collaborating Centre on Sustainable Consumption and Production
CSD	Commission on Sustainable Development
DCED	Donor Committee for Enterprise Development
DRC	Domestic Resource Cost
EMAS	Eco-Management and Audit Scheme
FAO	Food and Agriculture Organization
IAF	International Accreditation Forum
IEG	Independent Evaluation Group
IFC	International Finance Corporation
ILO	International Labour Organization
ISO	International Organization for Standardization
KIT	Royal Tropical Institute
LCA	Life Cycle Assessment
M&E	Monitoring and Evaluation
OECD	Organisation for Economic Co-operation and Development
RCA	Revealed Comparative Advantage
R&D	Research and Development
RISE	Response-Inducing Sustainability Evaluation
SMEs	small and medium enterprises
SWOT	Strengths, Weaknesses, Opportunities and Threats
UK	United Kingdom
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organization

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