TOOL 2 VALUE CHAIN MAPPING GUIDELINES

JOBS IN VALUE CHAINS SURVEYS

VALUE CHAINS

Value chains encompass the full range of activities required to bring a good or service from conception, through the different stages of production (provision of raw materials, input of various components, subassemblies, producer services and assembly of finished goods) and delivery to final consumers, and, finally, to disposal after use[1]. The term 'value chain' describes the fact that as the product or services moves through each of these stage of production, value is added along the way. This value may be captured within a single actor (in the case of a vertically-integrated chain) or may involve a number of actors at each stage. Of course, the relative value of each stage will not be the same, and therefore one of the key challenges for firms and workers is how to position themselves in the activities that are highest in value added, and how to maximize value captured in the stage(s) in which they participate.

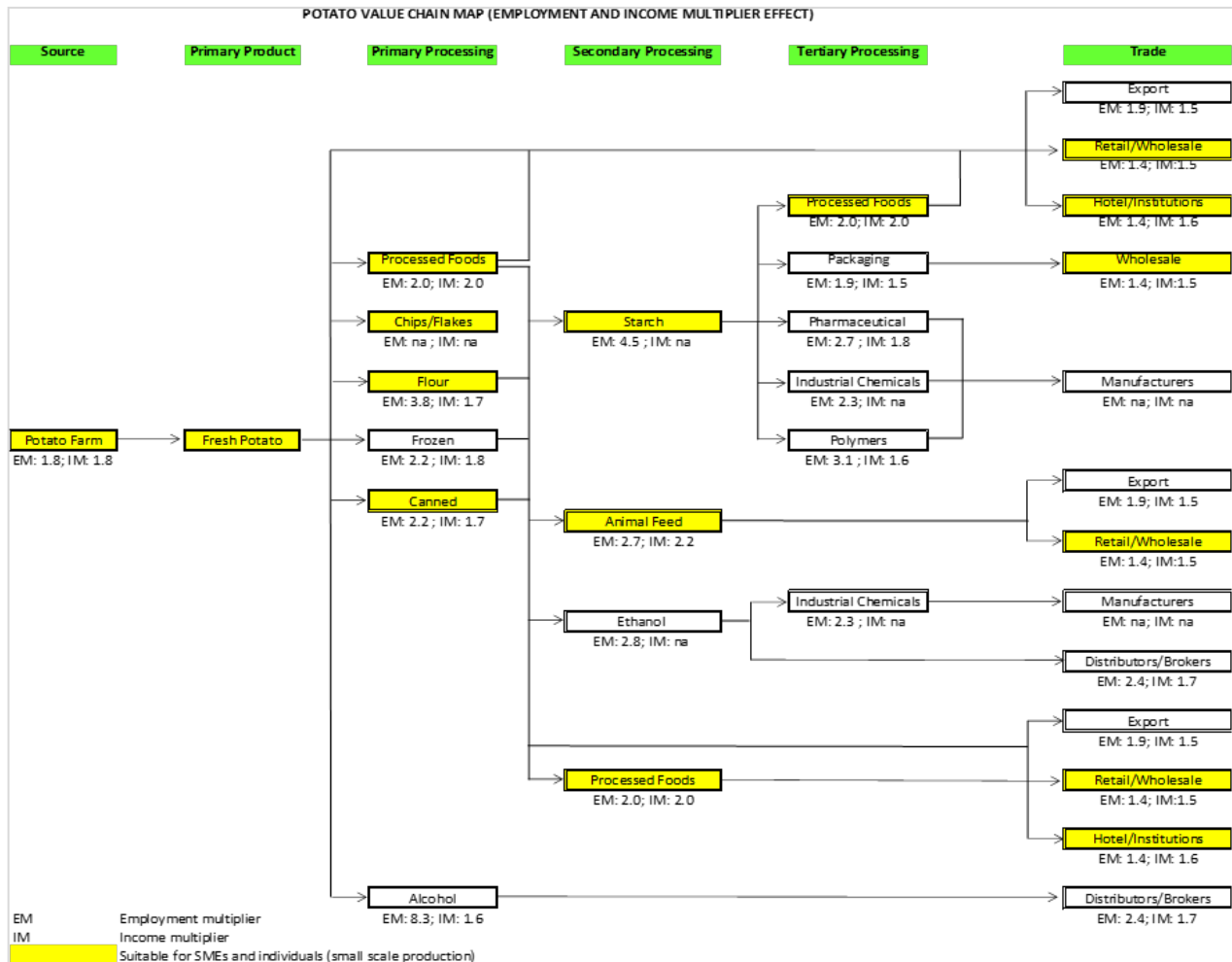**Value chain example**: Textiles and apparel
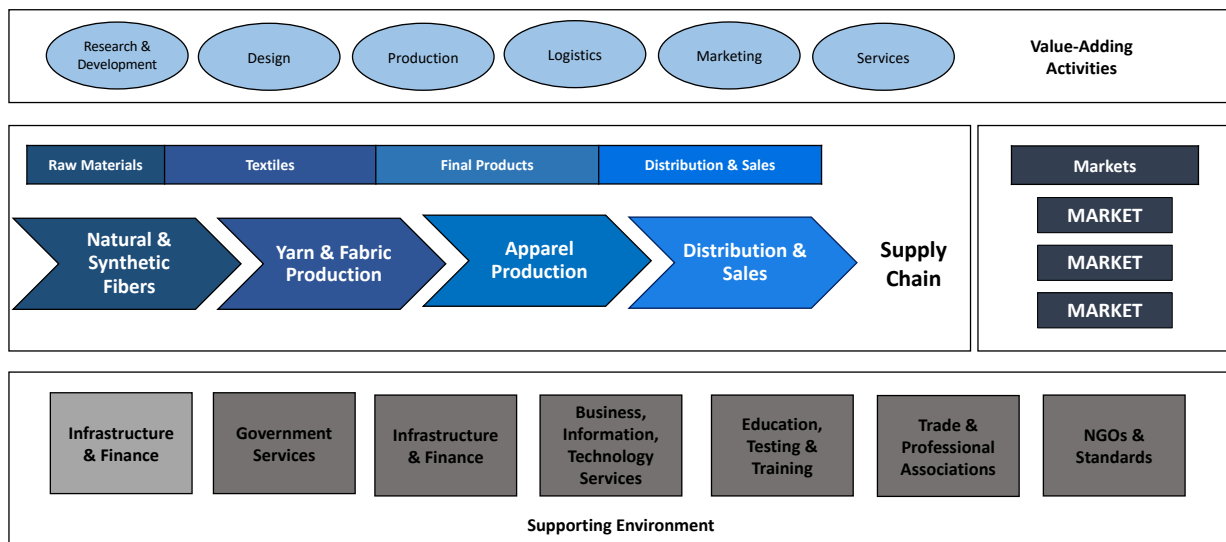
Source: Frederick, S. (2010) "Development and Application of a Value Chain Research Approach to Understand and Evaluate Internal and External Factors and Relationships Affecting Economic Competitiveness in the Textile Value Chain." PhD Dissertation, North Carolina State University, Raleigh, NC

VALUE CHAIN MAPPING

A value chain map is an illustrative way of describing the structure and actors involved in bringing the product or service from its basic raw materials through final consumption. **The value chain map can be a useful tool to guide the research, and so setting out the map (at least an initial understanding of it) is an important activity to be carried out before the field research begins. The mapping will help determine the approach to the field research, including the sampling strategy for surveying.**

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[1] Gereffi, G., Fernandez-Stark, K., and Psilos, P. (2011) "Workforce Development and Global Value Chains in Developing Countries", Center for Globalization, Governance, and Competitiveness, Duke University.

Figure 1
Sample value chain flow map – Potatoes

POTATO VALUE CHAIN MAP (EMPLOYMENT AND INCOME MULTIPLIER EFFECT)

Source	Primary Product	Primary Processing	Secondary Processing	Tertiary Processing	Trade

Export — EM: 1.9; IM: 1.5

Retail/Wholesale — EM: 1.4; IM: 1.5

Hotel/Institutions — EM: 1.4; IM: 1.6

Processed Foods — EM: 2.0; IM: 2.0

Processed Foods — EM: 2.0; IM: 2.0

Packaging — EM: 1.9; IM: 1.5 → Wholesale — EM: 1.4; IM: 1.5

Chips/Flakes — EM: na ; IM: na

Starch — EM: 4.5 ; IM: na

Pharmaceutical — EM: 2.7 ; IM: 1.8

Flour — EM: 3.8; IM: 1.7

Industrial Chemicals — EM: 2.3; IM: na → Manufacturers — EM: na; IM: na

Potato Farm — EM: 1.8; IM: 1.8 → Fresh Potato

Frozen — EM: 2.2; IM: 1.8

Polymers — EM: 3.1 ; IM: 1.6

Canned — EM: 2.2 ; IM: 1.7

Animal Feed — EM: 2.7; IM: 2.2

Export — EM: 1.9; IM: 1.5

Retail/Wholesale — EM: 1.4; IM: 1.5

Ethanol — EM: 2.8; IM: na

Industrial Chemicals — EM: 2.3 ; IM: na → Manufacturers — EM: na; IM: na

Distributors/Brokers — EM: 2.4; IM: 1.7

Export — EM: 1.9; IM: 1.5

Processed Foods — EM: 2.0; IM: 2.0

Retail/Wholesale — EM: 1.4; IM: 1.5

Hotel/Institutions — EM: 1.4; IM: 1.6

Alcohol — EM: 8.3; IM: 1.6

Distributors/Brokers — EM: 2.4; IM: 1.7

EM — Employment multiplier
IM — Income multiplier
Suitable for SMEs and individuals (small scale production)

Step 1: Mapping the basic functions in the chain

Unless the local value chain has already been mapped, it is often best to start with a typical global map of the value chain in question (a 'generic value chain map'), and then adjust it to reflect the structure of the local chain. The mapping should start with the end product and step back, mapping all the individual activities where value is added on the way, back to the point of the basic input suppliers (primary production). Note, however, that while the value chain aims to go back inputs, it does not need to continue tracing back suppliers to these inputs ad infinitum – for example an assessment of the poultry value chain may want to go back beyond the poultry farmer to the main feed producers, but it need not then include the seed providers to this input supplier and the supplier to the seed provider, etc.

For robust sampling, it is recommended that the mapping should be limited to only the essential levels of the value chain where the most value addition takes place and which are central to bringing the product or service to the market. Depending on the number of firms in the frame for a particular level, it may be necessary for example to select a sample of up to 120 firms in order to obtain reliable estimates of the

indicators for that level. Therefore, if the mapping includes more than 4 essential levels the total sample size may exceed the resource constraints, and also make it more difficult to control the non-sampling errors in the data because of the challenges of managing a large data collection operation. The analysis also becomes more focused when the number of levels in the value chain is limited. There may be an exception in the case of a value chain with a few hierarchical levels that include a smaller number of firms in the frame. Such an exception would have to be approved by the World Bank team.

Step 2: Map the market players

Once the core value chain is established, the mapping can move on to mapping the nature of participants in the value chain, including identifying the specific market players. The focus should be primarily on the core value chain – i.e. where firms actually take ownership of the product and add value to it before selling it on. Other firms that provide supporting functions (products and services that contribute to the value-adding process) but are not involved in the core market transactions, should be considered as part of the 'related and supporting' structures (also including government institutions and service providers) in the wider value chain / cluster environment. Information on these market participants should be captured but separated from those that are core to the value chain.

This map should identify the specific names of key actors in the chain and also estimate the total number of each type of firm at each stage of the chain. Most important here is distinguishing firms by: i) formality (formal and informal); ii) size (SME versus large; or small and micro versus medium and large); and, in some cases, iii) domestic of foreign-owned.

Figure 2

Sample value chain flow map with inventory of market players – leather footwear value chain

Source: Brautigam, Tang, and McMillan (2011); Ethiopia Central Statistics Agency
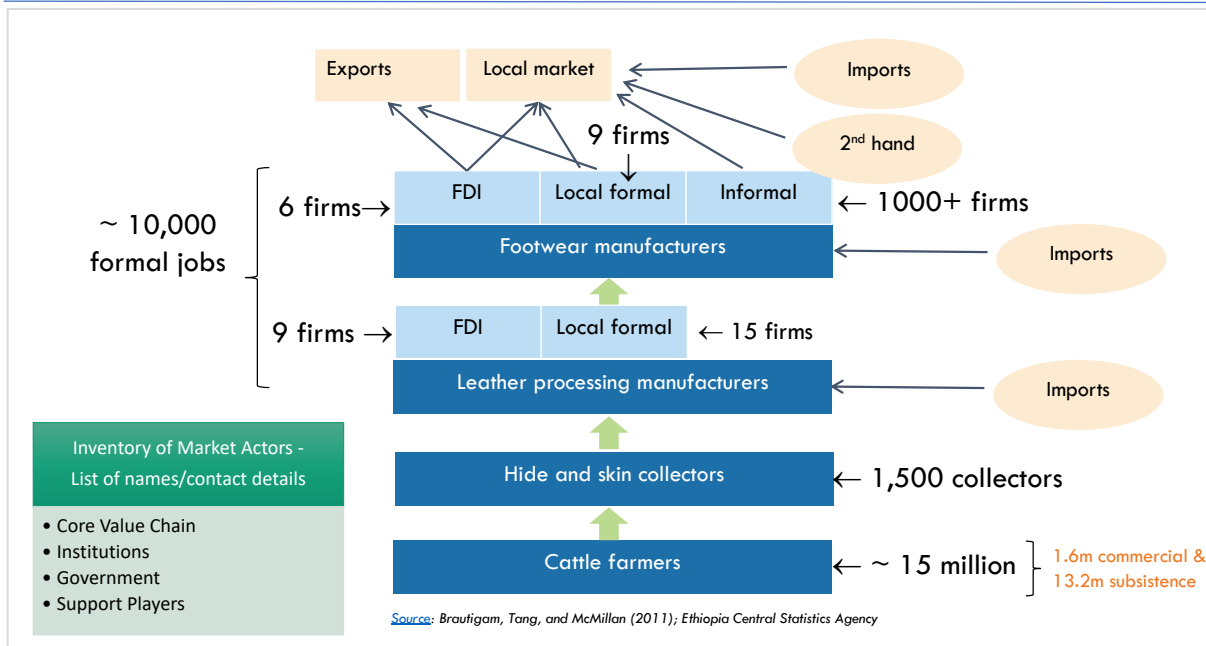
Step 3: Map market dynamics

Once the core value chain is established, the mapping can move on to mapping the dynamics of the value chain, including how the actors interact at the same level and different levels in the chain as well as, critically, information on costs, prices, and value added flows across the chain.

Potential **data sources** for developing the value chain maps include:

- Previous value chain and sector studies (global for the generic structure; national for specific)

- National and sectoral statistics

- Industry associations (websites, studies)

- Consultations with stakeholders

One potentially valuable source of data to help design value chain maps are **Social Accounting Matrices (SAM) or Input-Output Tables (IOT)**. These country and sometime region-specific datasets provide information on the transaction patterns that define the structure of relationships among firms, detailing the sources of inputs into sectors (from all other sectors) and the destinations of outputs from each sector into the others. This can help identify important links among sectors and quantify the extent of these links.

A second important conceptual tool to complement the value chain mapping is **strategic segmentation** of the value chain. Like the value chain map, strategic segmentation should be carried out at the start of the process, particularly because it can help guide the competitive strategy discussion that will be a critical part of the interviews later. Two companies may belong to the same industry (e.g. Tourism) but belong to two very different business segments (e.g. corporate tourism, medical tourism, backpackers). Their key success factors and the competitive pressures they are subject will differ, as will the nature of the jobs in the value chain and the skills they require. Like the mapping, strategic segmentation will also be an ongoing process, with an initial sketch developed at the start and fine-tuned throughout.

Before going out into the field for research, the value chain assessment will be critical in exploiting as much as possible all available information from secondary sources. While the surveys and interviews will be the core research tools, secondary research is important to upgrade the starting point for the fieldwork and can play an important role in: i) establishing hypotheses; ii) informing the interviews; and iii) allowing the interviews to focus on key issues (by answering some of the basics). It can also identify key stakeholders that may participate in the field research.

Secondary research should aim to gather as much information as possible on all issues and can be structured to mirror the survey. The starting point for the secondary research is the value chain selection criteria. In addition, Table 1 outlines specific issues that may be a good focus for the secondary research:

Table 1
Issues and data sources for secondary research

Areas	Specific issues	Comments and data sources
Organization of value chain	Structure of the value chain; key actors – lead firms and other firm types (quantification of # of firms by type in each stage); geographical distribution of activities; identification of key individuals	Existing regional and sectoral / VC studies; academic papers; industry associations; industry experts
Prices, costs, and productivity	Specific local data or benchmarks (global/national) on costs and prices across the chain as well as output / yield, productivity and margins; firm/farm size and output averages, etc.	As above + Enterprise Surveys – here benchmarks from other countries can also be useful; the idea is to build up an estimate of what the VC costs and margins might be expected to look like
Labor and jobs	Specific local data or benchmarks (global/national) on direct and indirect jobs; labor costs; labor required at each stage/process in VC; productivity	As above – again, benchmarks may be useful
Growth trends and opportunities	Output and export profile over time; recent investments / divestments; initiatives and investment plans; global VC and technology trends	As above – global studies useful for understanding direction of GVC / technology
Constraints to competitiveness	Main barriers to investment and business operations; specific national / local constraints most critical to the VC	As above + indices (Doing Business, World Economic Forum Global Competitiveness Index, etc); Enterprise Surveys

However, it is through consultations with stakeholders that the most detailed information is likely to come in terms of understanding the parameters, key players, and nature of interaction in the value chain. For this reason, even if it is possible to map out the value chain through secondary research, it is advisable to at least confirm it through field consultations.

VALUE CHAIN MAPPING - WHY IT MATTERS

The critical first part of the process of identifying the population is to develop a value chain map that is as accurate and comprehensive as possible.

Sampling is a critical activity for carrying out a 'Jobs in Value Chains' analysis, primarily because of the importance of ensuring representativeness of the results of the value chain survey, which is a key tool for the analysis. The first step in sampling is to define the target population in as clear and complete a way as possible. Then it is important to identify reliable sources of information to compile a fairly complete frame of firms that cover this target population.