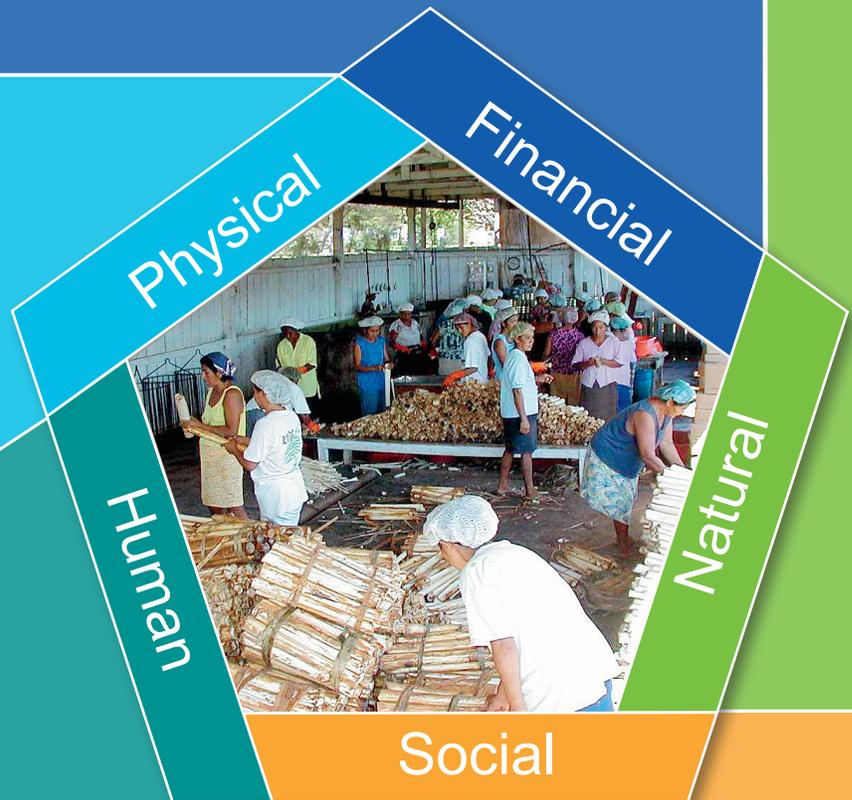


# 5 Capitals

A Tool for Assessing the Poverty Impacts  
of Value Chain Development



**Jason Donovan**  
**Dietmar Stoian**



Solutions for environment and development  
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A Tool for Assessing the Poverty Impacts  
of Value Chain Development

Jason Donovan and Dietmar Stoian

Tropical Agricultural Research and Higher Education Center (CATIE)  
Turrialba, Costa Rica

The Tropical Agricultural Research and Higher Education Center (CATIE) is a regional center dedicated to research and graduate education in agriculture, and the management, conservation and sustainable use of natural resources. Its members include the Inter-American Institute for Cooperation on Agriculture (IICA), Belize, Bolivia, Colombia, Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Venezuela, Spain and the State of Acre in Brazil.

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Selected cases have been published in a case study companion to this tool titled “Assessing Impacts of Value Chain Development on Poverty: A Case-Study Companion to the 5Capitals Tool.” The companion provides a detailed overview of the tool development and validation process, insights from five case studies and a synthesis chapter advocating an asset-based approach to value-chain development and assessment.

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## 5Capitals in a nutshell

### What is it good for?

5Capitals facilitates learning about the potential of value chain development (VCD) to strengthen rural livelihoods and improve business performance. Learning is derived from measuring and observing changes in various assets managed by smallholder households and the enterprises with which they have direct contact. These smallholder-linked enterprises play a critical role in linking smallholders to markets. Underpinning 5Capitals is the belief that the greater a household's access to livelihood assets, such as human, social, natural, physical and financial capitals, the higher its well-being and resilience. Likewise, the greater a linked enterprise's access to business assets, including human, social, physical and financial capitals, the greater its economic viability and performance. The tool helps users understand critical development issues, such as the extent to which preexisting asset endowments determine the outcomes of VCD, the relationship between asset building at the enterprise and household levels, and the role of market, political and institutional factors in facilitating or hindering favorable outcomes. The methodological framework underlying 5Capitals helps users separate the changes caused by interactions and interventions in value chains from those induced by the overall context.

### Who is it for?

5Capitals aims to support the following types of organizations involved in VCD:

- *Funding agencies* looking for more effective and efficient programs to reduce rural poverty through VCD
- *NGOs, consultants, government agencies and other organizations* providing services to smallholders and businesses that want to deliver more impactful VCD interventions
- *Businesses* engaged with smallholders that want to determine their contribution to poverty reduction and improve their social and environmental credentials
- *Certification bodies* that seek to understand the contribution of voluntary standard systems to building more resilient smallholder production and livelihood systems

### What are its salient features?

5Capitals stimulates learning among stakeholders and facilitates continuous improvement toward higher-impact interactions and interventions in value chains through the following:

- *An asset-based approach* that considers changes in livelihood and business assets resulting from VCD, which in turn provide important insights into advances in poverty reduction and improved business performance
- *Impact pathways* that provide a practical framework for selecting indicators and developing a theory of change related to asset building by smallholders and their enterprises
- *Multiscale and multidimensional analysis* that considers the effects of multiple-source interventions on asset building at household and enterprise levels
- *Field-tested and validated methodological framework* that incorporates lessons learned from 23 case studies from Africa, Asia, Latin America and North America
- *Focus on organizational learning* that involves VCD stakeholders throughout the process and uses the findings to redesign VCD initiatives and reallocate resources accordingly

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# 1 Background

Value chain development (VCD) has been promoted by a variety of stakeholders for a variety of reasons. Lately, poverty reduction shows up prominently among the desired goals related to VCD. However, sound evidence showing the poverty impacts of VCD is wanting. In this chapter you find a summary of the diverse motives public and private sector representatives and civil-society organizations have in developing value chains with the poor. It addresses the need for sound impact assessment and shows you how 5Capitals responds to that need by providing an overview of the tool development process and the principal elements of the tool.

## 1.1 Multisector interest in developing value chains with the poor

Business-oriented efforts to reduce rural poverty have often focused on facilitating the participation of the poor in markets for higher value, mainly export-oriented products such as fruits and vegetables, handicrafts, fine cocoa and specialty coffee. During the 1980s and 1990s, such efforts often involved large subsidies from governments and civil-society organizations for technical assistance, credit, input purchases and infrastructure development, with little or no direct investment from the private sector. As you may be aware, these programs were criticized for their lack of economic sustainability, inattention to the environmental and social costs of export-oriented production, and the limited ability of smallholders to continue their efforts once subsidies were removed.

Over the past decade, there has been a growing consensus that good practice in facilitating the rural poor's access to higher-value markets involves a strong demand orientation, limited subsidies from civil-society organizations and direct investment by and stronger collaboration among representatives of the private sector, in particular producer organizations, processors and wholesalers. The concept of value chain development (VCD) harnesses these practices in a development approach for achieving poverty reduction and other goals. VCD has been adopted by a broad range of organizations such as development agencies (for example, the German Agency for International Cooperation—GIZ, SNV, Swisscontact, the US Agency for International Development—USAID); government agencies; nongovernmental organizations (NGOs); and international organizations (Food and Agriculture Organization of the United Nations—FAO, International Labor Organization—ILO, UN Industrial Development Organization—UNIDO). Civil-society and governmental organizations have invested

in VCD because they believe that it provides sustainable options for achieving poverty reduction and, in some cases, goals related to improved environmental and social performance, such as through promotion of organic and fair-trade products.

VCD can encompass actions by the private sector in addition to or in collaboration with those of NGOs and government agencies. Companies such as Unilever, Nestle and Walmart have demonstrated increased willingness to invest in the formation of backward linkages with their smallholder suppliers. Private sector actors may engage in VCD when related investments improve their access to raw materials that exhibit higher quality and improved food safety or in search of options for higher value added and promotion of their environmental and social responsibility. While poverty reduction may not be their primary goal in these relationships, there are companies expressing increased interest in helping address the poverty conditions of their smallholder suppliers in developing countries.

Regardless of the intervention source, VCD-related interventions aim to strengthen the relations between smallholders—who typically constitute a significant portion of the rural poor—and other chain actors, including input providers, buyers and processors. Strengthened relations are considered important for developing new products or increasing added value for existing product lines. Improved business relations are expected to provide smallholders with higher income benefits, improved access to critical services for production, and more stable market relationships. Of particular importance in this context are the relationships between the smallholders and the enterprises with which they interact directly. These smallholder-linked enterprises, referred to generally as “linked enterprises” in 5Capitals, have a crucial role in linking smallholders to the market.

The development of value chains with the poor typically requires upgrading the capacities of smallholders, the linked enterprises and other resource-constrained chain actors to better meet quality, volume and environmental performance requirements of downstream chain actors. Interventions go beyond the farm level by focusing on enhanced mechanisms for sharing information, benefits and risks among selected chain actors, developing new or improving existing products and services and reducing transaction costs through increased cooperation. The systemic approach to generate higher value added through win-win relationships sets VCD apart from 1) one-sided efforts by single chain actors to maximize their profits through improvements upstream (raw material and other input flows) or downstream (distribution channels) in the chain and 2) traditional farmer-support projects focused on production and linking smallholders to the market with little regard for the interests and needs of downstream chain actors.

Despite the proliferation of VCD involving the poor, we know surprisingly little about the resulting perceived or real impacts on poverty reduction. Most assessments of VCD have focused narrowly on the interventions of a single actor or organization in the value chain, without accounting for other interventions as part of the VCD process. Such assessments are typically based on a few basic indicators, for example, changes in income or employment. This facilitates their implementation but provides limited insights into broader changes at the household and linked-enterprise levels that may or not provide a pathway out of poverty. Even more problematic are simplistic approaches to VCD assessment that fail to account for the overall political, institutional and market context in which VCD takes place. In such cases, there is a tendency to attribute positive changes to VCD interactions or interventions, while negative changes may be attributed to the external environment.

## 1.2 Salient features of 5Capitals

This tool seeks to help you address common shortcomings in VCD assessment by

- *Applying an asset-based approach* in which changes in livelihood and business assets (human, social, natural, physical and financial capitals) are viewed as appropriate metrics for assessing poverty reduction and improved business performance in the upstream segments of the value chain
- *Using impact pathways* based on a set of expected outcomes at the household and enterprise levels that provide you with the basic framework for indicator selection and developing a theory of change for achieving value chains with high impact on poverty reduction and environmental and social responsibility
- *Harnessing the insights from multiscale and multidimensional analysis* to let you determine the combined effects of multiple-source interventions on asset building at the household and enterprise levels and to separate VCD from context-induced change
- *Promoting organizational learning* by involving VCD stakeholders throughout the process and using the findings to help you redesign VCD initiatives and reallocate resources accordingly

In developing 5Capitals, we sought to balance the conflicting goals of achieving sufficient rigor to produce credible and useful results, on the one hand, and generating a low-cost methodology that is relatively easy for you to implement, on the other. We addressed this challenge through an international collaborative effort that involved development practitioners and researchers from Asia, Africa, Latin America and North America (table 1). Tool development took place in two phases. During phase 1 (June 2008–October 2009), we developed a first version of the tool and tested it through 11 case studies in Asia, Africa and Latin America. In 2009, tool designers and case study collaborators came together at CATIE (Tropical Agricultural Research and Higher Education Center) in Costa Rica to identify lessons learned in tool application. During phase 2 (November 2009–March 2012), we drafted a new version of the tool, incorporating lessons learned in phase 1 and tested it through 12 case studies in Asia, Africa, Latin America and the United States. In April 2010, the team and special invitees gathered at the School of Oriental and African Studies (SOAS) in London to identify lessons learned in tool application and VCD impact assessment. In October 2011, a small team of specialists in both value chain development and impact assessment gathered at the International Potato Center (CIP) in Lima to incorporate these lessons into the final version of the tool and to select cases for publication in the case study companion to this tool: “Assessing Impacts of Value Chain Development on Poverty: A Case-Study Companion to the 5Capitals Tool.”<sup>1</sup>

## 1.3 How 5Capitals is organized

This tool is organized into five chapters. The first two chapters present the conceptual framework and methodological underpinnings of the tool. The final three chapters provide guidance on how to apply the tool in the field.

**Chapter 1** summarizes the different motives public and private sector representatives and civil-society organizations have for developing value chains with the poor. It shows you the need for sound impact assessment and how 5Capitals responds to that need by providing an overview of the tool development process and the principal elements of the tool.

<sup>1</sup> The companion volume, edited by Ree Sheck, Jason Donovan and Dietmar Stoian (2012), shows results of VCD assessment using 5Capitals in different contexts around the globe. It is available on the CATIE ([www.catie.ac.cr](http://www.catie.ac.cr)) and ICRAF ([www.worldagroforestrycentre.org](http://www.worldagroforestrycentre.org)) websites.

**Table 1.** Case studies and partners for developing 5Capitals

Value chain	Country	Partner	Principal agent of change in the value chain
<b>Phase 1</b>			
Organic banana	Bolivia	Bioversity International	NGOs
Plantain	El Salvador	Catholic Relief Services (CRS)	NGOs
Organic/fair-trade coffee	Nicaragua	CATIE and Lutheran World Relief (LWR)	NGO, private sector
Taro root	Nicaragua	CATIE and Technoserve	NGOs
Dairy products	Sri Lanka	University of Plymouth and Swisscontact	NGOs
Embroidery	Pakistan	Mennonite Economic Development Associates (MEDA)	NGOs
Honey	India	EDA Rural Systems	NGOs
Shrimp	India	M. Harper and R. Roy	Private sector
Cereal flour	Burkina Faso	LWR	NGOs
Organic cotton	Tanzania	Royal Tropical Institute (KIT) and BioRe	Private sector
Allanblackia nuts	Tanzania	KIT and Faida Market Link	NGOs, private sector
<b>Phase 2</b>			
Organic cotton	India	EDA Rural Systems	NGOs
Fresh vegetables	Kenya	Farm Concern International	NGOs
Fresh vegetables	Afghanistan	MEDA	NGOs
Dairy products	Bolivia	Swisscontact	NGOs
Bean	Ecuador	Intercooperation	NGOs
Handicraft	India	All India Artisans and Craftworkers Association (AIACA)	NGOs
Bean seed	Uganda	Child Rights Empowerment and Development Organization (CEDO)	NGOs
Plantain	Dominican Republic	Bioversity International	NGOs
Poultry	India	R. Roy and M. Harper	Private sector
Organic vegetables	United States	Lyseed Consulting and Winrock-Wallace Center	NGOs
Specialty coffee	Colombia	Technoserve	NGOs
Fresh fruits and vegetables	Colombia	Technoserve	NGOs

**Chapter 2** provides you with a common ground of key concepts and definitions pertinent to value chain development (VCD) and related impact assessment. It facilitates your understanding of the terms used in 5Capitals and ability to effectively communicate your results to others. The chapter concludes with general impact pathways that link VCD-related interactions and interventions to outcomes—expressed in terms of asset building—and impacts. We provide impact pathways for both linked enterprises and smallholder households.

**Chapter 3** guides you in elaborating the inputs needed for designing your fieldwork activities and for carrying out the subsequent assessment. You will identify the VCD stakeholders, the key features of the context in which they operate and the interactions and interventions carried out for developing the value chain. Your findings will provide the basic inputs for developing the data collection tools for the linked-enterprise and household assessments.

**Chapter 4** walks you through the activities for identifying changes at linked-enterprise and household levels as well as the role of VCD interactions and interventions in bringing about these changes. This is likely to be the most expensive and time-consuming component in your assessment. Sound preparation is necessary before heading to the field, including proper design of data collection tools and training of your data collection team. Your team will obtain data through key informant interviews, household surveys and analysis of secondary information. We offer sample tools for data collection that you can adjust to your specific case, based on the expected outcomes and impacts laid out in the impact pathway, the findings from context analysis, and the interactions and interventions carried out for VCD.

**Chapter 5** helps you determine the changes in asset endowments at the levels of the linked enterprise and smallholder households and which of them were induced by VCD and which by contextual factors. Preliminary findings will be presented to VCD stakeholders for feedback and validation. You will also find guidelines for wrapping up the consolidated findings in an impact narrative and for identifying opportunities for improved VCD interventions that ensure a higher impact on poverty reduction and asset building at household and linked-enterprise levels.

## 1.4 What it takes to implement 5Capitals

Value chains vary widely in terms of their organization and complexity, as do private sector interactions and interventions by public sector and civil-society organizations that seek to develop them. In this sense, it is difficult to predict precisely the human and financial resources needed for using the 5Capitals tool to assess the poverty impacts of a given VCD initiative. As a rule of thumb, the time required for such an assessment varies from one to four months. During tool validation, costs varied accordingly, from as little as US\$6,000 for fairly simple cases to US\$40,000 for the more complex.

Sound analytical skills, adeptness in the implementation of participatory research methods and a willingness to reflect critically on the VCD-related interactions and interventions ensure meaningful results for all stakeholders. When 5Capitals has been applied with openness, curiosity and a strong interest in organizational learning, results have been exceedingly insightful. Case studies based on 5Capitals demonstrate tool users' ability to identify the strengths and weaknesses of VCD initiatives in achieving rural development goals.

We hope you find the fieldwork as rich and stimulating as the reflections on the findings and we are confident that these will help you and your organization or enterprise improve the effectiveness and efficiency of your interventions and interactions in the value chain.

## 2 Framework for assessing value chain development

This chapter provides you with a common ground for key concepts and definitions pertinent to value chain development (VCD) and related impact assessment. It facilitates your understanding of the terms used in 5Capitals and ways to communicate your results to others. The chapter concludes with generic impact pathways that link VCD-related interactions and interventions to outcomes—expressed in terms of asset building—and impacts. We provide impact pathways for both linked enterprises and smallholder households.

### 2

### 2.1 Value chains and value chain development

The value-chain concept has been around for nearly two decades and refers to the linkages between individuals or enterprises needed to move a product or service from production to consumption, along with related inputs and technical, business and financial services. VCD goes a step further by focusing on intentional efforts to build win-win relationships between two or more chain actors (producers, distributors, processors, wholesalers, retailers). The reasons for engaging in VCD are manifold and vary according to the interests, motives and goals of the stakeholders. Strengthening mutually beneficial business relationships is a shared goal of most VCD initiatives that requires improved interactions among the chain actors, often facilitated by interventions from outside of the chain in the form of technical, business and financial services. The stronger the resulting win-win outcomes, the more likely the business relationships are to endure and thrive over time.

VCD may have an explicit focus on poverty reduction. NGOs and, perhaps to a lesser extent, government agencies, have often advocated VCD with a poverty reduction focus. In VCD initiatives promoted by private sector agents, the pursuit of poverty goals may not figure prominently on the agenda, though important poverty impacts may be achieved. For example, a private company may invest in its relationship with smallholders in an effort to improve its environmental and social credentials. Smallholders may be lifted out of poverty through higher productivity and higher prices received for quality products that result from skills development facilitated by the company. In contrast, an NGO or government agency may provide technical and financial assistance to smallholders to strengthen their position vis-à-vis other chain actors. The poverty impact of private-sector driven VCD can be as high, or as low, as that of VCD initiatives run by NGOs or government agencies.

In view of the different stakeholders and their diverse motives, it may come as no surprise to you that there are no commonly accepted definitions of VCD and related key concepts. For the purpose of this tool, we propose the definitions presented in table 2.

Two terms are critical in the context of VCD, namely “interactions” and “interventions.” As mentioned, **interactions** generally refer to the exchange of goods and services, provision of funds and institutional arrangements **among chain actors**. Typical examples include the diverse types of arrangements when smallholders become organized as a business or when downstream chain actors (buyers, processors) provide technical assistance, inputs or credit to their business partners upstream in the chain (producers). These interactions are usually not time bound and aim at mutual gains. For example, a supermarket chain that provides technical assistance and credit to horticultural producers helps ensure that it receives minimum volumes and quality, while the producers gain a secure market outlet and may receive higher prices when delivering quality products. In this example, the poverty focus is not explicit, yet the interaction may have a positive effect on poor producers. Our tool allows you to discern this effect, regardless of the motivation underlying the interaction.

**Table 2.** Key terms and definitions related to value chain development

Term	Definition
Value chain	The linkages between individuals or enterprises needed to move a product or service from production to consumption, along with related inputs and technical, business and financial services
Chain actors	Individuals or enterprises linked through a value chain—for example, producers, distributors, processors, wholesalers and retailers
Smallholders	Producers of agricultural and forest products or services who manage small-scale landholdings, whose size varies according to the local context
Smallholder-linked enterprise	Enterprise that maintains direct commercial links with smallholders, providing smallholders with market access and, in many cases, information and other services
Service providers	NGOs, government agencies, individuals and firms that provide technical, business and/or financial services to smallholders and smallholder-linked enterprises
Input providers	Individuals or enterprises that provide products and services to smallholders and smallholder-linked enterprises—for example, seeds, fertilizers or packaging materials
VCD stakeholders	Individuals, enterprises and service providers within or outside of the value chain that have invested time and resources in its development
Interactions	Exchange of goods, services and information; provision of funds; and institutional arrangements among chain actors aimed at VCD
Interventions	Provision of inputs or technical, business and financial services from outside of the chain aimed at VCD
Value chain development (VCD)	Set of interactions among chain actors and/or interventions from input and service providers in search of win-win relationships between two or more chain actors
VCD involving the poor*	Set of specific interactions among chain actors and/or specific interventions from input and service providers that affect the poor, regardless of their motivation

\* Note: Among development practitioners, it is common to use the term “pro-poor value chains” when referring to VCD initiatives targeting poor rural households. 5Capitals aims to provide VCD stakeholders with a tool that allows them to back up the claim of a pro-poor value chain with evidence on effective poverty reduction.

**Interventions** are activities carried out by input or service providers from outside of the chain, typically government agencies, NGOs or consultants. Their goals can be manifold, including the generation of employment and income, sound management of natural resources and more equitable relationships between smallholders and other chain actors. Interventions may be time bound, for example, through the termination of a project, or continuous, as in the case of government support or industry chambers. Poverty reduction or improved environmental performance may not be explicit goals of such interventions but yet be part of their measurable impact. Two general types of VCD interventions are commonly found:

- *Actor-specific interventions*: the delivery of inputs and technical, business and financial services is targeted to a particular group of chain actors. For example, such an intervention may seek to upgrade the capacities of smallholders and their business organizations to better meet market requirements related to quality, volume and environmental and social responsibility.
- *Multiactor interventions*: aimed at strengthening institutional arrangements among chain actors, including the promotion of roundtables and other mechanisms to build trust, increase coordination and share information, benefits and risks. It may also include efforts by civil-society organizations to enhance the political-legal and overall business environment in which given chain actors operate.

A particular characteristic of VCD is the search for win-win relationships between two or more chain actors. VCD involving the poor puts particular emphasis on institutional arrangements among smallholders, linked enterprises and other chain actors that lead to increased productivity, value adding, product differentiation, new market outlets or mechanisms for sharing information, benefits and risks, all of which are expected to result in benefits for those involved (though perhaps not all to the same degree). For example, processors may train their suppliers in improved production and postharvest techniques that translate into higher volumes and better quality of raw material, which in turn allows the processors to pay higher prices to producers.

For a given group of smallholders and linked enterprises, various interactions and interventions are likely to have influenced their ability to build assets and participate in a value chain. An important initial step of your impact assessment is to identify these interactions and interventions regardless of their motivation and focus. Another critical step will be the identification of contextual factors related to the policy, market and macroeconomic environment. Both steps combined will allow you to determine the extent to which the measured or observed changes can be attributed to value chain interactions and interventions or to contextual factors.

## 2.2 Assets and asset building

Drawing on the sustainable livelihoods framework and other asset-based approaches, 5Capitals focuses on critical assets at the level of smallholder households and smallholder-linked enterprises, namely human, social, natural, physical and financial capital (table 3). These assets can be owned by individuals, households, communities or entire societies, depending on the type of asset and related ownership. For example, a physical asset such as a solar dryer may be owned by a single household. A natural asset such as a forest may be owned or used by the state and/or one or several communities.

These assets can be seen as stocks or flows. Financial capital, for example, constitutes a stock when held as savings or a flow when converted into livestock (natural capital) or machinery (physical capital). Flows across different types of assets are particularly important as they can lead to positive feedback loops (the building of one asset leads to the building of another) or asset erosion (the loss of one asset induces the loss of others). An example of a positive feedback loop would be the building of human

capital through training smallholders in integrated pest management that helps reduce costs and allows reinvesting the resulting financial capital in processing equipment (physical capital), which in turn helps generate higher value added, and so on. A negative feedback loop could be caused by a natural disaster (loss of natural capital) that erodes income (financial capital) and, consequently, the health and nutritional status of the household (human capital). Feedback loops exist at the household level and also between households and linked enterprises. For example, the acquisition of a dry mill by a coffee cooperative (physical capital) helps improve coffee quality, thus enabling the associated coffee producers to obtain higher prices (financial capital).

We consider an asset-based approach critical for determining poverty impacts of VCD because changes in the stocks and flows of critical household and linked-enterprise assets provide a more complete picture of livelihood resilience and business viability than ordinary measurements of employment and income. Asset endowments at the household level are indicators of the household's ability to limit the impact of external shocks and respond to threats or opportunities related to changes in the political and market environment. At the level of a linked enterprise, asset stocks and flows are indicative of its positioning in the market, performance and long-term viability.

### 2.3 VCD impact pathways

The construction of an impact pathway is a practical approach to designing a framework for assessing the impacts of complex development interventions. An impact pathway is a logical sequence of cause-effect relationships between inputs, outputs, outcomes and impacts. This makes it possible to identify key variables. Definitions of these terms vary considerably, especially for outcomes and impacts. The following definitions are those proposed for the purpose of this tool.<sup>2</sup>

- **Inputs** are interactions among chain actors and interventions from input and service providers aimed at VCD.
- **Outputs** are the direct effects of these inputs. They include infrastructure and equipment acquired through loans or grants, knowledge gained through training, credit obtained, market linkages formed and other outputs that directly result from VCD-related interactions or interventions.
- **Outcomes** are significant or lasting changes in asset endowments when outputs are used in a productive manner. There is no precise formula for determining whether an outcome is significant or lasting. However, perceptions by households and enterprises in the chain, combined with some common sense on the part of the assessment team, will help determine the significance and longevity of a given change. This definition recognizes that not all VCD outputs are used in a productive manner. For example, knowledge of organic production modes acquired through training is an output and not an outcome if this knowledge is not put into practice by the farmers trained.
- The definition of **impacts** varies according to whether they refer to households or linked enterprises. In case of the household, impact refers to a change in well-being and livelihood resilience as a result of VCD outcomes. At the level of linked enterprises, impact refers to a change in business performance and viability as well as social and environmental responsibility resulting from VCD outcomes.
- **Impact assessment**, therefore, aims to understand how smallholders and linked enterprises participating in VCD increase (or decrease) their asset endowments in a significant or lasting manner and the effect of such changes on their well-being and livelihood security or business performance and viability, respectively.

<sup>2</sup> These definitions draw on "Impact Assessment: Seeing the Wood and the Trees" by Chris Roche (1998) and the "Glossary of Key Terms in Evaluation and Results Based Management" by the Organization for Economic Co-operation and Development—OECD (2002).

**Table 3.** Key household and business assets for VCD impact assessment

	Household assets (smallholders)	Business assets (smallholder-linked enterprise)
Natural capital	Stock of environmentally provided assets, including soil health, forest cover and diversity, minerals, water, stock of plants or animals	Only applies if the enterprise has its own land for sourcing its raw materials
Human capital	Capacities and skills, formal education, nutritional and health status	Business management and technical capacities and skills
Social capital	Rules, norms, obligations, reciprocity and trust embedded in social relations, structures or arrangements that enable those who share it to achieve goals they could not achieve individually	
Physical capital	Tools, equipment, machinery, buildings, other built or productive resources	
Financial capital	Cash, savings, equity, credit and other financial resources	

Figure 1 provides a generic version of an impact pathway for linked enterprises. The outputs result directly from the interactions and interventions in the value chain (VCD inputs). These outputs include, for example, the number of staff trained in business and technical aspects, increased availability of inputs and credit, or norms for the production of a given crop if these result directly from VCD-related interventions. These outputs result in outcomes expressed in terms of changes in business assets. For each asset type, or capital, we indicate two or three outcome domains. These outcome domains provide a framework for assessing each capital. The building of business assets is expected to translate into impacts in terms of business performance and viability and environmental and social responsibility. Chapter 3 will guide you in adapting this generic impact pathway to your VCD initiative and chapter 4 will show you how to identify concept-specific indicators based on the outcome domains, in preparation for data collection.

Figure 2 provides you with a generic version of an impact pathway for smallholder households linked to the value chain through one or more linked enterprises. As before, the outputs result directly from the VCD inputs. Service providers may target households as direct beneficiaries of their services or target them indirectly through linked enterprises. In the latter case, interventions seek to build the business assets of the linked enterprises, based on the belief that a linked enterprise's improved service offer for households will help households build their livelihood assets. Outputs are expected to result in changes in livelihood capitals. For each capital, figure 2 includes two to three outcome domains. These outcome domains provide a framework for assessing each capital. In designing your data collection tools, you will need to identify context-specific indicators around these domains (chapter 4). Asset building by households should translate into positive impacts on well-being and livelihood resilience, among other potential impacts.

Throughout the document, we show how you can use the tool in the field by providing examples from a stylized case study of specialty coffee VCD involving smallholder coffee producers and their cooperative. In this case, the cooperative functions as the linked enterprise.

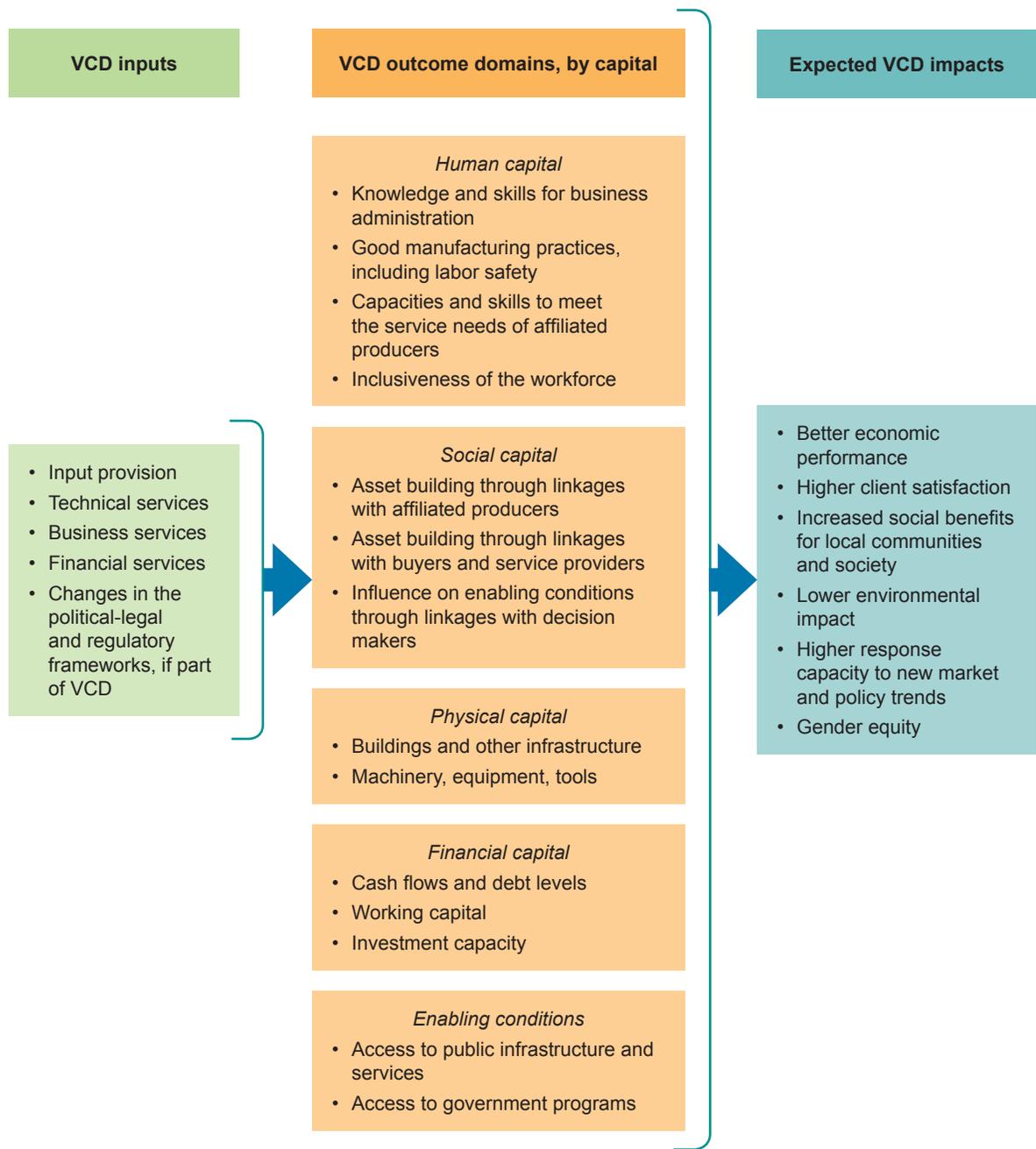


Fig. 1. Generic impact pathway for asset building at the level of smallholder-linked enterprises and its assumed impact on business viability

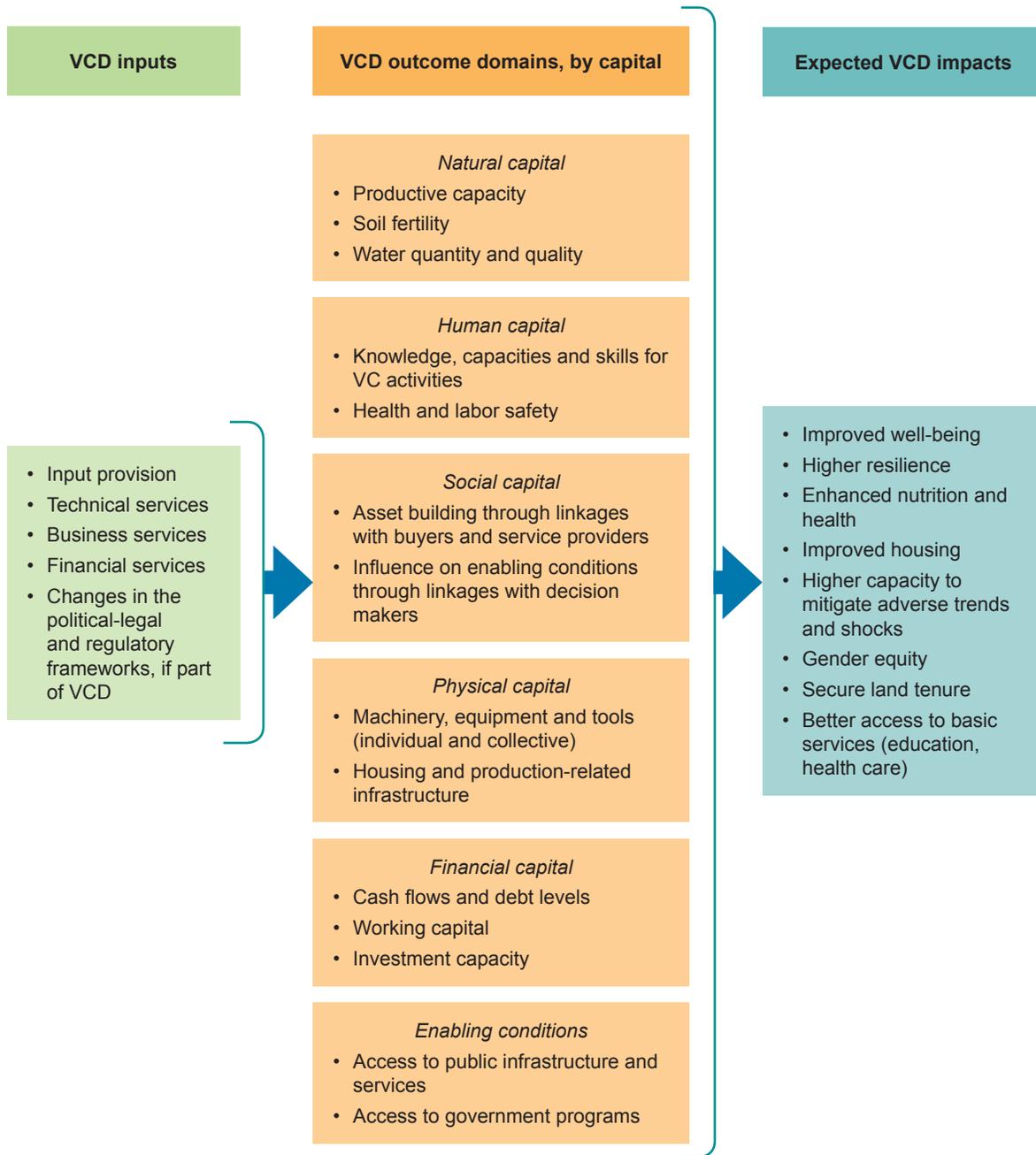


Fig. 2. Generic impact pathway for asset building at the household level and its assumed impact on livelihoods

## 3 Laying the groundwork

This chapter guides you in elaborating the inputs needed to design your fieldwork activities and carry out the subsequent assessment. You will identify the VCD stakeholders, the key features of the context in which they operate and the interactions and interventions carried out to develop the value chain. Your findings will provide the basic inputs for developing the data collection tools for the linked-enterprise and household assessments.

### 3.1 Overview

Table 4 outlines activities for laying the groundwork—a critical step that will prepare you for designing data collection tools and heading to the field. The first activity focuses on understanding the value chain, its actors and the various interactions and interventions carried out for VCD as well as their expected outcomes and impacts. The second activity focuses on understanding the political-legal, macroeconomic and market contexts in which the VCD stakeholders operate. The information derived from these two activities provides critical inputs for the design of your data collection tools, including interview guides and the questionnaires for the linked-enterprise and household assessments. Obviously, the more you know about the context before going into the field, the better prepared you will be to ask the right questions about potential causes of the changes that you identify at the linked-enterprise and household

**Table 4.** Overview of activities for laying the groundwork

Objective	Obtain critical inputs for fieldwork and subsequent assessment
Activities	<ol style="list-style-type: none"> <li>1. Identify VCD stakeholders and their interactions and interventions</li> <li>2. Identify contextual factors that could influence asset building</li> </ol>
Data sources	<ul style="list-style-type: none"> <li>• Key informants</li> <li>• Secondary information</li> </ul>
Results expected	<ul style="list-style-type: none"> <li>• VCD stakeholders identified</li> <li>• Principal VCD interactions and interventions identified and illustrated in impact pathways at linked-enterprise and household levels</li> <li>• Preliminary identification of contextual factors that could influence asset building</li> </ul>

levels. Insights from the context analysis will also help you understand why some changes that you might have expected were not observed or measured in the field.

### 3.2 Identify VCD stakeholders and their interactions and interventions

In this activity, you will identify the VCD stakeholders. As mentioned in table 2, these stakeholders may include producers, producer organizations or other linked enterprises and their business partners, as well as the providers of essential services to the chain. It will be important to focus on those chain actors and input and service providers that have a clear stake in VCD.

Data collection aims to understand the nature and goals of the interactions among chain actors and the interventions from VCD stakeholders that have shaped the opportunities for chain development. In some cases, identifying the VCD stakeholders and their role in VCD will be a straightforward exercise. For example, if a cooperative or producer association has been the principal focus of VCD, smallholders are readily identifiable based on their membership, as are national, regional or international buyers, whose number is often limited. In other cases, getting an overview of VCD stakeholders can involve greater effort, especially when there are various enterprises in the selected value chain that have direct relations with smallholders or when the population of smallholders is especially large or otherwise difficult to identify. In these cases, you may need to interview key informants among the providers of inputs and services as well as other knowledgeable persons to identify the chain actors. Snowball sampling, in which the identification of one interviewee leads to the identification of others, often turns out to be a pragmatic and effective approach. In general, participatory value chain mapping can be used to obtain a greater understanding of the relevant actors and their respective interactions and interventions in the value chain.<sup>3</sup>

An important feature of 5Capitals is the **linked-enterprise assessment**. As mentioned previously, linked enterprises are those that maintain direct linkages with smallholder households as well as with buyers further downstream. Assessing smallholder-linked enterprises is important due to their critical role in the delivery of marketing and production-related services to smallholders. Because of this role, smallholder-linked enterprises often receive services or assistance from different sources, including their downstream business partners and from service providers. Interventions typically aim to develop the capacity of the linked enterprise to effectively participate in the value chain and, in some cases, to strengthen the ability of the linked enterprise to provide important services to smallholders, such as technical assistance and credit.

In some cases there will only be one linked enterprise in the value chain, such as in many specialty coffee or cacao value chains. In other cases, for example, in the value chains of dairy products and vegetables, there may be several linked enterprises. These enterprises differ in terms of their legal constitution (cooperative versus privately owned corporation), objectives (improved services for smallholders versus profit maximization) and level of consolidation (start-up enterprise versus an enterprise with a well-established record of operation in national and international markets).

<sup>3</sup> Two examples of guidelines for participatory value chain mapping are “Design of Strategies to Increase the Competitiveness of Smallholder Chains” by the International Center for Tropical Agriculture—CIAT (2004) and “Participatory Market Chain Approach” by CIP (2006), both available online.

Among the case studies carried out for validation of 5Capitals, the linked enterprises varied considerably with respect to organizational setup, services provided to smallholder households and relations with NGOs or government projects (table 5). In our example of specialty coffee VCD, the linked enterprise was a second-tier cooperative that received extensive support from NGOs to build its capacities to process and market coffee and to provide technical and financial services to its members. In the poultry chain in India, the linked enterprise was a large-scale, privately owned enterprise that invested its own resources in developing backward linkages with smallholder households. In the vegetable chain in the United States, the linked enterprise was the commercial arm of an NGO that was formed to support production and marketing of organic produce in regional markets. In the vegetable chain in Afghanistan, the linked enterprises were a small number of “lead farmers” that bought and sold fresh produce. In some cases, such as the coffee chain in Colombia, the linked enterprise was an NGO-initiated cooperative that faced difficulties in exercising its intended function. These examples highlight the diverse nature of linked enterprises. The type of linked enterprise that exists in the context of your assessment will have a strong influence on the design and orientation of your assessment.

Figure 3 shows a **VCD stakeholder map** for a coffee cooperative that sells specialty coffee to various international buyers. In this case, the key actors in VCD were the cooperative, its members, coffee buyers and several NGOs and other service providers. The cooperative is considered to be the linked enterprise for this VCD case. In the box that presents each of these key actors, you will find a brief

**Table 5.** Examples of linked enterprises from tool validation

Enterprise type	Description of the linked enterprise and its relation to smallholder households	VCD interventions received from service providers
<i>Professionally managed, second-tier marketing cooperative in Nicaragua</i> that sells certified specialty coffee directly to international buyers	Cooperative with professional management that provides technical, marketing and financial services to its members	Multiple interventions from nonprofit and for-profit service providers aimed at cooperative organization, development of business skills and improved service offer to co-op members
<i>Large-scale, privately owned processor in India</i> that buys and sells poultry products	Largest seller of poultry produce in India, providing technical assistance, credit and marketing services to smallholders that produce broilers	Private-sector driven, with no interventions received from outside the chain
<i>Nonprofit organization with commercial operation in the United States</i> that sells certified organic vegetables	Commercial operation selling certified organic vegetables to regional markets in the United States and providing various services to its affiliated members, including technical assistance, transportation and certification	Interventions from multiple sources, including government agencies and foundations, over a three-year period
<i>Volunteer-managed, second-tier marketing cooperative in Colombia</i> that sells coffee to international buyers	Cooperative formed to sell production of three base cooperatives, with volunteer management struggling to build relations with smallholders and buyers	Technical and financial assistance by an NGO for organization of a second-tier cooperative for direct sale of coffee to international buyers
<i>Lead farmers in Afghanistan</i> that buy and sell fresh vegetables	Lead farmers, which acted as sales agents for the marketing of fresh produce, trained as part of an NGO intervention	Technical and financial assistance by an NGO to build commercial relations between lead farmers and other vegetable producers

description of their interactions with upstream and downstream actors. In the next activity, greater attention is focused on understanding the role of service providers and the linked enterprise.

A thorough understanding of the interactions and interventions for VCD will help you design data collection tools that provide valuable insights into the causes behind the changes in assets among the smallholder-linked enterprises and households. Most of the information needed can be obtained through key-informant interviews with representatives of smallholder households, linked enterprises, businesses further downstream, and input or service providers. In many cases, secondary information will also be available from these actors, particularly with regard to the objectives and outputs of the interactions or interventions. These may be documented in project reports as well as reports and data-bases prepared by companies, government agencies and consultants.

Based on the time frame of major VCD interactions and interventions, you can establish the assessment period, which is the period of time for which you will identify changes in assets at the linked-enterprise and household levels. Availability of data may influence the length of the period. In the absence of useful baseline and monitoring data, you will need to rely on recall information from households and representatives of linked enterprises and input and service providers. In this case, a recall period of

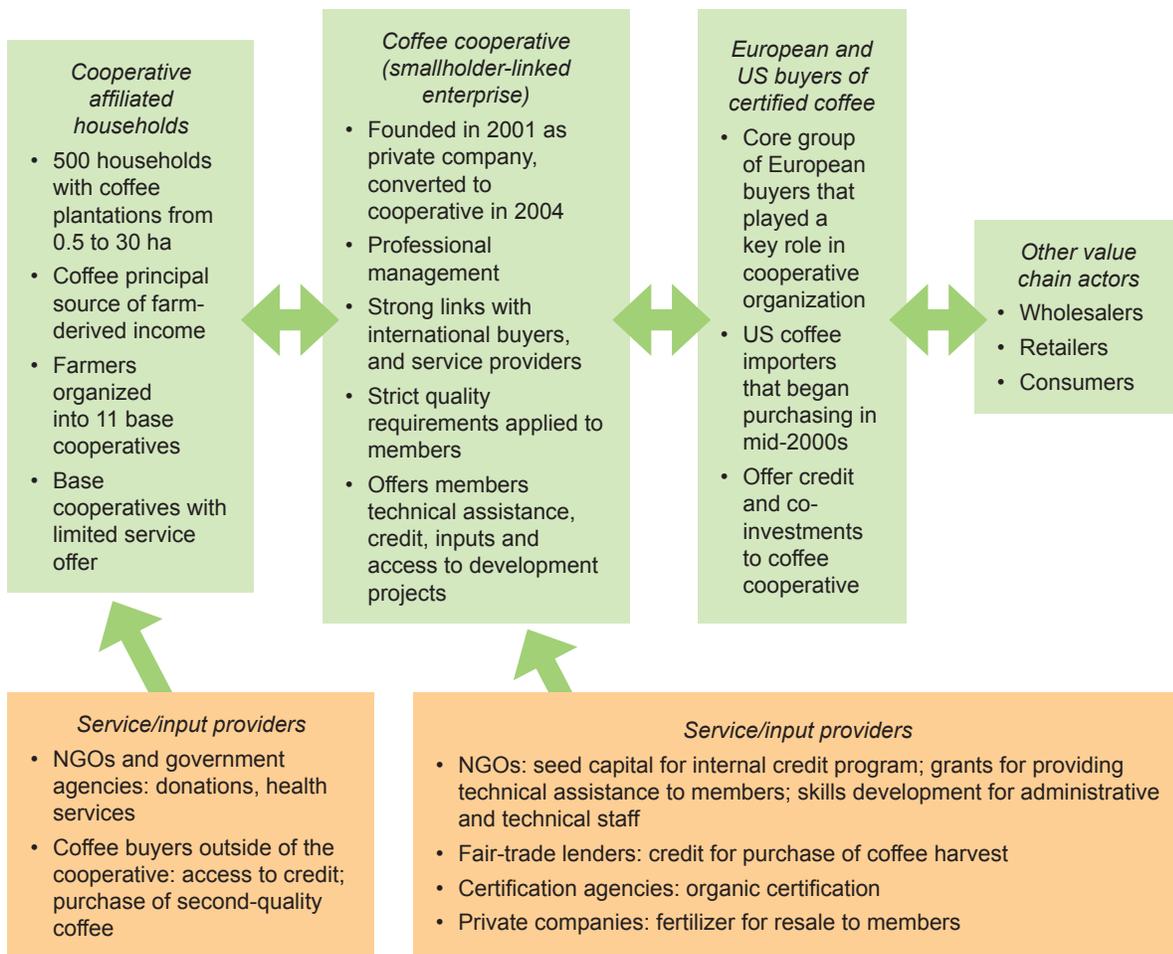


Fig. 3. VCD stakeholder map (example from specialty coffee VCD)

four to five years is likely to be the longest period possible, though it may turn out that reliable recall information is available for only two to three years for some indicators. In the absence of reliable quantitative data, use of a scale of 1 to 5 where, for example, 1 stands for “much less” and 5 for “much more,” is often an efficient way to detect major trends. In general, the assessment period should begin at least two to three years after major interactions and interventions began.

Table 6 provides an example of how to organize the information you collect on interactions and interventions for VCD. In our specialty coffee example, VCD interactions and interventions came from two main sources: 1) the cooperative’s buyers and 2) service providers, namely NGOs, fair-trade lenders, and donors that had direct relations with the cooperative. Some interactions and interventions aimed to build the assets of the cooperative as a linked enterprise, while others aimed to build assets among its members. Most NGO interventions were initiated several years before the assessment, indicating that resulting outcomes should be measurable or observable in the field. International coffee buyers provided various

**Table 6.** Summary of VCD interactions and interventions (example from specialty coffee VCD)

Source	Type of activity (inputs)	Period	Targeted beneficiary
<b>Interactions</b>			
Buyers	<ul style="list-style-type: none"> <li>Floor price guarantee</li> <li>Ability to negotiate price directly with buyer</li> <li>Price premium relative to international coffee prices</li> <li>Social premium</li> </ul>	Annual	Linked enterprise Households
Buyers	<ul style="list-style-type: none"> <li>Interest-free credit for coffee purchase</li> <li>Low or no-cost credit for purchase of coffee harvest</li> </ul>	Annual	Linked enterprise
<b>Interventions</b>			
Fair-trade lender	<ul style="list-style-type: none"> <li>Provision of low-cost credit for coffee purchase</li> </ul>	Annual	Linked enterprise
Fair-trade lender	<ul style="list-style-type: none"> <li>Credit for purchase of processing plant (US\$150,000)</li> </ul>	2009	Linked enterprise
Donor	<ul style="list-style-type: none"> <li>Grant for purchase of the land and building for office</li> </ul>	2004	Linked enterprise
NGO 1	<ul style="list-style-type: none"> <li>Grant for provision of technical assistance</li> <li>Funds to establish credit program</li> <li>Training on gender issues and on cooperative organization and development</li> <li>Grants for provision of technical assistance for production diversification by smallholders</li> <li>Grant for equipment purchases</li> <li>Grant for purchase of processing plant</li> </ul>	2004–2009	Linked enterprise Households
NGO 2	<ul style="list-style-type: none"> <li>Grants for provision of technical assistance, formulation of strategic plan and internal operations manual</li> <li>Grant for expansion of cooperative office</li> <li>Improved cupping techniques</li> <li>Study on US coffee market</li> <li>Purchase of truck</li> <li>Purchase of processing plant</li> </ul>	2005–2008	Linked enterprise
NGO 3	<ul style="list-style-type: none"> <li>Grants for construction of 11 base cooperative offices</li> <li>Funds for long-term credit program</li> <li>Technical assistance related to production diversification</li> <li>Purchase of truck</li> <li>Grants for provision of technical assistance</li> </ul>	2007–2009	Linked enterprise Households

services to the cooperative on a continual basis in return for access to certified coffee. This information was collected through two key-informant interviews with cooperative leaders and analysis of secondary information from cooperative reports they provided. A four-year assessment period was selected, 2006–2009, which was influenced by the fact that various major VCD interventions ended in 2009.

With a clear understanding of the interactions and interventions carried out for VCD, you can now establish **impact pathways** at the linked enterprise and household levels. Viewing these interactions and interventions as inputs to VCD, you will need to translate these into outputs that are expected to result in various outcomes and, eventually, in impacts. While both inputs and outputs vary considerably across VCD initiatives, the use of an asset-based framework requires that you consider the suggested outcome domains for each capital presented in figures 1 and 2. We derived figure 4, the impact pathway

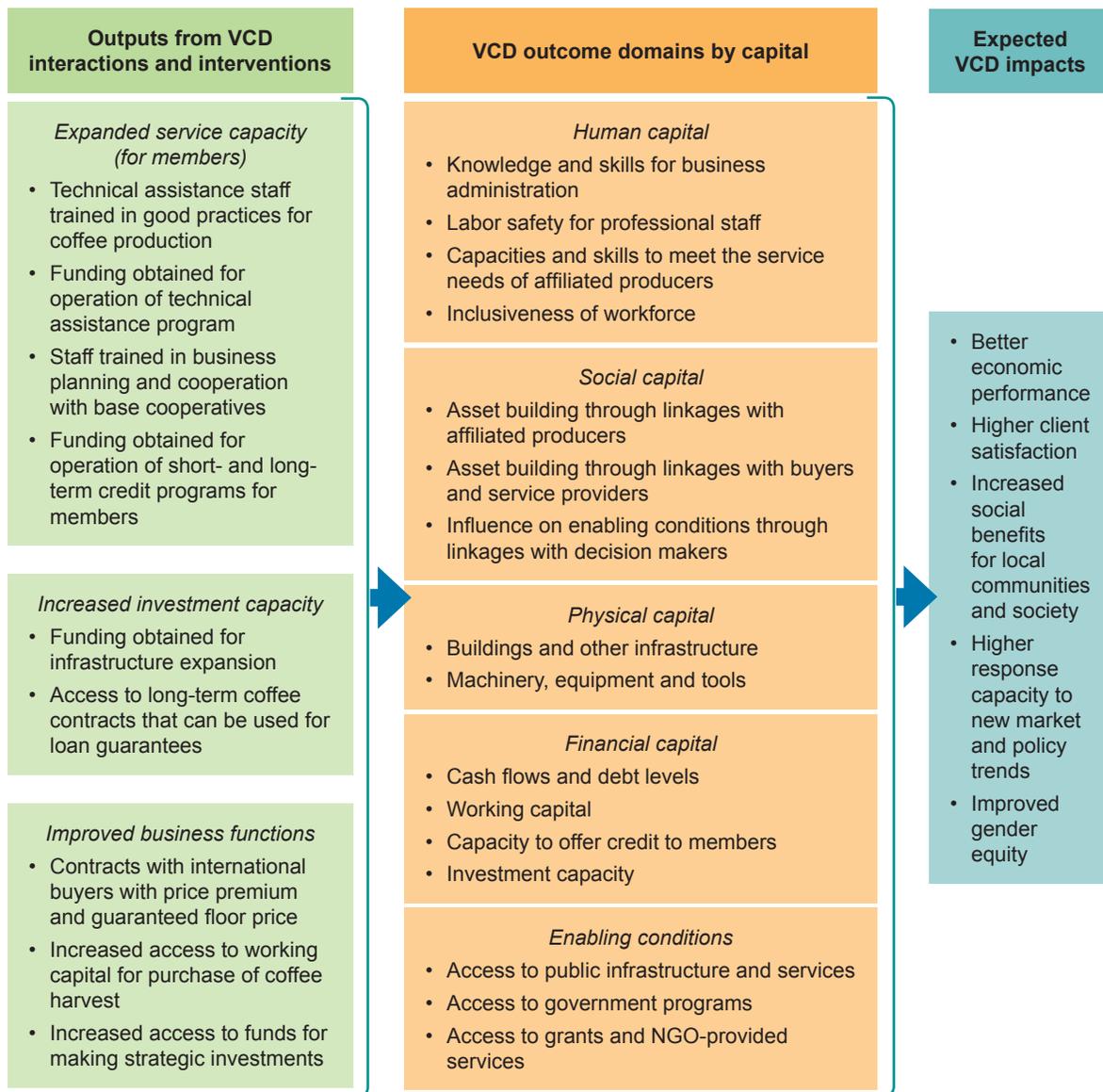


Fig. 4. Impact pathway for asset building at the level of a linked enterprise and its assumed impact on business viability (example from specialty coffee VCD)

for the linked enterprise in our specialty coffee example, by taking figure 1, including the outputs in the first column, and adjusting the outcome domains for each capital and the expected impacts according to the specifics of the case. In section 4.2.2 you will find suggestions for translating your adjusted outcome domains into a set of specific outcome indicators for each capital.

Based on the generic impact pathway presented in figure 2, we carried out a similar exercise to generate the case-specific impact pathway for smallholder households (fig. 5).

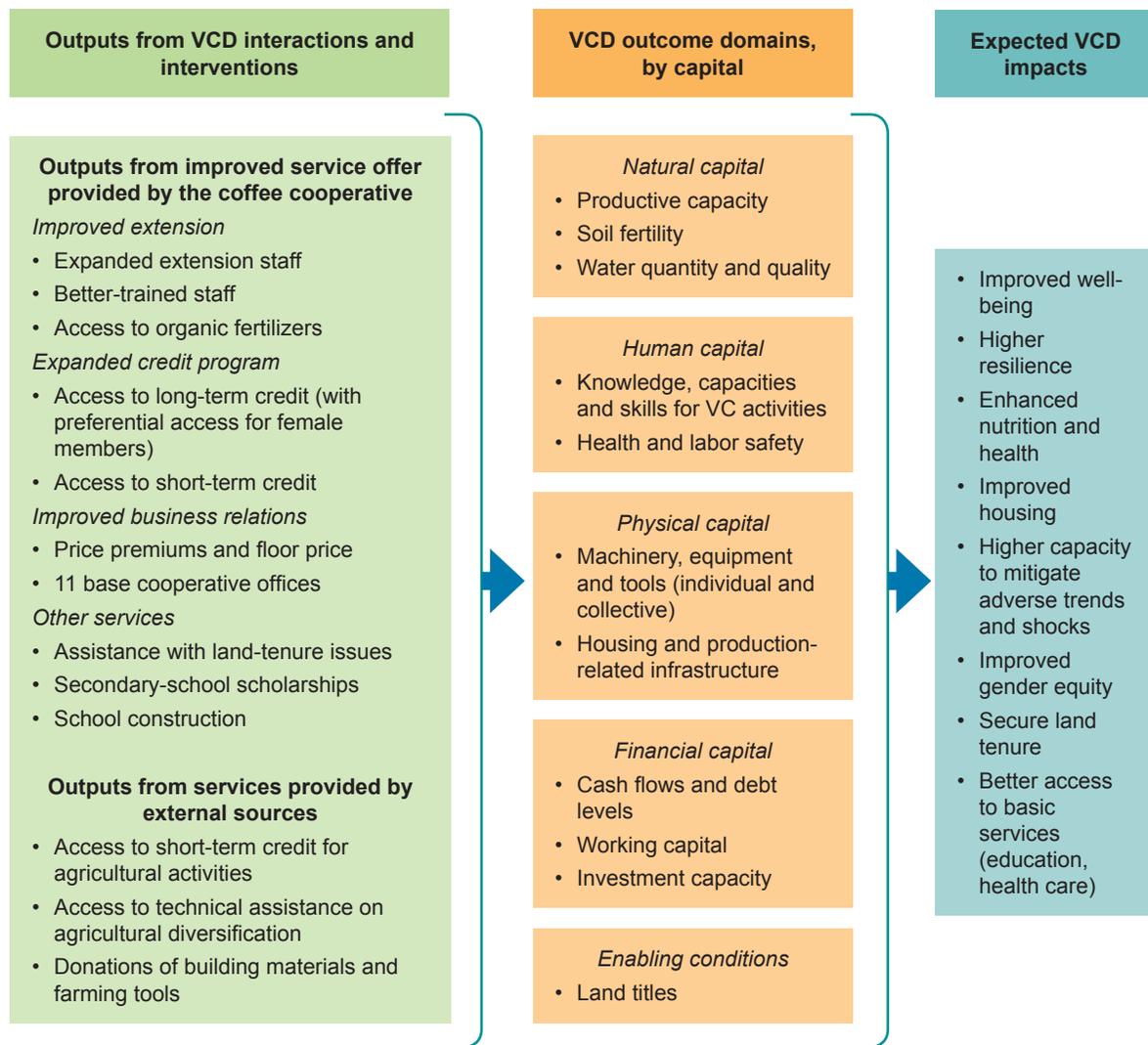


Fig. 5. Impact pathway for asset building at the household level and its assumed impact on livelihoods (example from specialty coffee VCD)

### 3.3 Identify contextual factors that could influence asset building

With the impact pathways established for both the linked-enterprise and household levels, we can now move on to the **context analysis**. This activity focuses on understanding the overall context in which VCD takes place and the bearing that political-legal, macroeconomic and market factors may have on asset building. Context analysis can be demanding, given all the possible factors that could influence the impact pathways of linked enterprises and smallholder households. The challenge is to identify the most critical contextual factors as key parameters of your analysis. As in the previous activity, most of the context information needed can be obtained through key-informant interviews and analysis of secondary information, such as reports from ministries, banks, producer and industry associations, projects and online data bases. Triangulation, or the validation of results with knowledgeable but independent persons, will be important to contextualize potentially conflicting information. Again, common sense is a good guide in identifying relevant contextual factors.

You will incorporate findings from the context analysis directly into the data collection tools for the linked-enterprise and household assessments. They will be critical when distinguishing between the various factors driving changes in assets among linked enterprises and smallholder households. Below you find general elements that help guide your context analysis with respect to the political-legal and institutional framework and the macroeconomic and market environment.

The following factors may be relevant in your discussions with key informants or when searching secondary information on the **political-legal and institutional context** in which VCD takes place:

- Laws, rules and regulations at the local, national and international levels that could have potential impact on the production and marketing of the VCD-related product(s)
- Policies and incentive schemes that favor certain sectors or subsectors
- Phytosanitary and zoosanitary standards and other hygiene and quality norms
- Changes in certification and other voluntary standard systems, such as increase in floor price for fair trade or elimination of certain inputs for organic production
- Coverage, quality and affordability of credit and other critical services for production and marketing of the value chain products
- Barriers to increased investment by households or linked enterprises, such as insecure land tenure and general lack of collateral for obtaining commercial credit

With respect to the **macroeconomic and market environment**, the following points may be useful to you when interviewing key informants or reviewing secondary information:

- Market trends for VC-related products
- Changes in prices of agricultural inputs, such as fertilizers and pesticides
- Changes in the competitive environment for VC products in terms of barriers to entry, pressure to reduce costs, quality requirements, product development and other innovation needs
- Changes in the macroeconomic environment, as reflected in GDP growth, exchange and inflation rates, employment and poverty indices, and foreign direct investment, for example
- State of transportation, electricity, communications and other basic infrastructure and services
- Sector-specific threats, such as competition from other countries, lack of pest and disease management, declining productivity, and unavailability of skilled labor

Price information is increasingly available online through the websites of government agencies, industry associations, market analysts and specialized market information systems. Trade promotion organizations also provide online information on trends in consumer preferences and changes in the regulatory

frameworks of major exporting and importing countries. This information should provide your assessment team with a good overview of the key issues.

Table 7 provides an example of how to summarize the results of your context analysis. For each relevant factor, the potential implications for asset building at linked-enterprise and household levels are identified. In many cases, contextual factors are favorable or unfavorable for both linked enterprises and households. For example, increasing costs of agricultural inputs have adverse effects at both levels. In other cases, contextual factors may have ambiguous implications. For example, when prices of conventional coffee increase more rapidly than those of certified coffee, coffee-producing households benefit while their certified cooperative faces increased competition for raw material.

**Table 7.** Format for summarizing results of context analysis (example from specialty coffee VCD)

Contextual factors that have potentially induced change at linked-enterprise and household levels	Potential implications for asset building at linked-enterprise and household levels
<p><b>Market trends:</b> Coffee prices below the cost of production for coffee producers during a five-year period prior to the assessment period</p>	<p><b>Linked-enterprise level</b></p> <ul style="list-style-type: none"> <li>• Links with NGOs and donors for supporting the production and marketing of coffee in certified markets</li> </ul> <p><b>Household level</b></p> <ul style="list-style-type: none"> <li>• Households with eroded asset base at the beginning of the assessment period, thus limiting their potential to build assets during the assessment period</li> </ul>
<p><b>Institutional environment:</b> Coffee-growing context, including limited government involvement in coffee production and varying degrees of land tenure insecurity by smallholder coffee producers</p>	<p><b>Linked-enterprise level</b></p> <ul style="list-style-type: none"> <li>• Need for investment in the provision of public-good type service to members (e.g., agricultural extension)</li> <li>• High operations costs for provision of services to members and selling of coffee to buyers</li> </ul> <p><b>Household level</b></p> <ul style="list-style-type: none"> <li>• Relatively low productivity in coffee as compared to other countries</li> <li>• Potential for limited investments in coffee production due to insecure land tenure</li> <li>• Limited access to advisory services for coffee production</li> </ul>
<p><b>Policy environment:</b> Increased government spending on improving conditions of the rural poor</p>	<p><b>Linked-enterprise level</b></p> <ul style="list-style-type: none"> <li>• Increased availability of low-cost credit for rural cooperatives</li> </ul> <p><b>Household level</b></p> <ul style="list-style-type: none"> <li>• Increased availability of low-cost credit</li> <li>• Access to construction materials at no cost</li> <li>• Subsidized basic foodstuffs</li> </ul>
<p><b>Rural infrastructure and services:</b> Coffee-growing areas with continuation of limited government spending on rural infrastructure and services (road, telephone, electricity)</p>	<p><b>Linked-enterprise level</b></p> <ul style="list-style-type: none"> <li>• High operations costs for provision of services to members and selling of coffee to buyers</li> <li>• Increased communication costs</li> </ul> <p><b>Household level</b></p> <ul style="list-style-type: none"> <li>• High costs for transporting coffee from the farm gate to the cooperative</li> </ul>

Table 7 (continued)

Contextual factors that have potentially induced change at linked-enterprise and household levels	Potential implications for asset building at linked-enterprise and households levels
<p><b>Market trends:</b> Sustained increase in prices for noncertified coffee during assessment period, with relatively small change in price for certified coffee</p>	<p><b>Linked-enterprise level</b></p> <ul style="list-style-type: none"> <li>• Increased competition for raw material from members</li> </ul> <p><b>Household level</b></p> <ul style="list-style-type: none"> <li>• Increased income flows from coffee production, providing both an incentive and means to invest in asset building related to coffee production</li> <li>• Increased incentive to sell coffee to buyers outside of the linked enterprise</li> <li>• Potential increase in services offered by other coffee buyers</li> </ul>
<p><b>Market trends:</b> Competitive environment for specialty coffee, requiring chain actors to focus on quality</p>	<p><b>Linked-enterprise level</b></p> <ul style="list-style-type: none"> <li>• Investments required to upgrade the capacities of members to deliver quality coffee</li> </ul> <p><b>Household level</b></p> <ul style="list-style-type: none"> <li>• Additional costs implied from household compliance with quality requirements for selling to cooperative</li> </ul>
<p><b>Market trends:</b> High costs for critical inputs during the assessment period (credit, fertilizers)</p>	<p><b>Linked-enterprise level</b></p> <ul style="list-style-type: none"> <li>• Reduced access to raw material due to lower productivity by members</li> </ul> <p><b>Household level</b></p> <ul style="list-style-type: none"> <li>• Reduced income benefits from coffee or reduced productivity due to inability to acquire critical inputs</li> </ul>

## 4 Fieldwork with VCD stakeholders

This chapter walks you through the activities for identifying changes at linked-enterprise and household levels, as well as the role of VCD interactions and interventions in bringing about these changes. This is likely to be the most expensive and time-consuming activity in your assessment. It requires sound preparation before heading to the field, including proper design of data collection tools and training of the data collection team. Your team will obtain data through key-informant interviews, household surveys and analysis of secondary information. We offer sample tools for data collection that you can adjust to your specific case, based on the expected outcomes and impacts laid out in the impact pathway, the findings from the context analysis and the interactions and interventions carried out for VCD.

### 4.1 Overview

Table 8 provides a summary of the fieldwork activities and the expected results related to the linked-enterprise and household assessments. At the enterprise level, we differentiate between two types of linked enterprises, which has important implications for the nature and intensity of data collection. Once you have determined the type of linked enterprise, you will select outcome indicators to identify changes in business assets. At the household level, you will first need to define the households to be sampled. Next you will train your data collection team and design the data collection tools based on outcome indicators for analyzing the changes in livelihood assets.

### 4.2 Linked-enterprise assessment

The linked-enterprise assessment precedes the household assessment for various reasons. First, the views of enterprise representatives likely provide important insights into the requirements for successful participation in the value chain—information that will be important for your interactions with key informants and households. Second, data collection at the enterprise level requires less time but provides valuable information that will help you adjust the household questionnaire.

**Table 8.** Overview of fieldwork activities

<i>Objective</i>	Identify changes in asset endowments among linked enterprises and smallholder households and the underlying reasons for these changes
<i>Activities</i>	<p><i>Linked-enterprise assessment</i></p> <ol style="list-style-type: none"> <li>1. Determine type of linked enterprise</li> <li>2. Select outcome indicators</li> <li>3. Prepare enterprise questionnaire</li> <li>4. Collect data from key informants and secondary sources</li> </ol> <p><i>Household assessment</i></p> <ol style="list-style-type: none"> <li>1. Determine sample size and layout</li> <li>2. Select outcome indicators</li> <li>3. Prepare household questionnaire</li> <li>4. Assemble and train the data collection team</li> <li>5. Collect and process data</li> </ol>
<i>Data sources</i>	<ul style="list-style-type: none"> <li>• Secondary information, including consultancy reports, project documents, internal business documents, newspapers, official statistics, databases</li> <li>• Key informants</li> <li>• Smallholder households</li> <li>• Enterprise representatives</li> </ul>
<i>Results expected</i>	<ul style="list-style-type: none"> <li>• Outcome indicators identified at enterprise and household levels</li> <li>• Data collection tools developed</li> <li>• Primary and secondary information collected</li> <li>• Data entered in database</li> </ul>

The enterprise assessment may be carried out in two steps, where the second step takes advantage of new information gained in the assessment. During the first step, you can seek a general appreciation of the relationships between the linked enterprise and upstream (smallholders) and downstream (processors, wholesalers, retailers) business partners as well as the changes that have occurred over the assessment period. This information will prove useful for designing the household questionnaire (see section 4.3). The better your information on the linked enterprise, the more you will be able to fine-tune your data collection on changes at the household level and the reasons behind the changes. A second step at the linked-enterprise level may be useful upon completion of the household assessment since new information is likely to emerge that requires you to reformulate or deepen some of your questions related to the enterprise. This is particularly necessary if you encounter information that contradicts your previous assumptions about the strengths or weaknesses of the linked enterprise.

#### 4.2.1 Determine type of linked enterprise

When developing the VCD stakeholder map earlier in the process, you identified the linked enterprise(s) in the chain. Now you will determine which type of linked enterprise you are dealing with. By definition, all linked enterprises are critical to the development of a given value chain; however, only some of them have been targeted for interventions from service providers or have received support from downstream businesses. We call these “targeted enterprises,” as opposed to “nontargeted enterprises” that have not been subject to any VCD-related interventions or received support from business partners further downstream in the chain. As you may expect, data collection among targeted enterprises is more intensive than among nontargeted enterprises.

Linked enterprises more likely to belong in the category of **targeted enterprises** include those collectively owned, such as cooperatives and producer associations; NGOs with commercial operations; and

small-scale processors. In their case, you are interested in the extent to which the interventions they received have contributed to make their businesses more viable and improve the products and services they offer to smallholders and downstream buyers.

With **nontargeted enterprises**, your main interest is in the nature and overall viability of their linkages with smallholder households. Data collection here is somewhat simpler since it focuses on the costs and perceived benefits of their interactions with smallholders and the long-term viability of this relationship. Linked enterprises more likely to fall into this category are relatively large-scale privately or state-owned enterprises as well as local intermediaries, lead farmers and other types of individually owned microenterprises in direct touch with smallholders.

#### 4.2.2 Select outcome indicators

Enterprise-level outcome indicators are signposts that show whether linked enterprises are able to meet the expectations of smallholders and downstream buyers over the long term. The number and nature of the indicators will vary between targeted and nontargeted enterprises. Table 9 provides an overview of the different objectives and the focus of data collection according to type of linked enterprise.

##### Indicators for targeted enterprises

In case of a targeted enterprise, you will derive the indicators from the outcome domains specified earlier when constructing the impact pathway for a linked enterprise. The more precise and context-specific your indicators, the more you will be able to generate useful data from your fieldwork. Table 10 provides a sample set of indicators for a cooperative, taken from our example of the specialty coffee VCD. Indicators will address change over time, for example, in terms of the number of permanent and part-time employees. However, this may not always be possible due to the difficulty of recall and the lack of reliable secondary information. In these cases, indicators may address the nature and quality of the current stock of assets, for example, the satisfaction of members with services provided by the cooperative.

##### Indicators for nontargeted enterprises

Since this type of enterprise has not been subject to VCD interventions from service providers or received support from downstream business partners, data collection is limited to its 1) relations with smallholder households, 2) investments in VCD with smallholder households and 3) perceived benefits from VCD-related investments. Table 11 provides a sample set of indicators for these outcome domains. Relevant information sources are representatives of the enterprise and of the smallholder households.

**Table 9.** Data collection according to type of linked enterprise

Type of linked enterprise	Objective of enterprise assessment	Focus of data collection
<b>Targeted enterprise</b> Enterprise that has received VCD interventions	Determine changes in business viability and the strength of linkages with smallholder households, downstream chain actors and service providers	Changes in business assets and key performance indicators
<b>Nontargeted enterprise</b> Enterprise that has not received VCD interventions	Determine the nature and overall viability of linkages with smallholder households	Investments in and benefits from linking with smallholders; smallholder participation in benefit sharing

**Table 10.** Sample indicator set for determining changes in business assets for targeted enterprise (example from specialty coffee VCD)

Business assets	Outcome domains (from impact pathway)	Indicators for assessing outcomes
Human capital	Knowledge and skills for business administration	<ul style="list-style-type: none"> <li>• Skill sets and levels of key staff</li> <li>• Functionality of business planning and monitoring and evaluation</li> <li>• Clarity of internal organization</li> </ul>
	Good manufacturing practices, including labor safety	<ul style="list-style-type: none"> <li>• Quality control as reflected in number of rejections</li> <li>• Raw material efficiency</li> <li>• Use of energy, water and air</li> <li>• Number and severity of accidents reported</li> </ul>
	Capacities and skills to meet the service needs of affiliated producers	<ul style="list-style-type: none"> <li>• Ratio of technical staff to members</li> <li>• Diversity of services offered</li> <li>• Quality of services offered (according to members)</li> <li>• Ability to cover staff costs</li> </ul>
	Inclusiveness of workforce	<ul style="list-style-type: none"> <li>• Number and level of women in professional positions</li> <li>• Number of women in volunteer leadership positions</li> <li>• Minorities in staff positions</li> </ul>
Social capital	Asset building through linkages with affiliated producers	<ul style="list-style-type: none"> <li>• Member satisfaction with payment and credit transactions (according to members)</li> <li>• Participation of base cooperative leaders and senior professional staff in decision making</li> <li>• Number of smallholders supplying raw material</li> <li>• Increase in total coffee sales</li> <li>• Average amount of coffee supplied per member</li> <li>• Member's perceptions of satisfaction/benefits</li> <li>• Use of cooperative's services</li> </ul>
	Asset building through linkages with buyers and service providers	<ul style="list-style-type: none"> <li>• Number and nature of relationships with buyers</li> <li>• Access to buyer-provided services, such as technical assistance or short-term credit</li> <li>• Annual sales of green coffee</li> <li>• Buyer's perceptions of satisfaction/benefit from relationship with cooperative</li> <li>• Number and nature of relations with NGOs and government agencies</li> </ul>
Physical capital	Buildings and other infrastructure	<ul style="list-style-type: none"> <li>• Number, type and depreciation of buildings and other infrastructure</li> <li>• Investments in infrastructure for processing, storage and administration</li> <li>• Benefits of new infrastructure (e.g., increased income, reduced costs, new services)</li> <li>• Investments in information and communication technologies</li> </ul>
	Machinery, equipment and tools	<ul style="list-style-type: none"> <li>• Number, type and depreciation of machinery, equipment and tools</li> <li>• Investments in machinery, equipment and tools</li> <li>• Perceived benefits of new machinery, equipment and tools</li> <li>• Investments in transportation equipment</li> </ul>

Table 10 (continued)

Business assets	Outcome domains (from impact pathway)	Indicators for assessing outcomes
Financial capital	Cash flows and debt levels	<ul style="list-style-type: none"> <li>Cash flow performance</li> <li>Gross and net margins</li> <li>Long- and short-term credit (amount, modalities)</li> <li>Debt/asset and debt/equity ratios</li> </ul>
	Working capital	<ul style="list-style-type: none"> <li>Cash reserves for purchase of coffee harvest</li> <li>Cash reserves for payment of staff and other obligations</li> <li>Credit obtained for purchase of coffee harvest (when, how much, by whom)</li> </ul>
	Investment capacity	<ul style="list-style-type: none"> <li>Investments made with own resources</li> <li>Credit obtained for strategic investments (when, how much, by whom)</li> <li>Grants obtained for strategic investments (when, how much, under which conditions)</li> </ul>
Enabling conditions	Access to public infrastructure and services	<ul style="list-style-type: none"> <li>Local/regional government(s) responsive to needs of cooperatives when allocating funds for road construction and maintenance, rural electrification, communications and other rural infrastructure and services</li> <li>Central and local tax regimes adjusted to cooperative needs</li> </ul>
	Access to government programs	<ul style="list-style-type: none"> <li>Direct funding or access to credit or donations for the enterprise through a central or local government program</li> </ul>

**Table 11.** Sample indicator set for determining changes in business assets for nontargeted enterprise (example of large-scale enterprise that contracts services from smallholders)

Outcome domains	Indicators	Information sources
Investments in and benefits from linking with smallholders	<ul style="list-style-type: none"> <li>New products/services and improvements in quality of existing products/services</li> <li>Change in market positioning (competitive advantage vis-à-vis competing enterprises)</li> <li>Strategies for future investments</li> <li>Investments for the development of VC-related products and services (e.g., new product lines, infrastructure, marketing)</li> <li>Perceived or measured changes in income or cost structures as a result of VCD-related investments</li> </ul>	<ul style="list-style-type: none"> <li>Enterprise representatives</li> <li>Downstream buyers</li> </ul>
Smallholder participation in benefit sharing	<ul style="list-style-type: none"> <li>Contractual terms with smallholders</li> <li>Satisfaction with contractual terms and service offer (according to smallholders)</li> <li>Services offered to smallholders (and related terms), such as credit, technical assistance and input provision</li> </ul>	<ul style="list-style-type: none"> <li>Smallholder households</li> <li>Enterprise representatives</li> </ul>

#### 4.2.3 Prepare enterprise questionnaire

Annex 1 provides an example of an enterprise questionnaire based on the indicators presented in table 10. Responding to the questions will require data from various key informants, such as managers, field staff, members and buyers. You may need additional tools, such as guides for semistructured interviews with specific persons. For example, information on changes in relations between the linked enterprises and downstream business partners may best be obtained from a buyer. Main findings from the interview will be incorporated into the data collection sheet. You will be able to deepen your enterprise

assessment by incorporating new insights and findings over the course of the assessment. For example, information collected during household interviews may provide new insights into the business assets of the linked enterprise not perceived during interviews with business representatives earlier in the process.

Here are some recommendations for using the enterprise questionnaire:

- Be sure to clearly establish the assessment period before heading out for data collection. The assessment period should be long enough for asset building to have occurred, usually three years or more, but not so long that recall and perceptions become overly imprecise. The existence of baseline data and secondary information may enable you to extend the period. A recall period of four to five years was commonly used in the case studies for tool validation.
- It is important that the principal VCD-related interactions and interventions and the overall context are understood by the assessment team prior to data collection. In some cases, the team may want to keep handy specific information on the VCD or the context during the interview to facilitate probing and cross-checking. This information will help the team to enter into productive conversation with business leaders and others on the potential reasons for the measured or observed changes in assets.
- Using recording devices may be considered in cultural and social contexts where this is appropriate; in these cases, interviewees need to be asked at the outset whether they agree to be recorded. Carefully balance the pros (data security) and cons (potentially less-sincere responses when delicate issues are touched upon) of using such devices.

#### 4.2.4 Data collection

When thinking of potential information sources, bear in mind that no one person or organization has the answers to all the indicators. Key informants may include enterprise owners and managers, employees, members of the board of directors and business partners (buyers and processors). For information on relations between various actors, you should seek more than one perspective—for example, from managers, board members and ordinary members. In some cases, secondary information and responses from key informants may not provide the information needed to address a particular indicator. For example, some key respondents may not be able to effectively respond to a question related to the overall market and political context. In this case, members of the assessment team should be able to provide their own insights based on their understanding of the context, though validation from the enterprise is crucial. A focus group may be used to collect information on certain assets—for example, human capital among enterprise employees. Implementation of a focus group can involve considerable time and expense so it should be used sparingly.

Given that data collection involves a variety of sources and requires a mix of methods, it is recommended that the assessment team develop a data collection plan. For each indicator, the plan will identify potential sources of information and related methods (for example, key informant interviews, secondary information, short questionnaires, etc.).

### 4.3 Household assessment

In this step, the assessment team collects primary data among smallholders regarding changes in their asset endowments. Direct interaction with household members is crucial for determining the underlying causes of the changes. Table 8 provides an overview of the activities to be carried out in this step.

### 4.3.1 Determine sample size and layout

The number of smallholder households in a given VCD initiative can range from a handful to several thousand. For example, among the case studies carried out in the design of 5Capitals, an organic-vegetable case in the United States included only 40 households while a broiler case in India included more than 5,000. Most of the case studies included something between 100 and 1,000 households. If the number of households is relatively small, say less than 50 to 100, then you may consider including all the households in your data collection. This will ensure that you have sufficiently captured the variation in the population and have a large-enough number of households for reliable calculation of descriptive statistics.

In most cases, however, the population of households involved in VCD will be relatively large, so a sample will be necessary. A first step in defining the sample is to identify the population of smallholder households that participated in the VCD as producers of primary products. In some cases, this can be straightforward, for example, when the linked enterprise maintains up-to-date information on its raw material suppliers or when a project maintains up-to-date information on smallholder households. However, there may be cases where neither linked enterprises nor NGO or government projects have complete or accurate information on the smallholder households. In these cases, flexibility and creativity may be needed to understand the population of smallholder households (see box 1).

Once you have identified the population of smallholder households, you need to decide how many and which of them to interview. You should try to include a sufficiently large number of households to provide a reliable characterization of the population, recognizing, of course, your logistical and budget constraints. There are various “sample size calculators” available on the Internet that can instantly determine how many households you would need to interview in order to obtain results that reflect the population with a relatively high degree of certainty. However, among the case studies carried out in developing this tool, the sample sizes generated by the calculators were almost always too large for the budgets available. Most case studies aimed for a smaller sample size of between 90 and 150. For all but the cases with the largest populations, a sample size within this range was considered sufficient to understand the population and allow for meaningful qualitative analysis.

#### Box 1. Identifying the population and sample size when information is missing: Example from taro root VCD\*

The linked enterprise (cooperative) had three lists of affiliated producers. Each list was different: they had been produced at different times in response to different demands by NGOs and donors. Not one of the lists provided complete or accurate information on the population of affiliated producers. For example, community affiliation was noted based on where the VCD-related product was produced, not where the producers actually lived, and producers as well as intermediaries were included in the lists. The assessment team combined the three lists into one. The combined list was reviewed with cooperative leaders and extensionists to identify whether 1) the person listed was a producer of the VCD-related product, 2) the producer had delivered to the cooperative and 3) the community identified was the one where (s) he lived. Once the entire list was reviewed, the assessment team grouped producers into geographical regions. Five groups were established, out of which three were selected along a distance gradient: one near the cooperative, one distant from the cooperative, and one in between the distant and close groups. Efforts were made to interview all producers in each area, including producers originally not included in the sample frame. The use of local guides was vital for identifying the producers.

\*For further reading: Donovan, J; Poole, N. (2012). “Asset Building in Response to Value Chain Development: Lessons from Taro Producers in Nicaragua.” *International Journal of Agricultural Sustainability*. In press.

Rather than the absolute number of households or the proportion of the population interviewed, it is important to lay out the sample in a way that allows you to capture most of the existing variation across smallholder households. Though variation has diverse causes, in many cases access is a crucial factor, as is the size of landholdings. Ethnic or demographic diversity may also cause variation, as well as differences in altitude or agroecological zones in general. All of these call for a stratification of your sample to ensure that the principal variation is captured. Often, the definition of a gradient will be useful—for instance, small to large landholdings, lowland to highland areas, drier to wetter agroecological zones, poor to fertile sites or nearby to remote areas. Along these gradients, you would seek to identify communities close to the extremes of the gradients as well as one or several in between. If ethnic diversity turns out to be a major distinguishing factor, you may need to group your sample communities according to the proportion of the different ethnic groups, ensuring that minorities are properly included. This procedure will help you avoid blind spots, such as poor households in remote areas or those that belong to an ethnic minority. But keep in mind the necessity for a geographic concentration of your sample to reduce costs and travel time.

After having stratified the population, there are several ways of identifying the households to be sampled at random. The most common procedures are the following:

- **Stratified random sampling:** after having grouped or stratified the population, all households in each of the groups or strata have an equal probability of being included in the sample. The easiest way is to assign a number to each of the households participating in VCD in each group or stratum and then use a random number generator (available in many spreadsheet programs, such as MS Excel) for producing random numbers that indicate the households to be sampled. If no computer program is available, you may place slips of paper with the names of all the households into a hat, selecting names out of the hat. In any case, it will be important to distribute the sample households proportionally. For example, if your sample size is 200 and you have stratified the population according to four agroecological zones that are home to 32%, 27%, 23% and 18% of the population, you will need to sample 64, 54, 46 and 36 households, respectively, in the four different zones to represent each percentage.
- **Stratified systematic sampling:** after having grouped or stratified the population, households in each of the groups, or strata, will be selected in a systematic way by establishing an ordered scheme and then selecting elements at regular intervals. Systematic sampling involves a random start and then proceeds with the selection of every  $k$ th element (with  $k = \text{population size/sample size}$ ). It is important that the starting point is not automatically the first in the list but is randomly chosen from within the first to the  $k$ th element in the list. A simple example would be to select every 10th household from a list of the population of smallholder households.

During tool validation, various options were identified and tested for improving data quality of the household assessment (see table 12). While these options have the potential to enrich your analysis, care should be taken before applying such methodological elements, considering not only the cost of data collection but also the skills needed for the more complex data analysis. Some case studies invested considerable time and effort in more extensive data collection, for instance by including comparison groups, but later on struggled to incorporate the resulting data into their analysis and conclusions. Much discussion has centered on the complexity and ethical dimension of using comparison groups for understanding causality, with strong arguments in favor and against. Before deciding to use a comparison group, we encourage you to investigate the methodological and ethical implications.<sup>4</sup> In terms of ethics, for instance, is it fair to intensively question poor households that had no opportunity to participate in VCD?

<sup>4</sup> See, for example, “Evaluating the Impacts of Development Projects on Poverty” by JL Baker (2000).

**Table 12.** Benefits and challenges for more complex household sampling

Additional methodological element	Potential contributions to assessment	Challenges for data collection and analysis
Inclusion of VCD dropouts	Insights into asset thresholds (minimum assets required) for effective VCD participation	<ul style="list-style-type: none"> <li>• Identification of households that no longer participate in the value chain</li> <li>• Subjecting dropouts to intensive questioning</li> </ul>
Use of comparison groups	Increased rigor in claims regarding the contribution of VCD to identified and observed changes at the household level	<ul style="list-style-type: none"> <li>• Identification of households with similar characteristics as VCD-participating households</li> <li>• Increased complexity of analysis</li> <li>• Subjecting nonparticipating households to intensive questioning</li> </ul>
Inclusion of those who provide labor to VCD smallholder households	Insights into the changes induced by the VCA on workers who provide services to VCD smallholder households	<ul style="list-style-type: none"> <li>• Identification of labor providers</li> <li>• Smallholder households that may also be labor-providing households</li> </ul>
Inclusion of the households excluded from the VCD	Insights into asset thresholds (minimum assets required) for effective VCD participation	<ul style="list-style-type: none"> <li>• Identification of those excluded from the VCD</li> <li>• Subjecting excluded households to intensive questioning</li> </ul>

### 4.3.2 Select indicators

As with preparation for the enterprise assessment, you will need to select a set of indicators for the household assessment. You will identify indicators for each of the expected outcomes laid out in the impact pathways related to your case (see fig. 4 and fig. 5). Given that the impact pathways were developed with smallholder agricultural production in mind, some of the outcome domains may not pertain to cases that do not involve producers of agricultural products. For example, if your case deals with handicraft production in rural areas, expected outcome domains related to natural capital could be left out altogether. In other cases, for instance broiler and livestock production, you may need to add domains not included in the impact pathways. For each outcome domain, from one to three indicators are normally needed. The more indicators you add, the better your ability to assess the change in asset endowments. However, each indicator adds several questions to the household questionnaire, which means increased investments in data collection and analysis. For this reason, a careful selection of indicators (with appropriate field testing prior to sampling) is highly recommended.

Table 13 provides a sample set of indicators for each of the expected outcomes identified in the impact pathway. The example is from interventions in a specialty coffee value chain, which were carried out by the cooperative and by NGOs and government agencies. You will need to develop your own set of indicators taking into account the VCD interventions carried out and the market, political and institutional context.

### 4.3.3 Develop household questionnaire

The design of the household questionnaire takes into account the outcome indicators that you identified in the previous step, as well as the information that you obtained on VCD interactions and interventions and the context. Together, this information will allow you to formulate the specific questions that will reveal the changes that occurred in asset endowments and the factors underlying these changes. Well-designed questions are crucial for attributing change to VCD interactions and interventions or to contextual factors. For example, if you found out that the area under coffee production has expanded,

**Table 13.** Sample indicator set for determining changes in household assets (example from specialty coffee VCD)

Livelihood asset	Outcome domains (from impact pathway)	Indicators
Natural capital	Productive capacity	<ul style="list-style-type: none"> <li>• Change in total land area</li> <li>• Change in area under coffee production</li> <li>• Coffee yields</li> </ul>
	Soil fertility	<ul style="list-style-type: none"> <li>• Perceptions on soil quality</li> <li>• Actions taken to improve soil fertility</li> <li>• Fertilizer usage</li> </ul>
	Water quality and quantity	<ul style="list-style-type: none"> <li>• Perception on water quality</li> <li>• Access to water for wet milling</li> <li>• Actions taken to improve water quality and reduce water contamination</li> </ul>
Human capital	Knowledge, capacities and skills for VC activities	<ul style="list-style-type: none"> <li>• Implementation of good agricultural practices for coffee production and postharvest treatment</li> <li>• Capacity acquired for producing and grading quality coffee</li> </ul>
	Health and labor safety	<ul style="list-style-type: none"> <li>• Use of chemical inputs banned by cooperative</li> <li>• Optimization of agrochemicals use</li> <li>• Use of safety equipment when applying agrochemicals</li> </ul>
Social capital	Asset building through linkages with buyers and service providers	<ul style="list-style-type: none"> <li>• Access to technical assistance, credit and other services provided by buyers, government agencies and NGOs</li> <li>• Satisfaction with credit and technical assistance services</li> <li>• Percentage of total coffee production sold to the cooperative</li> </ul>
	Influence on enabling conditions through linkages with decision makers	<ul style="list-style-type: none"> <li>• Changes in land tenure resulting from linkages with VC actors, government agencies and NGOs</li> <li>• Changes in norms, rules and regulations related to coffee production through linkages with government agencies</li> <li>• Changes in certification requirements through linkages with VC actors, certification bodies and NGOs</li> </ul>
Physical capital	Machinery, equipment and tools	<ul style="list-style-type: none"> <li>• Access to collectively owned machinery, equipment and tools</li> <li>• Own acquisition of machinery, equipment and tools</li> </ul>
	Housing and production-related infrastructure	<ul style="list-style-type: none"> <li>• Additions to or significant changes in existing components of housing infrastructure (roof, floor, walls)</li> <li>• Additions to or significant changes in existing components of production-related infrastructure</li> </ul>
Financial capital	Income flows and debt levels	<ul style="list-style-type: none"> <li>• Gross income from five most important sources</li> <li>• Perception of change in income flows</li> <li>• Change in debt levels</li> </ul>
	Working capital	<ul style="list-style-type: none"> <li>• Short-term credit obtained, by source</li> <li>• Ability to cover coffee expenses with own funds</li> </ul>
	Investment capacity	<ul style="list-style-type: none"> <li>• Strategic investments in VC production</li> <li>• Ability to draw on savings for investments</li> <li>• Long-term credit usage, by source</li> </ul>
Enabling conditions	Access to infrastructure and services	<ul style="list-style-type: none"> <li>• Distance to road</li> <li>• Number of hours for coffee to reach cooperative</li> <li>• Access to power grid, potable water and communications</li> </ul>
	Access to government programs	<ul style="list-style-type: none"> <li>• Direct funding, donations, credit and other services through central or local government programs</li> </ul>

you would like to know whether this was made possible through 1) credit provided by the cooperative (which, in turn, might have been provided by an NGO with donor support) or 2) savings derived from increased coffee prices that might be due to increased production of quality coffee (as a result of VCD interventions) or an overall favorable market trend (context-induced change). Households will not always have the correct answer when asked about the underlying causes of change, so your insight from context analysis and your general understanding of the VCD initiative will be critical in establishing plausible cause-effect relationships.

Annex 2 provides a sample household questionnaire for the specialty coffee case. It is built around the indicators in table 13 and includes information on the set of interactions and interventions for VCD and the context in which it takes place. When designing your own tool, please note that most questions in annex 2 will need to be adjusted, some will need to be eliminated and others will need to be added, depending on the indicators that you selected and the overall context.

#### **4.3.4 Assemble and train the data collection team**

The size of your data collection team will depend on the number of households to be interviewed, the time and effort needed to carry out the interviews, and, of course, the budget available. In general, we recommend a small but well-trained team, which should provide for greater efficiency and more consistent results. A trained data collector can conduct about five household interviews per day, though this number may vary considerably from case to case. We recommend that data collectors not be affiliated with VCD buyers or providers of essential services (such as credit). This will allow them to ask about sensitive information on the benefits and costs of VCD participation. An effective data collector exhibits the ability to listen and interact with rural households, a capacity to critically assess responses and formulate new questions to deepen understanding and address potential contradictions, and a willingness to spend extended periods in remote conditions. Good interview skills are equally important, including intense concentration and attention to detail. It is essential that data collectors understand the questions as well as the reasoning behind each of them. This helps ensure that respondents will understand the questions being asked, thus reducing the potential for incomplete and contradictory responses.

Ideally, the leader of your assessment team will train the data collectors. In any case, (s)he needs to follow up closely on the data collection process and be available for resolving any doubts or difficulties faced by the data collectors. A good way to train data collectors is to involve them directly in testing the household questionnaire. The pretest will not only help fine-tune the questions but also strengthen interview skills of the data collectors. If you do not use comparison groups, your best option for understanding the contribution of the VCD to asset building is through the careful formulation and layering of questions to households. The following activities are suggested for pretesting the household questionnaire:

1. Test the first version of the household questionnaire with three to five households. Ideally, this trial run should be with households similar to those in your sample but not a part of it since results from these interviews will not be included in the analysis.
2. Reflect on the results obtained and identify options for improved formulation of the tool and improved performance of the data collectors. With these inputs, you will be able to revise the questionnaire to make it more effective and efficient.
3. Steps 1 and 2 may need to be repeated, depending on the complexity of the tool and the capacities of the data collectors.

Training data collectors in this way may also provide a chance to discard collectors with a flat learning curve or little talent for data collection. It will be important for the team leader to spend as much time as possible with the data collectors in the field to obtain a firsthand impression of household realities and

help resolve methodological or logistical challenges. The assessment team may decide to hold weekly monitoring meetings to update progress and address challenges as they arise.

#### 4.3.5 Data collection and processing

Your team is now ready to collect primary data from the smallholder households participating in the VCD initiative. Use the following checklist to make sure that everything is set:

- *Is the household questionnaire ready?* Review the questionnaire one last time to ensure that the questions address any important aspect that will shed light on potential changes and their causes. Have sufficient copies been made? Is it clear how the completed forms will be protected from moisture and dust in the field?
- *Are the data collectors prepared?* Do they have a clear idea of who is included in the sample and who is not? Do they know what to do if they do not find someone from one of the households on their list (in many cases, it will not be possible to make appointments in advance)? Are they able to introduce themselves and the objectives of the interview in a clear and sincere way? Is it possible to have local guides accompany them to establish trust from the very beginning? Have the collectors demonstrated that they can apply the questionnaire in 45 to 75 minutes (on average) without having to rush? If they cannot, you need to readjust the questionnaire: exceeding this time span can cause fatigue among interviewees and interviewers. Last but not least, do the collectors fully understand all of the questions and are they aware of potential pitfalls regarding the responses to them? If not, this is the right moment to remedy this in order to save time and money and increase the utility of your assessment.
- *Is the assessment period clearly established?* Ideally the period is identical to that of the existing baseline data. If this is not the case, you will need to rely on recall information, which usually limits the assessment period to a maximum of three to five years. For certain outcome indicators, a shorter assessment period may be appropriate. In general, the less salient an activity or occurrence (for example, purchases of basic food stuffs or purchase of low-cost production inputs), the shorter the recall period.
- *Have sampling protocols been established?* The data collectors should be provided with clear instructions about when to skip a particular household that was included in the sample frame. Potential reasons for skipping a household could be 1) no answer after two visits, 2) refusal to participate or 3) not having produced the VCD-related product(s) in more than three years. The criteria will vary from case to case, but all teams should take care to be consistent in their sampling approach and to document and justify all departures from the sample frame.
- *Is it clear who is to be interviewed in each household?* Within households, there are various options. How to deal with this should be discussed and agreed upon with data collectors before data collection begins. In most cases, interviewees will likely include both male and female household heads (to the extent possible). If, however, only one household member is available, this person must have broad knowledge of VCD-related activities and household incomes and expenditures.
- *Does a database format exist?* You will need to identify in advance the best way for processing the data your team will collect. Given the large amount of data, we recommend using MS Access or a similar type of database or spreadsheet program. Among the teams that carried out case studies for tool validation, most used a spreadsheet program, such as MS Excel, to manage data. Though more sophisticated data-management options exist, it is essential that those who enter and analyze the data are familiar with the program and feel comfortable using it. As an alternative, you may consider hiring out the design of a database. Data entry, though, is best carried out by those who collected the data in the field. In any case, the team leader needs to ensure the proper use of software and careful data handling.

If all questions get an affirmative answer, you and your team are set to begin data collection.

## 5 Assessing VCD outcomes

This chapter helps you to determine the changes in asset endowments at the levels of the linked enterprise and smallholder households and the extent to which they were induced by VCD or contextual factors. Preliminary findings will be presented to VCD stakeholders for feedback and validation. Guidelines will also help you present the consolidated findings in an impact narrative and identify opportunities for improved VCD interventions that create a higher impact on poverty reduction and asset building at household and linked-enterprise levels.

### 5.1 Overview

With the data collected, cross-checked and tabulated in a database, you are now ready for analysis and joint reflection with the VCD stakeholders on the implications of the findings. The first two activities focus on identifying the changes in asset endowments and the factors that caused them, first at the linked-enterprise level and then at the household level (table 14). You will summarize your main findings in terms of asset building (or erosion), identify the contribution of VCD in bringing about these changes and assess the overall state of the asset endowments at the end of the assessment period. In many cases, your conclusions will be based on informed judgment, drawing on evidence from the context and data from enterprises, households and key informants, as well as secondary information. Since you will not always have sufficient hard data to substantiate your preliminary conclusions, it will be essential to meet with VCD stakeholders for feedback and validation before wrapping up the findings in a case study narrative. This process underscores the character of 5Capitals as a learning tool based on joint analysis and reflection.

### 5.2 Identify changes in asset endowments at enterprise level

Since targeted enterprises were subject to interactions from other chain actors or interventions from input or service providers, the identification of changes in asset endowments focuses on this type of linked enterprise. Special attention is given to changes in the four business assets mentioned earlier (human, social, physical and financial capital) and in the enabling conditions brought about by VCD. This section guides you as you consider the following questions: 1) which assets were built or eroded at

**Table 14.** Overview of analysis and report writing

<i>Objective</i>	Provide evidence of the outcomes of VCD on asset building at household and linked-enterprise levels and identify opportunities for reinforcing interactions and redesigning interventions in the value chain to increase poverty impact in the future
<i>Activities</i>	<ul style="list-style-type: none"> <li>• Identify change in asset endowments and the factors that influenced asset building at enterprise level</li> <li>• Identify change in asset endowments and the factors that influenced asset building at household level</li> <li>• Validate findings and recommendations with VCD stakeholders</li> <li>• Identify options for improving VCD interactions and interventions</li> <li>• Prepare impact narrative</li> </ul>
<i>Data sources</i>	<ul style="list-style-type: none"> <li>• Findings from context analysis</li> <li>• Database with findings from household assessment</li> <li>• Findings from linked-enterprise assessment</li> <li>• Inputs from validation workshop with VCD stakeholders</li> </ul>
<i>Results expected</i>	Joint learning on the poverty-reduction potential of VCD, documented in impact narrative

the enterprise level? 2) to what extent were these changes brought about by the VCD initiative? and 3) how viable is the business given its overall state of assets at the end of the assessment period? If various enterprises were included in your analysis, the analysis will differentiate between different targeted enterprises.

The changes in assets will be assessed based on the data collected for each of the outcome indicators. Good organization of the information collected from key informants, enterprise representatives and households about the business assets of the targeted enterprise is critical. Sit together with one or several data collectors to review the information tabulated in a simple database, sort out any inconsistencies and advance the analysis jointly. Some of the information will be more qualitative in nature, especially that related to social and human capitals. Quotes from key informants on the changes in assets, the relevance of these changes and perceptions on why the changes occurred may provide useful insights for your assessment. Do note that the informative power of your qualitative information will be enhanced by validating the findings across different sources. For example, the validity of insights from enterprise leaders on their ability to build mutually beneficial relationships with buyers are increased significantly if similar views are expressed by the buyers. Whenever possible, work with quantitative data, particularly with respect to financial capital and investments in and returns from physical capital. The appropriate use of descriptive statistics, including average, median and standard deviation, will lend credibility to your assessment, as will the presentation of data in illustrative tables and graphs (for example, bar and pie charts, boxplots and spider webs).

The assessment of changes for a given asset will be based on the results obtained for the outcome indicators. The objective is to provide a general indication of change for each asset. In many cases, the results for all indicators of a given asset will point in a similar direction, either positive or negative, facilitating aggregate analysis at the asset level. However, for certain assets, it is also likely that some indicators provide positive signs of asset building and others are negative or indifferent. In these cases, your assessment requires informed judgment, taking into account your understanding of the relative importance of the individual indicator for the performance and viability of the targeted enterprise. For example, a particular indicator for natural capital, such as change in land area, may be positive for a significant number of households, but the ability to maintain and improve soil fertility, as another indicator,

may be negative for most households. So your assessment for natural capital would yield mixed results given the gains in natural capital in form of land and the future limitations to building of natural capital.

Having assessed the overall change according to the outcome indicators for each asset, you will need to attribute any change to interactions or interventions in the value chain or to contextual factors. Sometimes attribution to VCD will be straightforward, for example, when credit to purchase processing equipment was provided by a service provider and the increase in income can be related directly to the value added through processing. In other cases, the context may be the main driver of change. For example, increased income flows and reduced debt levels may have resulted primarily from proportional increases in market prices. Frequently, however, reality is more complex and changes in assets need to be attributed to both VCD and contextual factors. In these cases, the credibility of your assessment increases by acknowledging the different influences on the change and the likely role of both VCD and the context.

Table 15 provides a format for summarizing changes in asset endowments and the related contributions from VCD or contextual factors. The first column presents the outcome domains and indicators derived from the impact pathway (see fig. 4). The second column allows you to summarize the main findings for each indicator and the third column provides space for attribution. In the fourth column, you assess the overall state of asset endowment at the end of the assessment period. In doing so, you will compare the set of requirements faced by the enterprise for successful participation in the value chain with the quality and quantity of the asset endowment. Information on requirements for value chain participation was identified in the context analysis. The final column asks you to select a measure that illustrates which assets are readily available and which might be underdeveloped, with green indicating reasonably high assessment endowment, yellow indicating somewhat insufficient endowments in either quantity or quality, and red signaling insufficient asset endowments. This is somewhat subjective but provides a quick overview of the strengths and weaknesses of the targeted enterprises, including potential threats to its long-term viability.

**Table 15.** Assessment of asset building and asset stocks for a targeted enterprise (example from specialty coffee VCD)

Outcome domains and indicators	Summary of measured or observed change	Contribution of VCD to measured or observed change*	Assessment of current asset stock	Measure of asset building**
<i>Human capital</i>				
Knowledge and skills for business administration	None measured or observed	<i>Low</i> —Interventions have paid limited attention to business administration. Cooperative benefited during the assessment period from previous interventions by coffee buyers for the selection and hiring of a professional general manager.	Base cooperative leaders have yet to develop the skills needed for providing strategic inputs for cooperative management. Membership is generally frustrated with extended period (delays) for first credit installment and final payment for coffee harvest. Professional management has extensive experience and strong links to buyers, donors and members. Cooperative is able to manage grants with donors. Cooperative has struggled to decentralize decision making and streamline administrative procedures.	

Table 15 (continued)

Outcome domains and indicators	Summary of measured or observed change	Contribution of VCD to measured or observed change*	Assessment of current asset stock	Measure of asset building**
Good manufacturing practices, including labor safety	None measured or observed	NA	Considerable risk is faced by extensionists due to lack of security in rural areas and dependence on motorcycles for transportation. Three major incidents of physical harm from delinquents reported in the field.	
Capacities and skills to meet the service needs of affiliated producers	Extension staff has more than doubled during assessment period. Overall turnover remains low, despite the uncertainties of funding.	<i>High</i> —Salaries for technical staff were covered by grants during the assessment period.	Households reported limited coverage of extension service and limited ability of staff to provide tailored solutions to their production problems. Technical assistance staff prioritized credit program and implementation of donor-funding activities over provision of technical assistance.	
Inclusiveness of the workforce	Three women incorporated for the first time into the board of directors, one of whom became president.	<i>Medium</i> —Prior to the intervention period, buyers selected and hired the female general manager (for two-year period). This planted the seed for a more inclusive workforce that evolved during the period.	Under the leadership of a female general manager since its initial organization, the cooperative stands out for its inclusive workforce. Four females are on administrative staff (no change). Policy exists for expanding female extensionist staff; however, female extensionists declined from two to one during period.	
<b>Social capital</b>				
Intensified asset building through linkage with affiliated producers	Membership increased 40%, thus allowing for increased purchases of parchment coffee. However, selling of coffee outside the cooperative increased 20% during the period, in part due to higher prices offered by local coffee buyers.	<i>High</i> —Interventions played a major role in expanded offer of credit and technical assistance by the cooperative. These services, combined with the cooperative's ability to offer contracts with a floor price to its members, allowed for rapid and sustained growth in membership.	Overall, membership expressed a high degree of loyalty to cooperative, reflecting the importance of the cooperative services such as credit and access to fair-trade certification. However, a highly competitive local coffee market and low savings by households meant that members often sold coffee outside of the cooperative.	

\* The following point-ranking categories are used: high, medium-high, medium, low-medium, and low.

\*\*  Green = reasonably high assessment endowment;  yellow = somewhat insufficient asset endowment;  red = insufficient asset endowment

Table 15 (continued)

Outcome domains and indicators	Summary of measured or observed change	Contribution of VCD to measured or observed change*	Assessment of current asset stock	Measure of asset building**
Intensified asset building through linkages with buyers and service providers	New business relations expanded (three new buyers that purchased 40% of coffee in 2009). Outstanding debt of US\$500,000 was repaid to five coffee buyers in Europe over the period.	<i>Medium</i> —Interventions allowed for the upgrading of human and physical capital by member households, which, in turn, allowed for improved quality of all coffees sold to buyers. High preexisting levels of human capital also played a strong role in building linkages with buyers.	Coffee buyers reported a high level of satisfaction regarding their relations with the cooperative. Two buyers identified the cooperative as their preferred partner in Latin America. Limited communication was the most frequent criticism, especially when general manager was absent.	
<b>Physical capital</b>				
Buildings and other infrastructure	Ten base cooperatives have new offices and three base cooperatives have a new wet mill. There is one new plant for organic fertilizer production and one new dry mill.	<i>High</i> —Investments in buildings and plants were made possible with grants from donors and NGOs. Dry mill was purchased with grants, credit and own funds.	Cooperative investments in buildings and plants have exceeded US\$1 million. Addition of base cooperative offices, dry processing plant and fertilizer plant expand options for improved service delivery to members in midterm.	
Machinery, equipment and tools	Used equipment and machinery for dry milling was purchased. Assessment team was not able to access the efficiency or overall quality of the used equipment.	<i>High</i> —Major investments in machinery, equipment and tools were made possible with grants from donors and NGOs.	Dry coffee processing allows the cooperative to provide an additional service to its members and retain greater control over quality in the processing process.	

Table 15 (continued)

Outcome domains and indicators	Summary of measured or observed change	Contribution of VCD to measured or observed change*	Assessment of current asset stock	Measure of asset building**
<b>Financial capital</b>				
Cash flows and debt levels	With increased local competition, the ability to cover expenses through coffee sales has declined. Cooperative paid off major debt with buyers but accumulated considerable new debt (US\$180,000) for the purchase of the dry coffee-processing plant.	<i>Medium</i> —Income derived from coffee sales increased due to expansion of membership, which was enabled, in part, by VCD-related intervention. However, the increase in local competition for parchment coffee (coffee sold by farmers) reduced the cooperative's ability to generate income from coffee sales.	Cooperative was able to meet basic operating expenses but not to provide services without extensive donor support. Cooperative has struggled to recover short-term and long-term credit.	
Working capital	With increased local competition, the ability to cover expenses through coffee sales has declined. However, an increase in the number of buyer contacts has facilitated access to buyer-provided credit.	<i>Low</i> —Preexisting high endowments of human capital (related to business administration) facilitated access to new buyers and, hence, credit.	Buyers and lenders supply most of the working capital needed to advance payment of coffee harvest. The cooperative has good standing with credit lenders; however, with lack of its own working capital, the cooperative is highly vulnerable to decisions of buyers and lenders.	

\* The following point-ranking categories are used: high, medium-high, medium, low-medium, and low.

\*\*  Green = reasonably high assessment endowment;  yellow = somewhat insufficient asset endowment;  red = insufficient asset endowment

Table 15 (continued)

Outcome domains and indicators	Summary of measured or observed change	Contribution of VCD to measured or observed change*	Assessment of current asset stock	Measure of asset building**
Investment capacity	With increased local competition, the ability of the cooperative to cover expenses through coffee sales has declined. The overall trend in grant funding is downward. Long-term loans were critical for purchase of processing plant.	Low—The increase in local competition for coffee is due to higher international prices relative to the fair-trade prices offered by the cooperative. The overall marketing context is thus driving the reduced capacity for investment. Preexisting high endowments of human capital (related to business administration) facilitated access to fair-trade lenders.	Cooperative made a major strategic investment in purchasing a dry mill. This was possible with income from coffee sales, credit and donor support. There is a trade-off between use of income from coffee sales and ability to offer higher coffee prices to members, and thus to better compete with local buyers.	
<b>Enabling conditions</b>				
Access to public infrastructure and services	No change detected	NA	Delivery of coffee by members relies on inefficient public transportation. Limited road, communication and electrical infrastructure implies high costs for coordination with members. Lack of rural banking infrastructure implies that all payments are centralized in the cooperative's main office.	
Access to government programs	No change detected	NA	Support for business development has been provided by buyers, donors and NGOs exclusively. Dialogue with the local and central governments is urgently needed regarding options for increasing the viability of rural cooperatives and investments in technologies for improved productivity and services for coffee production.	

\* The following point-ranking categories are used: high, medium-high, medium, low-medium, and low.

\*\*  Green = reasonably high assessment endowment;  yellow = somewhat insufficient asset endowment;  red = insufficient asset endowment

### 5.3 Identify changes in asset endowments at household level

Here your efforts will focus on understanding the changes over the assessment period in relation to the five household livelihood assets (human, social, natural, physical and financial capital) as well as the enabling conditions when brought about by VCD. Analysis responds to the following three questions: 1) which assets were built or eroded at the household level?, 2) to what extent were these changes brought about by the VCD initiative?, and 3) how much well-being among households can the livelihood strategies generate and how resilient are these vis-à-vis shocks or adverse trends, given the overall state of assets at the end of the assessment period?

As in the case of the targeted enterprise(s), you will assess the changes in assets based on the data collected for each of the outcome indicators. Together with your data collectors, review the tabulated information, sort out any inconsistencies in the database and analyze jointly. Data will again be both quantitative and qualitative in nature. Quotes from households on the changes in assets, the relevance of these changes and perceptions on why the changes occurred can be useful. As mentioned, the more you can validate qualitative information with independent information sources, the more persuasive you will be in explaining changes in asset endowments and their implications for smallholder households. Use descriptive statistics for analyzing quantitative information on assets and, to the extent possible, more sophisticated statistical techniques for exploring relationships among various factors, such as one-way analysis of variance (ANOVA), logistic regression, partial correlation and factor analysis.

If your sample is sufficiently large (for instance, more than 100), you may consider trying to deepen your analysis by zooming in on certain factors that may influence the ability of households to build their assets over time. These factors may include preexisting asset endowments, dependence on off-farm income or VCD-related income, gender and distance to urban centers. If your team has experience with cluster analysis, this can provide a useful option for dividing your sample into groups according to different factor combinations. However, you may also group the sampled households according to one or two key factors without using cluster analysis. For example, data from one case study identified three groups of households based on 1) preexisting area under agricultural production and 2) the importance of farm income relative to total income. Analysis of the indicators across these three groups brought to light the role of preexisting assets (in the form of land) and the degree of livelihood diversification as determinants of differences in asset building.

Table 16 provides a format for presenting an assessment of the changes in asset endowments at the household level. The format is similar in design to the one used for the enterprise assessment. The second column presents the measured or observed changes for a given capital according to the expected outcomes (first column) identified in the impact pathway at the household level (fig. 5). When assessing the contribution of VCD to these changes in assets (third column), be aware that they may have been induced through direct interventions at the household level or indirectly through interventions or interactions at the level of the targeted enterprise. If it is indirect through the targeted enterprise, we would expect these interactions and interventions to have contributed to an improved service offer to smallholder households by the linked enterprise. This is an aspect worth mentioning when assessing the current asset endowment (fourth column). The system to measure asset building in the last column is identical to the one used at the enterprise level.

**Table 16.** Assessment of asset building and asset stocks for households (example from specialty coffee VCD)

Outcome domains and indicators	Summary of measured or observed change*	Contribution of VCD to measured or observed change**	Assessment of current asset endowment	Measure of asset building**
<i>Natural capital</i>				
Productive capacity	32% of households increased total landholdings and 33% increased area under coffee production. 25% of sample rejuvenated coffee plantations. For most, coffee yields fluctuated markedly, with no noticeable trend detected.	<i>Medium-high</i> —Cooperative supplied nearly all reported long-term credit needed for related investments and 60% of short-term credit. Increased willingness and ability to invest was also driven by increased international coffee prices.	Size of landholdings among households remains small (<2 ha). Coffee yields are low for most due to lack of inputs and poorly managed plantations. Future potential exists for increased yields and production for subset of households from new and rejuvenated plantations.	
Soil fertility	25% of sample reported low to moderate use of conventional fertilizers and 60% reported use for the first time of purchased organic fertilizers during the assessment period. Nearly all reported using dried coffee pulp as a source of nutrients—its application was generally not carried out prior to the period.	<i>Medium-high</i> —Improved access to short-term credit from various sources was identified as the main factor that allowed households to buy fertilizer for the first time. The cooperative was the only supplier of credit and fertilizer to organic households. 75% of households applying dried coffee pulp credited the cooperative with providing supply necessary to adopt the change.	Most common source of nutrients was dried coffee pulp. Nutrient demand was reduced by extensive use of nitrogen-fixing shade trees. However, overall soil conditions of coffee production remain poor due to lack of appropriate soil management.	
Water quantity and quality	85% of the sample reported implementation of good practices in the use and disposal of wastewater from wet milling. Prior to assessment period, most households discharged wastewater into surface water.	<i>High</i> —Cooperative’s technical assistance was identified as a major factor in the change of postharvest techniques for improved water quality.	Households generally reported sufficient access to water. Most also reported improvement in water quality during the harvest season.	
<i>Human capital</i>				
Knowledge, capacities and skills for VC activities	Implementation of good practices for water disposal, harvesting and nutrient recycling by most households. Limited advances detected in implementation of good practices for plant management.	<i>High</i> —Cooperative was the only reported source of technical assistance for most of the sample.	65% of households considered themselves traditional producers, implying limited input usage and plantation maintenance. Changes observed were generally related to improving quality rather than increasing productivity.	

\* If you assess asset building for different groups of households, this table would need to be completed for each group.

\*\* The following point ranking categories are used: high, medium-high, medium, low-medium and low.

\*\*\*  Green = reasonably high assessment endowment;  yellow = somewhat insufficient asset endowment;  red = insufficient asset endowment

Table 16 (continued)

Outcome domains and indicators	Summary of measured or observed change*	Contribution of VCD to measured or observed change**	Assessment of current asset endowment	Measure of asset building**
Health and labor safety	Among households that reported use of prohibited chemicals prior to the assessment period, 90% reported no use of such chemicals during the period. No change was observed in use of basic safety gear for application of chemical inputs.	<i>High</i> —Cooperative was the only reported source of technical assistance for most of the sample.	Use of the most toxic chemicals for coffee production has been discontinued by most households; however, households did not use safety equipment for application and some reported productive losses due to improper application of chemicals.	
<b>Social capital</b>				
Intensified asset building through linkages with buyers and service providers	Prior to assessment period (during which most households joined the cooperative), members reported limited access to credit, technical assistance and contracts for coffee. During the period, most households reported at least partial access to credit and technical assistance.	<i>Medium</i> —Among households least able to intensify their coffee production, the cooperative was the most important supplier of services for coffee production. However, in line with the general upturn in coffee markets, many households were able to access credit and other services from buyers outside of the cooperative, often resulting in lower transactions costs.	Contracts for coffee sales were available for all members by the cooperative and others. Considerable advances in social capital were detected during assessment period. Linkages with cooperative were especially important for overcoming the erosion that took place during the 2001–2004 coffee crisis. Local buyers also improved their service offer in response to higher coffee prices. However, the range of providers is limited for most households and satisfaction with services varied markedly.	
Influence on enabling conditions through linkages with decision makers	Smallholders producing certified organic coffee maintained ability to use chicken manure from noncertified sources despite attempts by certifier to prohibit its use. Two base cooperatives (25% of sampled households) took major steps toward securing rights of land tenure.	<i>Medium-high</i> —Cooperative was a major player in struggle with certification agency for right to use chicken manure from conventional sources in coffee production. One base cooperative provided special credit and technical assistance to revitalize coffee production after individual titles were granted.	Overall influence on enabling conditions for coffee production has been limited. The highly polarized political context has not facilitated collaboration with the government through the cooperative or other means.	
<b>Physical capital</b>				
Machinery, equipment and tools	78 households reported expanded or improved equipment and machinery for wet milling.	<i>Medium</i> —64% of households reported long-term credit as key to expanding or improving machinery, equipment, and tools; 95% of long-term credit amount was provided by cooperative. Households also attributed investments to savings from sale of coffee and basic grains.	Limited investments in on-farm activities other than coffee production.	

Table 16 (continued)

Outcome domains and indicators	Summary of measured or observed change*	Contribution of VCD to measured or observed change**	Assessment of current asset endowment	Measure of asset building**
Housing and production-related infrastructure	Few households reported additions to or improvement in housing. Most common additions to production infrastructure were wet mills (30%), cacao nurseries (10%) and drying platforms for cacao (10%). Collective investments in wet mills accounted for much of the increase.	<i>Medium-high</i> —Cooperative was the only source of long-term credit for most households and nearly all depended on long-term credit for investments in wet milling and cacao-related infrastructure. No direct linkage was detected between housing infrastructure and VCD-related interventions.	Improved wet mills reduced water consumption (and contamination) and improved coffee quality among a significant segment of the sample. However, most households continued to process coffee without wet mills and were unable to invest in other types of infrastructure.	
<b>Financial capital</b>				
Cash flows and debt levels	Cash flows from coffee increased markedly. Increased access to credit helped reduce the lumpiness of coffee-generated income for some households. Few households reported new sources of income, while food and input prices increased significantly over the assessment period. Evidence from the cooperative suggested that indebtedness rose over that period, especially as related to long-term credit.	<i>Medium</i> —Cooperative provided 5%–15% higher prices than other local buyers during the period. However, only 60% of coffee was sold to the cooperative. Cooperative was the main source of credit during period. In general, credit helped to intensify coffee production and smooth household income during the year.	Overall cash flows remained low and irregular (lumpy), which provided strong incentive to sell coffee to buyers outside of the cooperative. A major concern of households was the extended period required for the first credit payment and for the final payment for coffee.	
Working capital	Access to working capital through short-term credit increased during the assessment period. Roughly 40% of households reported first-time access to short-term credit during the period.	<i>Medium</i> —Cooperative was the most frequent source of short-term credit. However, other providers offered credit at rates in line with those provide by the cooperative. Smallest coffee producers were the least likely to have access to short-term credit from any source.	No change was measured in ability to cover production costs through savings. Overall credit amounts were insufficient for implementing good production practices in coffee. Smaller producers often reported using credit to meet basic necessities rather than coffee production. Large and small scale producers reported the need to diversify coffee contracts to increase access to working capital.	

Table 16 (continued)

Outcome domains and indicators	Summary of measured or observed change*	Contribution of VCD to measured or observed change**	Assessment of current asset endowment	Measure of asset building**
Investment capacity	Access to long-term credit for investment in land, infrastructure and machinery was reported by 30% of households. For most producers, this was their first time to access long-term credit.	<i>High</i> —Cooperative was the only source of long-term credit for the majority of households with access to credit.	Long-term credit enabled significant advances in natural and physical capitals. For those household unable or unwilling to take long-term credit, options to invest with own funds were limited, except for households with largest overall asset endowments.	
<b>Enabling conditions</b>				
Access to public infrastructure and services	75% of households had first-time use of cellular phones during the period. No change reported in access to power grid, road network, banking options or reliability of public transportation.	<i>Low</i> —No direct linkage was detected between VCD interventions and access to public infrastructure and services. 40% of households that purchased cellular phones attributed the purchase to increased income from coffee sales.	65% of households have no access to power grid. Delivery of coffee by members relies on deficient public transportation, especially during harvest season when producers compete for cargo space. Limited road, communication and electrical infrastructure mean high costs for coordination with cooperative. Lack of rural banking infrastructure requires that all payments are centralized in the cooperative's main office.	
Access to government programs	15% of households reported one-off access to credit from government-based programs. 45% of households reported construction of new latrine from government projects. 20% reported subsidies for grain storage silos. No government programs related to agricultural production were detected.	<i>Low</i> —No direct linkage was detected between VCD interventions and access to public infrastructure and services.	Support for business development has been provided by buyers, donors and NGOs. Dialogue with the government regarding options to increase the viability of rural cooperatives and investments in technologies for improved productivity and services for coffee production is urgently needed.	

\* If you assess asset building for different groups of households, this table would need to be completed for each group.

\*\* The following point ranking categories are used: high, medium-high, medium, low-medium and low.

\*\*\*  Green = reasonably high assessment endowment;  yellow = somewhat insufficient asset endowment;  red = insufficient asset endowment

## 5.4 Validate findings and recommendations with VCD stakeholders

With the information detailed in tables 15 and 16, you have advanced a long way toward identifying lessons learned in VCD design and implementation and to providing recommendations for improved design and implementation of VCD initiatives. Below are a series of questions that will help you start thinking through the lessons learned and the recommendations. The questions differ between the targeted enterprise(s) and households. Box 2 discusses the identification of lessons learned and formulation of recommendations for nontargeted enterprises.

Your assessment team may want to identify tentative responses to these questions. Even more important, though, is to discuss the findings and identify final responses jointly with the VCD stakeholders. For this purpose, you will need to organize a workshop to present and validate the findings and to identify the lessons learned and possible recommendations. The workshop should include all the chain actors involved in the assessment as well as those input and service providers from outside of the chain that were also part of the study. Special invitees may be useful, for example, knowledgeable persons from research institutions or staff from organizations intervening in value chains elsewhere. Discussions and interactions during the workshop will provide valuable information for drafting the lessons learned and recommendations. In some cases, it might not be possible to reach an agreement on all the lessons or recommendations. In these cases, your report would benefit from a presentation of the various arguments in favor and against certain lessons or recommendations. In situations where you anticipate major discussions or disagreements, we highly recommend involving a neutral moderator.

**Red light spells danger, while yellow light means caution.** For those outcome domains at enterprise and household levels where your assessment had led to a red or yellow light, your response to the following questions will help you formulate recommendations that improve the context for asset building.

### Targeted enterprise

- What are the major internal obstacles that prevented more intensive asset building during the assessment period? (For example ineffective design of internal policies and limited information and learning.)
- What are the major external obstacles to improving the asset endowment? (For example, government policies, tax regimes and lack of basic infrastructure and services.)
- How can VCD-related interactions and interventions better address the obstacles to improved asset building by the linked enterprise?
- What changes should be considered by the targeted enterprise to build its asset endowments and improve its business environment?
- Which opportunities exist to induce positive feedback loops, where the building of one asset leads to the building of others?
- What changes should be considered by other VCD stakeholders to help build the asset endowments and improve the business environment?
- Which needs and opportunities exist for creating synergies between private and public sectors and civil-society organizations to achieve higher poverty impacts through VCD?

### Smallholder households

- What are the major internal obstacles that prevented more intensive asset building over the assessment period? (For example, insufficient endowments of key assets.)
- What are the major external obstacles to improving the asset endowment? (For example, limited access to infrastructure and unfavorable market conditions.)

- How can VCD-related interventions better address the obstacles to improved asset building by smallholder households?
- What opportunities exist to induce positive feedback loops, where the building of one asset leads to the building of others?
- What changes should be considered by other VCD stakeholders to help build the asset endowments and improve the business environment?
- What needs and opportunities exist for creating synergies between private and public sectors and civil-society organizations to achieve higher poverty impacts through VCD?

**A green light signals you are on the right track.** If you assigned a green light to the outcome indicators, your response to the following questions will contribute to the formulation of good practices in the design of VCD-related interventions across a variety of contexts.

#### Targeted enterprise

- What features of the VCD interactions and interventions contributed to the asset building that was detected during the assessment period?
- Which of these features have highest potential to be successful if replicated with targeted enterprises in other value chains?
- Relative to the context, how important was the VCD in achieving the positive outcomes in terms of asset building by the linked enterprise?
- How did preexisting asset endowments of the targeted enterprise contribute to the building of business assets?
- How could VCD interactions and interventions be designed differently to achieve greater outcomes, increased efficiency and a higher degree of sustainability?
- Can you build a case that increased asset building contributed to greater long-term viability for the linked enterprise?

#### Smallholder household

- What features of the VCA-related interventions contributed most to the asset building that was detected during the assessment period?
- Which of these features have highest potential to be successful if replicated with smallholder households in other value chains?
- Relative to the context, how important was the VCD in achieving the positive outcomes in terms of asset building by smallholder households?
- How did preexisting asset endowments available to the smallholder households contribute to the building of livelihood assets?
- How could VCD-related interventions be designed differently to achieve greater outcomes, increased efficiency and a higher degree of sustainability?
- Can you build a case that increased asset building contributed to greater well-being and resilience among smallholder households?

### Box 2. Identifying lessons learned and recommendations related to nontargeted enterprises

The following questions will help you identify the lessons learned and formulate recommendations related to the participation of nontargeted enterprises in VCD.

- What were the major tangible and intangible benefits for the nontargeted enterprise from its linkages with smallholder households?
- What are the major threats to the sustainability of the linkages with the smallholder households?
- If the enterprise provided services to smallholder households beyond the buying of raw material (for example, credit, inputs, technical assistance), how important were these services to households for their participation in VCD?
- What changes in the enabling environment would facilitate strong linkages with smallholder households?

## 5.5 Prepare impact narrative

After your findings have been validated by VCD stakeholders during the final workshop, you are ready to prepare an impact narrative in which you summarize the critical information related to the context, the VCD initiative, its outcomes at enterprise and household levels, the lessons learned and recommendations. We suggest the following outline for your narrative:

### Introduction

- Objectives of assessment
- Description of VCD stakeholders
- Description of VCD initiative (value chain map, interactions and interventions, expected outcomes and impacts, impact pathways)

### Methodology and methods for VCD assessment

- Sample size and layout
- Data collection methods (include questionnaires as annexes)
- Outcome indicators used at enterprise and household levels

### The context for VCD implementation

- Political-legal and institutional frameworks
- Macroeconomic environment
- Market trends
- Rural infrastructure and services

### Asset building by linked enterprise(s)

For targeted enterprise(s):

- Measured or observed changes
- Contribution of VCD to change
- Appreciation of current asset endowment
- Outlook on business performance and viability

For nontargeted enterprise:

- Investments in linkages with smallholder households
- Benefits received through linkages with smallholder households

### Asset building among smallholders

- Measured or observed changes
- Contribution of VCD to change
- Assessment of current asset endowment
- Insights into changes in well-being and livelihood resilience and future prospects

### Lessons learned and recommendations

- Improvements needed in the context
- Improvements needed in design and implementation of VCD

The more credible and objective your report, the more impact it is likely to have. The credibility of your final report will be enhanced 1) by documenting all steps in the data collection process, including any potential omissions or mistakes made by the assessment team and different points of view on outcomes and their potential causes and 2) by paying at least as much attention to what did not work as to what did work regarding the design of VCD-related interventions.

## 5.6 Action-learning based on 5Capitals

5Capitals was created to facilitate a deeper understanding of the relationship between VCD and rural poverty reduction. Now that you are at the end of a first assessment of the poverty impacts of VCD, we trust you have found the tool useful. It is possible that some questions related to changes in asset endowments, their underlying reasons and resulting impacts remain unanswered. Even in these cases, you will have been able to identify principal trends in asset building (or erosion) that have important implications for household well-being and the performance of linked enterprises.

Ideally, 5Capitals provides the basis for an action-learning process involving smallholders, smallholder-linked enterprises and other VCD stakeholders, during which you will make periodic assessments of VCD outcomes at linked-enterprise and household levels. This process will provide you with greater insights on how assets are built over time and the extent to which the building of assets has the desired impact on poverty reduction. These insights will allow you to adjust the design and implementation of VCD initiatives periodically in order to improve their impacts on smallholder livelihoods and the performance of enterprises that play a vital role in linking poor households with the market.

5Capitals aims to help VCD stakeholders—whether smallholders, enterprises or external service providers—understand the diverse and complex relationships among value chain development, asset building and poverty reduction. Understanding these relationships provides a solid basis for designing future value chain interactions and interventions that achieve higher impact in less time and, where possible, with fewer resources. We hope that you find 5Capitals useful for your VCD efforts and welcome both feedback from your experiences and suggestions for improving the tool.

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## Annex 1. Example of targeted (linked) enterprise questionnaire, based on specialty coffee VCD

### Staff employed

Type	Number of employees	How many months?	Change over the assessment period*	
			Decrease (%)	Increase (%)
Year-round (continuous)				
Full-time				
Part-time				
Seasonal				
Full-time				
Part-time				

\* Mention increase or decrease in 10% steps (e.g., -10%, +20%)

What were the principal reasons for change, if any? What are expectations for the next three years in terms of employment?

### Sales of coffee over the assessment period

Coffee (differentiate coffee according to certification and level of processing)	Market destination (local, regional or international)		2010	2009	2008	2007	2006
			Volume				
		Value					
		Volume					
		Value					
		Volume					
		Value					
		Volume					
		Value					

### Sales of inputs (fertilizers, for example) over the assessment-period years

Inputs (differentiate according to certification)		2010	2009	2008	2007	2006
	Volume					
	Value					
	Volume					
	Value					
	Volume					
	Value					
	Volume					
	Value					

## Changes in volume and quality of coffee purchased from members

Conventional coffee	
Changes in share of coffee purchased from smallholders (as compared to coffee purchased from other sources)	Report respective shares for past three to five years
Factors that may have contributed to the change	
Changes in the quality of coffee purchased from smallholders over the assessment period	
Factors that may have contributed to the change	
Organic coffee	
Changes in share of coffee purchased from smallholders (compared to those purchased from other sources) over the assessment period	Report respective shares for past three to five years
Factors that may have contributed to the change	
Changes in the quality of supplies purchased from smallholders over the assessment period	
Factors that may have contributed to the change	

## Newly acquired skills and capacities over the assessment period

Business administration and marketing	
Newly acquired skills and capacities	
Who in the enterprise?	
Sources of skill development, for example, buyer, NGO, government agencies (include information on who, what and when)	
Perceived impact of business performance	
Technical assistance and processing	
Newly acquired skills and capacities	
Who in the enterprise?	
Sources of skill development, for example, buyer, NGO, government agencies (include information on who, what and when)	
Perceived impact of business performance	

## Relationships with coffee buyers

Who were the principal buyers of coffee during the previous year?	
How has the number and type of buyers changed over the assessment period?	
What factors have influenced the change in portfolio of buyers?	
How has cooperation changed with principal buyers of coffee over the assessment period? (for example, provision of inputs and credit, increased quality requirements, joint marketing)	
What services, if any, do buyers provide beyond the purchase of coffee? (for example, technical assistance, market access, credit)	

### Relationships with employees

Changes in working conditions for employees since (including, health and safety, welfare)	
Reasons for the change in working conditions	
Changes in nonmonetary benefits for employees (for example, insurance, sick and maternity leave, vacations, day care)	
Reasons for the change in nonmonetary benefits	
Changes in participation of women (for example, in board of directors and oversight committees)	
Other changes (for example, participation of employees in decision-making processes)	

### Relationships with members

Current contractual relationships with members (for example, quality requirements, prices, availability of credit, services provided and related costs)	
Changes in contractual relationship	
What are the reasons for the changes	

### Relationships with governments, donors and service providers

What projects, subsidies and technical collaboration have been received over the VCD implementation period? (include details on services provided, budget, time period)	
How has access to these services changed over the assessment period?	

### Machinery, equipment and tools owned

What is the current stock of machinery, equipment and tools?	
What changes were there in stock of machinery, equipment and tools over the assessment period?	
What factors contributed to these investments in machinery, equipment and tools?	

### Changes in costs (or profit, if information is available)

What changes in costs (profits) have been observed over the assessment period? (include both quantitative and qualitative information)	
What factors contributed to these changes?	

### Cash flows and working capital

How have cash flows from the sale of green coffee and services to members changed?	
What factors contributed to these changes?	
How has access to working capital for the purchase of coffee from members changed?	
What factors contributed to these changes?	

### Loans and grants received

What loans and grants have been received over the assessment period? (include details such as loan provider, amount, terms, purpose of loan)	
How has access to loans and grants changed over the assessment period?	
What factors contributed to these changes?	

### Loans and grants provided to VCD-participating households

What financial services are currently offered to members? (include details, such as: conditions for access, terms, collateral required)	
How has the enterprise's ability to offer credit to households changed over the assessment period?	
What factors contributed to these changes?	

### Changes in debt level

How has the enterprise's level of long-term debt changed over the assessment period?	
Why has it increased or decreased?	
What factors contributed to these changes?	

### Long-term viability of the enterprise

	Perception of current condition	Perception of changes over implementation period	Evaluation of magnitude of change (1–5)*	Major contributing factor to the change
Market positioning (relative to that of competitors)				
Product portfolio and market diversification				
Dependence on external support for normal operations				

5=strong improvement; 4=some improvement; 3=unchanged; 2=worse; 1=much worse

## Annex 2. Example of household questionnaire, based on specialty coffee VCD

### Section 1: Basic information

#### S1-1 Contact information

Member interviewed:	Sex: M F	Base cooperative:
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#### S1-2 Household members

Member	Age	Last year of education achieved		
		Primary	Secondary	University
Male household head				
Female household head				

Household members	Age	Household members	Age
Dependent ( M F )		Dependent ( M F )	
Dependent ( M F )		Dependent ( M F )	

Number of household members five years ago (2004):

#### S1-3 Membership with the cooperative

When was the first year that coffee was sold by the household to the cooperative? \_\_\_\_\_

### Section 2: Natural resource base

#### S2-1 Coffee production

	2008-2009	2007-2008	2006-2007	2005-2006	2004-2005
Total area (hectares)					
Productive area					
Production (sacks pergamino)					

## Major fluctuations in production levels

Perceived causes	Yes or no	Details
<i>Fluctuation 1 (from 20__ to 20__)</i>		
Renovation	Y or N	
Organic conversion (or reconversion to conventional)	Y or N	
Climatic event	Y or N	
Major new investment in production	Y or N	
Pests/diseases	Y or N	
Biannual fluctuation in production	Y or N	
<i>Fluctuation 2 (from 20__ to 20__)</i>		
Renovation	Y or N	
Organic conversion (or reconversion to conventional)	Y or N	
Climatic event	Y or N	
Major new investment in production	Y or N	
Pests/diseases	Y or N	
Biannual fluctuation in production	Y or N	

Map of the production area(s) now and five years ago (to be drawn with household members)

Now

Five years ago (2004)

## S2-2 Land acquisition

Total area under production (hectares): \_\_\_\_\_

# hectares	Year obtained	Land use arrangement	How was the land acquired?
		1-Owner (property title registered) 2-Owner (property title not registered) 3-Owner (land reform title) 4-Owner (no title) 5-Occupied	1-Purchase 2-Inheritance 3-Land reform

Describe any conflicts over land access or ownership in the past 10 years

Access to rented and borrowed land

Year	Parcel	Area	Land usage arrangement		
2008	Parcel 1		Rented	Borrowed	50-50 arrangement
	Parcel 2		Rented	Borrowed	50-50 arrangement
2007	Parcel 1		Rented	Borrowed	50-50 arrangement
	Parcel 2		Rented	Borrowed	50-50 arrangement

### S2-3 Actual land usage of owned and rented lands

Productive activity	Total area (# head for livestock)	2008 (2007/2008 for coffee)		2007 (2006/2007 for coffee)	
		Total production	Household consumption	Total production	Household consumption
Coffee			XXXXX		XXXXX
Beans					
Corn					

### S2-4 Land usage in 2004

Productive activity	Total area (# head for livestock)

### S2-5 Expansion of productive activities since 2004

New activities or activities in expansion	# hectares (head of cattle) expanded	What made the investment possible? 1-Sale of coffee 2-Sale of other products 3-Savings 4-Inheritance

### S2-6 Actual production practices (conventional)

General practice	Specific practice	Measurement unit	Perceptions of contributing factors 1-Limited outside influence 2-The cooperative (credit/technical assistance/training) 3-Credit/technical assistance/training, other 4-Subsidies, the cooperative 5-Subsidies, other
Solid fertilizers	Compost made onsite	yes no	
	Other practices (manure, dried pulp, bocashi)	yes no	
	Complete fertilizers	sacks/ha	
	Urea	sacks/ha	
Liquid fertilizers	Biofertilizer	yes no	
	Liquid fertilizer (Milagro, Baifolan, 20/20)	Sprays/ha	
	Other practices:		

Control of pests and diseases	Graniteo	yes no	
	Traps	yes no	
	Herbicide used:	sprays/ha	
	Endosulfan	sprays/ha	
	Other practices utilised (biological control):		
Wet milling	Depulping method: dry or wet		
	Use of pulp:		
	Disposal/usage of waste water from wet milling		
Soil conservation	Practices used		

### S2–7 Coffee production in 2004 (or before joining the cooperative, whichever was first)

General practice	Specific practice	Measurement unit
Solid fertilizers	Complete fertilizers	sack/ha
	Urea	sack/ha
Liquid fertilizer	Liquid fertilizer	sprays/ha
Control of pests and diseases	Herbicide used:	sprays/ha
	Endosulfan	sprays/ha
Wet milling	Depulping method: dry or wet	
	Use of pulp:	
	Disposal/usage of waste water from wet milling	
Soil conservation	Practices used	

## Section 3: Capacities and capabilities (directed to the female household head)

### S3–1 Participation of women and children in productive activities

In which new productive activities (on-farm and off-farm) has the female household head participated during the past three years?

What activities were reduced or abandoned as a result?

In which new productive activities (on-farm and off-farm) have the household dependents (8–15 years old) participated during the past three years?

How as their participation in school-related activities changed as a result?

### S3–2 Access to education

Which household members studied in 2007 or 2008?	Highest year achieved in 2007 or 2008?	What factors contributed to access to education? 1-Increased own income 2-Scholarship 3-Construction of new schools
Age: Sex: M F	Primary: Secondary: University:	

## Section 4: Financial matters

### S4–1 Estimated gross household income in 2008 (2007/2008 coffee production year), based on five most important sources

Income from coffee, banana, off-farm work and other sources (≥3)	Income
1a) Coffee sold to the cooperative	Sacks: Price:
1b) Coffee sold to others	Sacks: Price:
2) Banana	Frequency of sale: Average volume/sale: Price of last sale:
3)	Frequency of sale: Average volume/sale: Price of last sale:
4)	Frequency of sale: Average volume/sale: Price of last sale:
5) Off-farm work	Weeks worked: Pay per week:

### S4–2 Coffee sales outside of the cooperative

In 2007, how many sacks of coffee were sold to buyers other than the cooperative?

What is your primary reason for selling to buyers outside of the cooperative?

### S4-3 Access to credit (2004-2008)

Short-term credit for agricultural production

Provider	# credit disbursements in last five years	Amount of most recent credit	Conditions (interest + collateral)	Factors that facilitated access to credit 1-cooperative 2-NGO 3-government agency 4-other (specify)

Long-term credit for production or consumption

Provider	Main usage 1-renovation coffee 2-land purchase 3-home 4-consumption (health care, education, goods)	Total amount	Conditions (interest + collateral)	Factors that facilitated access to credit 1-cooperative 2-NGO 3-government agency 4-other (specify)

Does the household have any unpaid credit to the cooperative or others for loans taken out in the previous three years? With whom? How much? Why?

### S4-4 Access to credit before joining the cooperative

Provider	Use of the credit

## Section 5: Relations with buyers

### S5-1 Relations with buyers before joining the cooperative

Before joining the cooperative, who purchased your coffee?

Local buyers                      yes    no            % (on average) of coffee purchased: \_\_\_\_\_  
 Cooperative                      yes    no            % (on average) of coffee purchased: \_\_\_\_\_  
 Exporter                            yes    no            % (on average) of coffee purchased: \_\_\_\_\_  
 Others: \_\_\_\_\_                % (on average) of coffee purchased: \_\_\_\_\_

What services were provided by these buyers?

Local buyer	Cooperative	Exporter
Transport            yes    no	Transport            yes    no	Transport            yes    no
Credit                yes    no	Credit                yes    no	Credit                yes    no
Inputs                yes    no	Inputs                yes    no	Inputs                yes    no
\$/delivery            yes    no	\$/delivery            yes    no	\$/delivery            yes    no
Tech assist            yes    no	Tech assist            yes    no	Tech assist            yes    no

### S5–2 Use of services provided by the cooperative

Service	2007	2008	Level of satisfaction*				
			5	4	3	2	1
# visits by cooperative extension staff (where technical assistance was provided)			5	4	3	2	1
# of training events in which household members participated			5	4	3	2	1

\*5=very high, 4=high, 3=medium, 2=low, 1=very low

In general, how has your capacity changed to respond to the recommendations of cooperative extensionists?

very high                      high                      medium                      low                      very low

Why?

### S5–3 Difficulties with services received for the production and marketing of coffee

Difficulties encountered during the past two years (2007–2008)	Details
Access to credit	
Amount of credit	
Delivery of credit	
Delivery of fertilizer	
Technical assistance	
Payment for coffee delivered	
Transport of coffee and inputs	
Rejection of coffee	
Rented services for depulping and wet milling	

### S5–4 Other services received for agricultural production during the past five years

Project or organization	Services received	Period services received	Level of satisfaction with services *				
			5	4	3	2	1
			5	4	3	2	1
			5	4	3	2	1

\*5=very high, 4=high, 3=medium, 2=low, 1=very low

## Section 6: Machinery, equipment and tools

### S6–1 Ownership of machinery, equipment and tools for agricultural production (2005–2008)

Machinery, equipment and tools	Number	Year purchased	Cost	Most important factor in acquisition 1-project 2-credit, the cooperative 3-credit, other 4-sale of coffee 5-sale of other product/service 6-inheritance
Depulper				
Water pump				
Wet mill				
Grain silo				
Chain saw				
Truck				
Mower/chopper				
Horses and oxen				

## Section 7: Household consumption patterns

### S7–1 Improvements in housing infrastructure

Housing component	Now	Four years ago (2005)	Renovation of existing material	Amount invested	Most important factor in acquisition 1-project 2-credit cooperative 3-credit other 4-sale of coffee 5-sale of other product/service 6-inheritance
Roof	zinc plastic tile	zinc plastic tile	yes no		
Floor	wood cement earth	wood cement earth	yes no		
Walls	wood cement zinc adobe	wood cement zinc adobe	yes no		
Solar panel	yes no	yes no	yes no		
Generator	yes no	yes no	yes no		
Construction of home	yes no	yes no	yes no		
Construction of shop or other structure	yes no	yes no	yes no		

## S7-2 Ownership of consumer goods

Good	Purchase in the last four years	Amount invested	Most important factor in acquisition 1-project 2-credit, the cooperative 3-credit, other 4-sale of coffee 5-sale of other product/service 6-inheritance
Cellular phone/phone	yes no		
Bike	yes no		
Motorcycle	yes no		
Auto/truck	yes no		
Sewing machine	yes no		
Refrigerator	yes no		
Stove	yes no		
Audio equipment	yes no		
TV/DVD	yes no		
Second home	yes no		
Furniture	yes no		
House appliances	yes no		

¿During the past four years, have you had to sell land, home or other important possessions?

Good sold	Year	Reason

## Section 8: General evaluation

How satisfied are you with your affiliation with the cooperative?

very high                      high                      medium                      low                      very low

Why?

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