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A Conceptual Framework
for Promoting Inclusive Agricultural Value Chains

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1. Objectives

Poor rural households in the developing world work in both agriculture and rural nonfarm activities (Sanchez et al. 2005; IFAD 2012). Given the pronounced seasonality of agricultural calendars, many farm households engage in part-time and seasonal nonfarm activities during the slack agricultural season (Haggblade, Hazell and Reardon 2007). Typically, both the farm and nonfarm enterprises operated by poor households involve simple, labor-intensive technologies using limited capital and few purchased inputs. As a result, productivity, incomes and returns to family labor remain low (Lanjouw 2007).

Historically, efforts to raise rural incomes have focused primarily on improving agricultural productivity. Indeed, most empirical evidence suggests that agriculture-led growth offers an unusually powerful vehicle for broad-based poverty reduction (Thirtle Lin and Piesse, 2003; de Janvry and Sadoulet, 2009; Christiaensen, Demery and Kuhl, 2010; Diao et al. 2012). Nonetheless, the nonfarm dimensions of rural development – particularly in agricultural marketing and agro-processing –often prove critical to successful agricultural growth (Abbott 1986). Without well-functioning agricultural markets, productivity gains on the farm lead to temporary production surges and price collapses. Improved market access proves necessary for maintaining production incentives, permitting household specialization and enabling movement to high-value products and to value-added activities. As a result, sustained agricultural growth typically occurs where productivity-enhancing agricultural technology and favorable market incentives converge (Haggblade and Hazell 2010). Value chains provide a valuable visual framework for understanding the structural connective tissue linking small farmers with input suppliers, processors, traders and final consumers.

Value chains provide an analytical and diagnostic tool for identifying viable, remunerative income-earning opportunities for poor households in the rural developing world. In highly competitive and increasingly global agribusiness markets, poor households must find niches in which they can compete effectively in the rapidly growing urban, rural and export markets. Yet the large agribusiness that increasingly drive change in agricultural value chains seek to reduce costs and raise profits, often by scaling up production and market share, reducing the number of suppliers they deal with and squeezing supplier prices (Reardon and Timmer 2005). The business school graduates who drive corporate strategy at large agribusiness firms conduct proprietary market assessments that form the basis for internal strategic plans. Serving as a counterweight, value chain assessments provide open-source, countervailing analytical and diagnostic power on behalf of the least powerful members of global value chains, the rural poor.

In an effort to help IFAD improve the effectiveness of its value chain interventions, this paper tackles the following three tasks: a) summarize key value chain concepts; b) distill emerging lessons on value chain dynamics and what they imply for income-earning opportunities of the poor; c) outline best-practices for the design of effective, inclusive value chain interventions. In order to do so, the paper draws on over 30 years of experience with value chain diagnostics and related operational work.¹

¹ Shaffer (1973), Goldberg (1974), Boomgard et al. (1992), Montigard (1992), Porter (1998), Dowds and Hinjosa (1999), Bourgeois and Herrera (2000), Kaplinsky (2000), Vorley (2001), Kaplinsky and Morris (2003), Meyer-

To draw out the key lessons clearly, and to avoid lapsing into generalities, the paper relies on three inclusive value chain case studies to illustrate the key issues, challenges and lessons emerging from this large body of experience. The first case study covers the sorghum beer value chain in Botswana, a female-dominated rural industry that served as the country's largest nonfarm employer and rural manufacturing industry during the 1980s. Second is the Thai silk value chain, another large, female-dominated rural industry that employed over 350,000 women in Northeast Thailand, the poorest part of the country, during the 1990s. Finally, the paper draws on evidence from the Kenya dairy industry, one of the fastest growing and most lucrative smallholder success stories in Africa over the past two decades.²

Stamer (2003), Miehlabrad et al. (2005), Haggblade (2007), Raswant and Khanna (2010), Staatz and Ricks (2010), IFAD (2011), Stamm and von Drachenfels (2011).

² These case studies draw on Boomgard et al. (1992), Haggblade and Ritchie (1992), Bear et al. (1992), Staal et al. (2008), Baiya and Kithinji (2010), Ngigi et. al. (2010) and Grant (2011).

2. Key Value Chain Concepts

2.1. Value chains

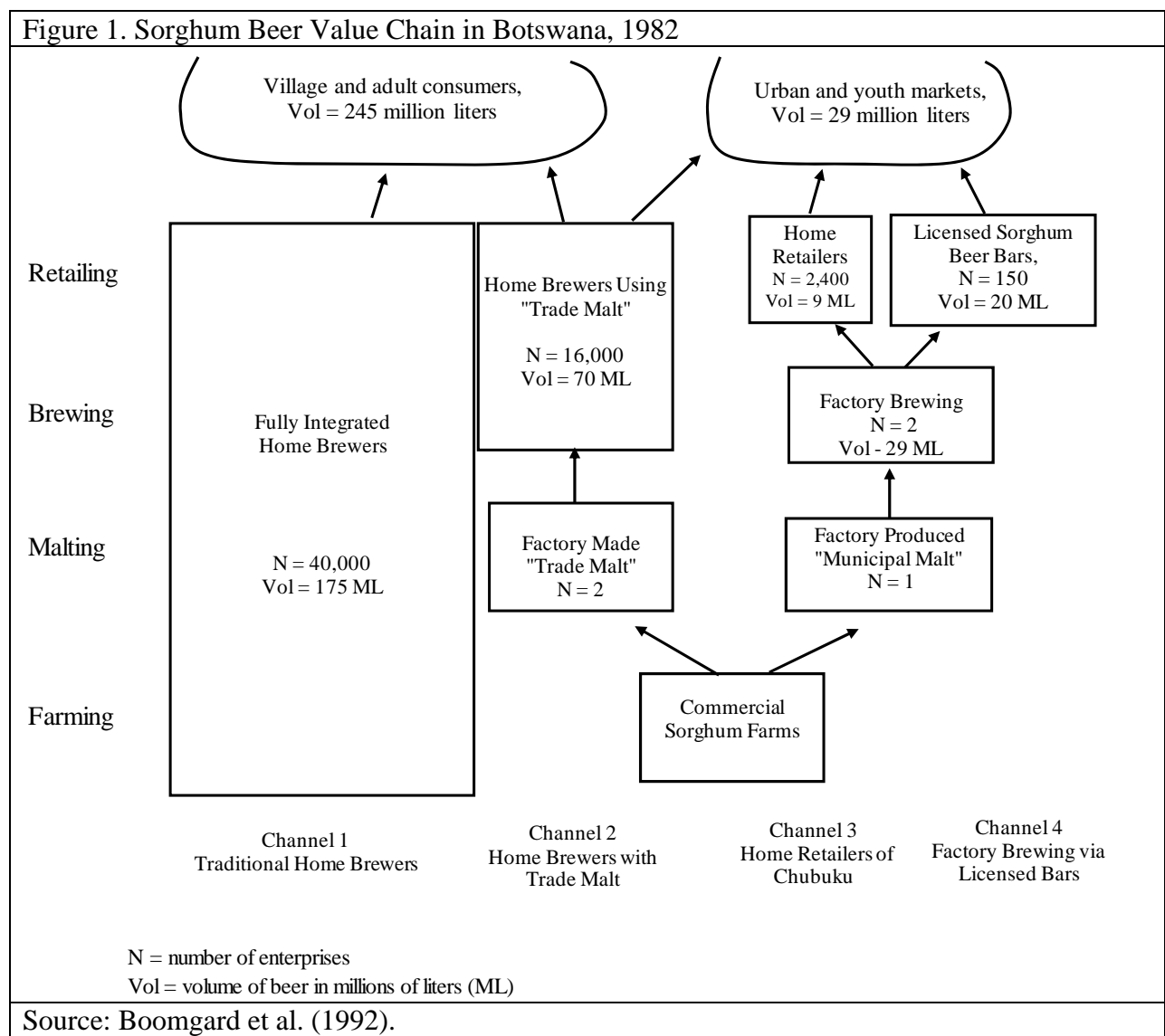
Value chains provide the framework for designing and implementing many development programs and projects. Given a multitude of different arenas of application, geographical locations, commodity types, target groups and desired outcomes, a variety of closely related conceptualizations of value chains has emerged (Stamm and von Drachenfels 2011).

For the purpose of this study, we define a value chain as “the full range of activities and services required to bring a product or service from its conception to sale in its final markets” (microLINKS 2012). A value chain, thus, encompasses the entire network of actors involved in input supply, production, processing, marketing and consumption. These value chain actors operate within an institutional environment, which can either facilitate or hinder its performance (Gereffi 1995). Laws, rules, regulations, policies, international trade agreements, social norms and customs all contribute to this institutional environment as do public goods such as infrastructure, research, extension, price information systems and business development services. Businesses that provide cross-cutting services such as finance and transport likewise contribute key elements to the institutional environment affecting the value chain performance.

2.2. Supply channels

Value chains encompass a network of competing vertical supply channels that link input suppliers, farmers, processors, distributors and final consumers. Examples from the following three value chains illustrate the diversity of supply channels operating in many typical value chains. During the early 1980s, four major supply channels served Botswana’s consumers of sorghum beer (Figure 1). Two centered around home-brewed sorghum beer produced by village women in 50- to 200-liter batches, while two additional competing channels produced factory-brewed sorghum beer in 15,000 liter batches and delivered it in bulk or in red-white-and-blue wax-paper cartons to retail consumers. Participation by women and vulnerable groups centered on home brewing (Channels 1 and 2) and home retailing of factory brewed sorghum beer (Channel 3) (Figure 2). In the Thai silk value chain, during the 1990’s, four major factory-based supply channels delivered \$150 million worth of Thai silk to retail outlets, while a much smaller fifth channel served the needs of traditional village consumers (Figure 3). In Kenya’s milk value chain, during the early 2000’s, four major supply channels served major urban milk markets while another two served rural consumers (Figure 4). Overall, these channels supplied 85% of milk products in the form of raw (unpasteurized) milk while the remaining 15% was pasteurized, processed, packaged and sold as milk and milk products for primarily urban markets. Even in urban areas, raw milk accounted for about 60% of total dairy product consumption.

Value chain maps – such as those displayed in Figures 1 through 4 – provide a schematic snapshot of the key value chain actors and the existing structure of raw material, product and information flows at a given point in time. The vertical product flows delineate the alternative supply channels, while each horizontal level in the value chain designates the productive function.



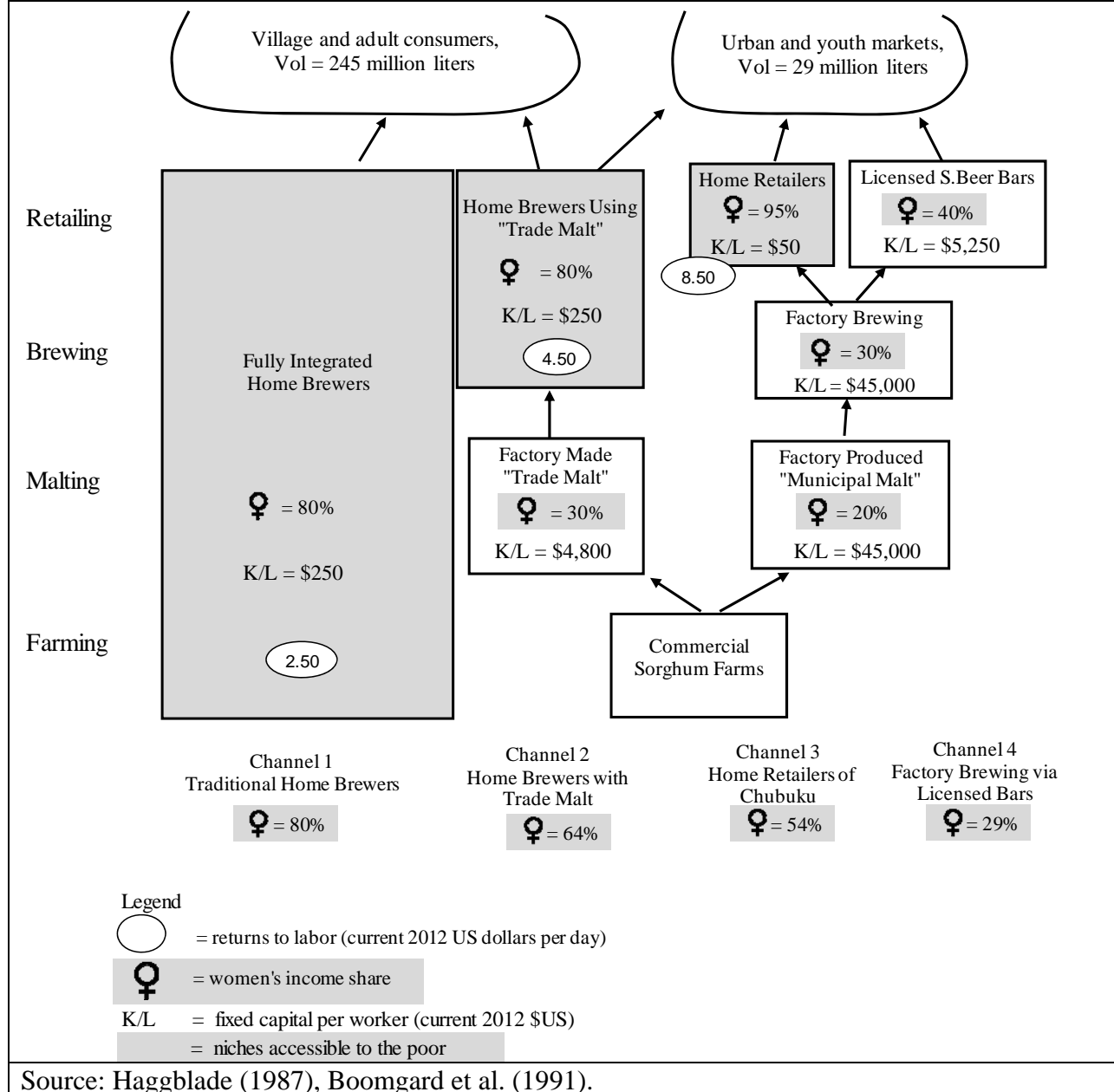
Source: Boomgard et al. (1992).

Production technology, product quality, perishability, price, input and skill requirements and investment costs often vary substantially across supply channels. As a result, financial, physical and human capital often pose entry barriers that limit access by the poor.

2.3. Competitive niches

Where can poor households compete? The enterprise types displayed in each value chain map provide a pictorial inventory of the alternate competitive niches available to potential entrants—and potentially available to vulnerable households. The horizontal levels in a value chain map (the rows) designate the sequence of productive functions performed by the participating firms. In agricultural value chains, these typically run from input provision to farming, trading, processing, marketing and consumption.

Figure 2. Gender and Returns to Labor Overlays in Botwana's Sorghum Beer Value Chain, 1982



Within a given vertical supply channel, enterprises select their competitive niche by deciding which market segments to target, how much to specialize (that is, how many consecutive functions they perform) and what type of technology to adopt in order to meet required quantity and quality requirements. The resulting grid in the value chain schematic maps the productive functions (the rows) across each of the vertical supply channels (the columns). In doing so, the value chain map defines the major enterprise types operating in the value chain.

Vertical integration occurs when an individual enterprise conducts a sequence of value chain functions in-house. Visually on the value chain map, vertical integration appears as tall,

elongated enterprise types. The height of each reflects the number of vertical functions it encompasses, thus designating the level of vertical integration. For example, in Channel 1 of Botswana's sorghum beer value chain, forty thousand fully integrated home brewers grow their own sorghum, malt it, brew it and retail their home brew (Figure 1). Similarly in Channel 1 of the Thai silk value chain, nearly three hundred thousand vertically integrated village silk producers grow their own mulberry leaves, rear their own silkworms, reel their yarn, weave and retail their distinctive checked silk in rural markets (Figure 3). Likewise in the Kenya milk industry, fully integrated but low-productivity rural producers in Channel 1 dominate overall volumes, accounting for 30% of total national milk production (Figure 4).

Specialization emerges in some supply channels, often in response to technology change that permits quality improvements and scale economies in production. For example, in Channel 2 of the sorghum beer value chain, two specialized malting firms emerged to produce high-quality "trade malt" for home brewers. Because of its higher diastatic power, that is, its ability to break down cereal starches more efficiently, trade malt enables specialized home brewers to reduce cereal inputs by 40% (Haggblade 1987). The 16,000 more specialized home brewers in Channel 2 took advantage of trade malt to brew more consistent batches of beer, reduce spoilage and increase returns to labor from \$1.00 to \$1.80 per day (Figure 2). The same sort of productivity-enhancing specialization emerged in Channel 2 of the Thai silk value chain, where village producers who specialize in yarn production using improved breeds of silk worms were able to quadruple their returns to labor, from \$0.25 to \$1.00 per day, compared to what they previously earned in Channel 1 (Figure 3).

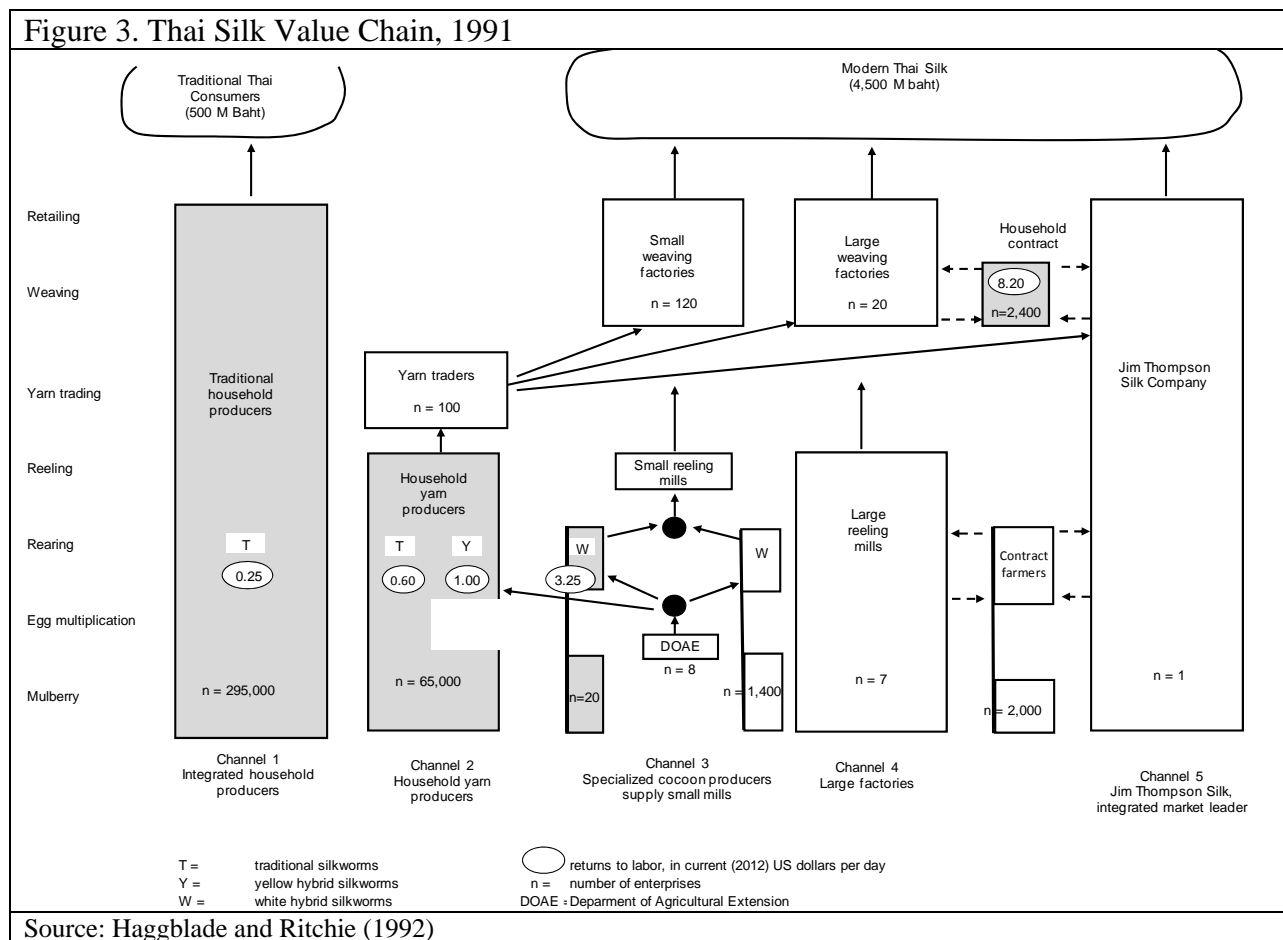
The different enterprise types displayed in the value chain map define different competitive niches, each of which typically implies different technology, skill sets, investment requirements and marketing arrangements.

Overlays on the basic value chain map display information of interest to potential entrants and interveners. Common overlays include firm numbers and volumes of production. Based on data availability, additional useful overlays can include gender access, investment costs, value added, employment, returns to labor or any other statistic of interest to potential interveners. The gender overlay in Figure 2 shows that while women dominate the home brewing channels (Channels 1 and 2), their employment share drops to under 30% in the most capital-intensive factory brewing channel (Channel 4). Among the niches open to women, the specialized home retailers of factory-brewed sorghum beer (Channel 3) earn the highest returns to labor, double the earnings in Channel 2 and more than triple the earnings in Channel 1 (Figure 2).

2.4. Vertical coordination

Vertical coordination describes how different types of enterprises interact with their input suppliers (one or more functional level below them in the value chain map) and with the firms that purchase their output (one or more functional levels above them in the value chain map). The nature of these interactions defines the governance structure, which influences the distribution of benefits and, in turn, reflects the distribution of power and control within the value chain. Three major options for managing commercial transactions within a given supply channel revolve around vertical integration, spot markets or contract production.

Figure 3. Thai Silk Value Chain, 1991



Source: Haggblade and Ritchie (1992)

Vertically integrated firms perform multiple production, processing and marketing functions in-house. Like the traditional Thai household weavers in Channel 1, the Jim Thompson Silk Company, is fully integrated – growing its own mulberry, rearing its own hybrid silkworms, reeling silk yarn in large mechanized factories, weaving and marketing themselves (Figure 3, Channel 5). But unlike the traditional household weavers, the Jim Thompson Company uses improved, best-in-class technology for each function.

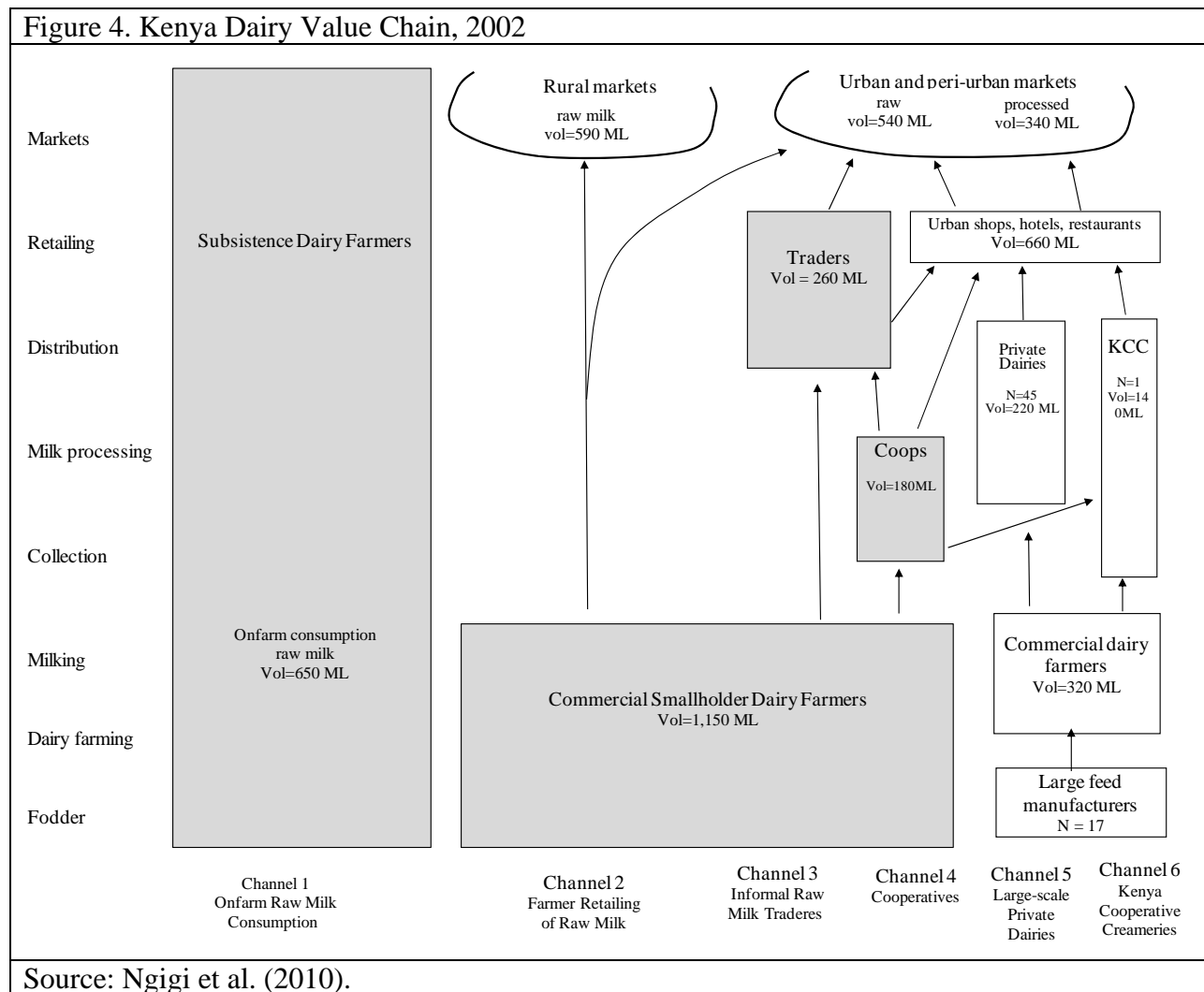
Spot markets, however, mediate many agribusiness transactions. Where large numbers of buyers compete for product, farmers and value-added processors can receive high prices. But in the presence of thin markets and few traders, farmers and processors face difficulties negotiating a good price.

Contract production and subcontracting offers a third system for managing commercial relationships with input suppliers and output marketers. In the Thai silk value chain, highly lucrative contract weaving enables women to earn \$8.20 per day, eight times higher than they can earn in Channel 2 and more than double the \$3.25 per day earned by specialized white cocoon producers in Channel 3 (Figure 3). Typically, contract production requires agreed-upon grades, standards, quantity stipulations and delivery conditions (Mead 1986). In the presence of

frequent asymmetries in economic power and information, small producers require some form of collective action to negotiate fair standards, contracts, enforcement mechanisms.

2.5. Governance

Governance within value chains reflects the distribution of power and information among various actors. Alternative types of vertical coordination emerge depending on the distribution of market power (the ability to set prices, quality standards and minimum delivery quantities), political power and information (on standards and alternate market prices) (Gereffi al. 2005). As a result, adjustments in vertical coordination mechanisms generally require investments in literacy, information and organization that modify the underlying power structure within the value chain. At the same time, these public investments increase prospects for successful horizontal coordination among value chain members, for example, in farmer organizations.



2.6. Horizontal coordination

A horizontal slice of a value chain traces out the major categories of competing firms in a given industry, for example, the malting industry, the milling industry or the feed industry. In many instances, firms competing in different supply channels involve different types of technology. While home malting requires only about \$100 worth of equipment (soaking basins, grass baskets and grass mats), trade malting requires water control equipment, concrete malting floors and drying floors and hammer mills, costing close to \$2,000 per worker (Figure 2).

Horizontal coordination among like firms can often confer competitive advantages as well. Farmer associations and marketing cooperatives emerge for precisely this reason, in order to help large numbers of small value chain actors increase their bargaining power, reduce their transaction costs, attain the scale necessary to attract high prices and assemble the minimum lot sizes necessary to meet the requirements of large-scale intermediaries from whom they purchase or to whom they sell. The emergence of dairy trader groups and a Dairy Traders Association (DTA) in Kenya, for example, played a critical role in obtaining official recognition for the previously illegal raw milk trade while at the same time promoting quality standards and food safety (Baiya and Kithinji 2010).

2.7. Competitiveness

Value-chain analysis originally emerged as a tool for increasing competitiveness by pinpointing where and how participants could introduce efficiencies, reduce costs and maximize value. The implementation of competitive strategies, initially popularized by Porter (1985), aimed to promote behaviors that make value chains more competitive. Indeed, value-chain analysis provides useful information on structure linkages, actors, and dynamics. It helps to identify where, how, why, and by whom value is added and created along the chain, as well as how changes could result in improved performance (Hawkes and Ruel 2011). These improvements or “upgrades” in the competitiveness of value chains can occur in different ways, through process upgrading, product upgrading or functional upgrading (Kaplinsky and Morris 2000; Knorringa and Pegler 2006). Process upgrading involves improving the efficiency of internal processes. Product upgrading involves the introduction of new, improved or more profitable goods and services. Functional upgrading involves increasing profitability by changing the mix of activities undertaken. In many instances, these forms of upgrading require investment in equipment, know-how or human capacity, potential barriers that risk excluding the poor.

2.8. Inclusiveness

While most early work on value chains centered on improving competitiveness of different supply channels, many recent efforts have instead focused on increasing opportunities for the poor (Altenburg 2007). This shift began in the 1990s, when economic liberalization reduced direct government involvement in many agricultural markets while the simultaneous relaxation of foreign exchange controls unleashed a wave for foreign direct investment across the developing world (Reardon 2007). “As a result, large exporters, agribusiness firms and supermarket chains increasingly penetrate rural economies of the developing world, altering the scale and structure of rural supply chains as they do. These new investments open up

opportunities for some rural suppliers to access new markets. But they expose others to new threats by ... imposing quantity requirements and quality standards that risk excluding undercapitalized rural enterprises on which the rural poor often depend” (Haggblade, Hazell and Reardon 2007, p.3). The purely commercial incentives that motivate large agribusiness investments generate value-chain structures and distributional outcomes that are not inherently pro-poor. In response to these rapid changes in agribusiness supply chains, new efforts have emerged to make value chains a more inclusive and pro-poor (Vorley 2001; Vellema 2010).

Pro-poor value chain development approaches refer to interventions that aim to overcome challenges and seize opportunities that can benefit the rural poor (Stamm and von Drachenfels 2011). The emergence of pro-poor value-chain approaches raises new challenges on how to make value chains more inclusive for poor smallholder farmers, women and youth, without hampering their competitiveness. “It calls for a balanced approach, which takes both competitiveness and equity issues into account” (Altenburg 2007, p.4). Desired outcomes of a pro-poor value chain approach typically include higher income earnings for poor and vulnerable groups as well as higher participation of women and youth.

3. Value Chain Dynamics

The static picture summarized in the value chain map provides a snapshot of the system at a given point in time. Over time, that picture changes, sometimes rapidly. In Kenya's milk industry, aggregate production has grown at about 3.7% per year over the past forty years. During the 1980s, growth accelerated to over 10% per year as a result of improved disease control, improved breeds, artificial insemination and veterinary services (Ngigi et al. 2010).

This aggregate growth often masks striking shifts among competing supply channels, with some growing rapidly at the expense of others. During the 1990s, for example, sales of processed milk fell in Kenya, particularly in Channel 6 as a result of acute financial and management problems at the parastatal Kenya Cooperative Creameries. In response, private dairies in Channel 5 expanded to fill this gap, as did raw milk sales in Channels 3 and 4 (Baiya and Kithinji 2010, Ngigi et al. 2010). During the 2000's, ongoing dialogue between Kenya's raw milk traders association and regulators, coupled with active training programs to ensure product quality, resulted in full legalization of the raw milk trade and further growth in the dominant raw milk supply channels (Baiya and Kithinji (2010).

In general, two sets of forces drive changes in agricultural value chains, shifts in market demand and shifts in technology or other factors affecting supply.

3.1. Changes in market demand

Urban market growth. Rapid urbanization, coupled with growing per capita incomes and a rising middle class, is triggering rapid growth in urban food markets. Even the world's most rural continent, Africa, will become majority urban by 2030, as urban population continues to grow at about 3.5% per year. In Africa, domestic food markets, which account for about three-quarters of total agricultural sales, are poised to grow rapidly (Diao and Hazell 2004; Diao and Dorosh 2007). For example, projections from Tanzania suggest that urban food markets will grow very rapidly over the next 40 years, from roughly \$16 billion in annual sales in 2010 to over \$120 billion by 2050. Markets for prepared foods, beverages, meat, poultry, dairy will grow most rapidly (Haggblade and Baraki 2011). Similar changes in West Africa are leading to rapid urbanization and major growth in urban consumer markets for convenience foods, milk, poultry and horticulture products (Bricas et al. 2009, Soule 2010). The rapid growth of Africa's middle class, over the last 30 years has underpinned this steady increase urban demand for processed and prepared foods (ADB 2011). Growing urban markets underpinned the steady long-term growth in Kenyan milk markets as well as early growth in Botswana's sorghum beer market.

Export markets. Sales to the tourist and export markets opened up rural employment opportunities for an additional 70,000 mostly female workers in Northeast Thailand in the rapidly growing, modern segment of the Thai silk value chain. Although demand for traditional ceremonial silk garments (Figure 3, Channel 1) has stagnated for many decades, sales of modern Thai silk to tourists and export markets (Channels 2-5) have grown at about 10% per year over several decades. Active promotion, marketing and investment in improved quality silk yarn, silk

worms, looms and designs by the Jim Thompson Company played a leading role in raising the quality and demand for Thai silk products.

On-farm consumption requirements. Many staple food value chains feature a large share of on-farm consumption in total demand. Kenya's dairy value chain is typical in this respect, with on-farm milk consumption accounting for about one-third of total milk production (Figure 4, Channel 1). In these circumstances, the food security needs of producing households influence both farmer production and marketing decisions. During drought years, when farm production falls, surpluses available for sale diminish. Reductions in production variability and improved market access both tend to favor the growth of commercial production by ensuring food security needs of farm families. As a result, trends in the distribution of production across farms, in onfarm productivity and in production volatility may all influence the dynamics of marketed volumes as well as rural household food security.

Policies. In many instances, government policies influence aggregate market growth as well as the relative prominence of individual supply channels. For many years, the Kenyan government banned sales of raw milk in urban areas on public health grounds. The liberalization of the milk markets in 1992 opened an active debate on this topic, resulting in less active suppression and triggering rapid growth of raw milk trade in urban centers. Liberalization likewise broke the KCC monopoly on milk processing, resulting in the emergence of over 50 privately owned milk processing plants. These major policy changes have triggered rapid growth in Channels 4 and 5.

In the Thai silk case, trade policy drove wide swings in the viability of Channel 3 among producers of white cocoons for high-quality warp³ yarn. Because the weaving factories have the option of importing white silk yarn from Japan or China, the Thai government faces pressure to impose import quotas to protect its domestic reeling industry. Over time, the government has periodically imposed silk quotas, triggering objections from the local weaving factories. As a result, the import quotas have varied over time. The on-again off-again import quotas on the white silk yarn have resulted in heavy volatility of prices and demand for white cocoons and white yarn in Channel 3. As a consequence, producers of yellow weft yarn in Channel 2 have enjoyed more stable market growth and lower risks over time.

3.2. Supply side drivers of change

New technologies. Frequently, the availability and choice of alternative production technologies governs quality, production cost and market access to growing supply channels.

In Kenya's milk value chain, long-term investments in improved production technology have resulted in significant productivity gains that underpin the steady growth in Channels 3, 4 and 5. The import of improved dairy breeds, artificial insemination services, tick control and improved

³ Warp yarn runs the lengths of a bolt of cloth. Thus, the quality of warp yarn must be very high to ensure a quality final garment. Most weavers prefer pure white silk yarn from hybrid silkworms for their warp yarn with which they set their looms. The weft yarn, in contrast, runs horizontally across the loom. The modern Thai silk, popularized by the Jim Thompson Company, relies on hybrid yellow weft yarn to give Thai silk its characteristic texture. Yarn producers in Channel 2 produce hybrid yellow weft yarn while the specialized white cocoon producers and reeling mills in channel 3 produce the white warp yarn.

veterinary services have resulted in the widespread availability of highly productive cross-bred dairy cattle, even among smallholder dairy farmers. As a result, Kenyan dairy farmers attain milk yields two to three times higher than other countries in the region, productivity gains that result in cost reductions that favor market expansion over time.

Botswana's sorghum beer industry drew on technology spillovers from South Africa, where industrial research began in the mid-1950s on sorghum malting and the biochemistry of sorghum beer fermentations. Scientific work at South Africa's Council for Scientific and Industrial Research (CSIR) identified the diastatic and proteolytic enzymes active in sorghum malt as well as the bacterial cultures and optimal conditions driving key fermentations, thereby enabling the emerging factory brewing industry to scale up sorghum beer production to industrial scales without spoilage from pathogenic bacteria. This scientific research laid the foundation for the trade malting industry that launched Channel 2 and the factory brewing industry that launched Channels 3 and 4 in Botswana during the early 1980s.

The commercial resurrection of the Thai silk market likewise depended heavily on improved technology at all stages of production. Research by the Department of Agriculture and Extension (DOAE) produced highly productive hybrid silk worms by crossing white Japanese silkworms with yellow Thai silkworms. These hybrid silkworms produce cocoons with roughly double the thread length of native Thai silkworms, raising quality as well as profitability of rearing. Improved fly-shuttle looms and weaving designs introduced by the Jim Thompson Company spread rapidly throughout the industry, as employees split off from the parent company to produce a cluster of small-, medium- and large-scale weaving factories in and around the village of Pakton Chai where the Jim Thompson Company established its original production facility.

Large firm investments. In many instances, large firms are the ones to introduce new technologies. Though sometimes disruptive, these new technologies sometimes open up new opportunities for small rural producers.

In the Thai silk case, the Jim Thompson Company largely drove the development of the modern Thai silk industry beginning in the early decades following World War II. It introduced hybrid worms, improved reeling mills, improved looms and improved designs and quality control systems that formed the new quality standards for modern Thai silk. Over time, roughly 150 former employees branched out to establish weaving factories of their own, maintaining the procedures and quality standards they had learned from the Jim Thompson Company.

In the Botswana sorghum beer case, as well, private investors in the Chibuku brewing company launched the first commercially successful factory-brewed sorghum beer in Botswana during the late 1970's. At the same time, several local agribusiness entrepreneurs opened up trade malting production facilities that launched Channel 2 and improved quality and profitability of home brewing (Figure 2).

Grades and standards. Large firms often introduce standards in order to contract production with local suppliers. In these situations, the commercial competitiveness of small firms often depends on their ability to comply with these new quantity and quality requirements (Box 1).

Public authorities likewise introduce grades and standards, often on public health grounds. In the case of Kenya's milk industry, longstanding bans on raw milk sales in urban areas, which aimed to preserve public health, simultaneously reduced prospects for small firms marketing fresh milk (Figure 4, Channels 3 and 4). In response to the high transaction costs imposed by unevenly enforced sanctions against raw milk sellers, a program of active quality assurance training and dialogue between milk traders and regulators resulted in legalization of the raw milk trade, increased investment by raw milk traders in equipment and services, improved milk quality, rapid increases in marketed volumes and farmer incomes, and continued low consumer prices for raw milk (Baiya and Kithinji 2010; Grant 2011).

Labor market changes. The effect of changing labor market conditions on value chains emerged most clearly in the Botswana sorghum beer case when, during the 1980's, rapid mining-led economic growth triggered an urban economic boom. Rising urbanization and employment opportunities, for men and women, triggered rapidly rising urban wages. This increased the opportunity cost of home-brewing labor and diminished the profitability of home brewing, particularly in urban areas where the bulk of the population, income and growth in sorghum beer demand emerged. Over time, incomes have risen to such high levels that home brewing has been supplanted by more lucrative wage employment in modern retail and service sector supporting the mines. At the same time, increasing affluence has triggered a demand-side shift from sorghum beer to clear beers. The home brewing of sorghum beer, the country's largest nonfarm employers during the 1970s, has been replaced by a dwindling market on the demand side and a legion of more lucrative employment opportunities on the supply side.

Looking forward across the continent, Africa's emerging demographic bulge will pose a daunting challenge over the coming several decades as African economies attempt to find gainful employment for this rapidly growing young workforce. As a result, the key labor market problem in most value chains will center around how to generate more employment for the burgeoning youth segment of the labor force.

Box 1. Small Firms Face Pressures from Agribusiness Consolidation

a. Retailing. “In developing regions over the past decade, small retail firms have faced growing pressure from the ongoing consolidation in agrifood supply chains. Available evidence suggests that rapid concentration triggered the bankruptcy of thousands of small firms for the past decade. Across Asia, Africa and Latin America, the growth of supermarkets has driven tens of thousands of small retailers into bankruptcy. Over 60,000 small food retailers closed their doors in Argentina from 1985 to 1993 (Gutman 1999), while over 5,000 small food retailers ceased operations in Chile between 1991 and 1995 (Faiguenbaum, Berdegué and Reardon 2002).” (Reardon 2007, p.206).

b. Dairy. “In the 1990s, the liberalization of FDI led to an influx of FDI and the entrance of global dairy firms such as Parmalat, Royal Numico and MD Foods, along with new investments by Nestlé. Through the adoption of cost-saving technology, dairy product price competition became intense, resulting in a 40% drop in real retail prices for milk between 1994 and 1997, while farm gate prices did not fall. As incomes rose, the dairy product market burgeoned.

Stiff price competition in dairy markets led to the adoption of new strategies for supply chain management. Leading processors such as Itambé, Nestlé and Parmalat imposed new private standards for milk producers to ensure quality and safety and to reduce losses in industrial processing. Among other specifications, these grades and standards require on-farm milk refrigeration together with volume and microbiological requirements (Jank et al. 1999).

For the milk producer and first-stage handler (or collector) of milk, the private standards requirement that milk be refrigerated at the farm and collection co-op level implied obligatory large-scale investments in refrigeration equipment. In less than five years, the leading firms completed their “bulking” program, imposing these standards systemwide. Unable to finance these large refrigeration investments quickly enough, thousands of small dairies, located mainly in rural areas, closed their operations in Brazil, Argentina and Chile.” (Reardon 2007, p.210-11).

4. Implications for the Poor, for Women and Youth

4.1. Good news and bad

Change in any particular value chain can bring good news or bad news for the poor. In the three cases examined in this paper, changes in markets, technology, policies and large firm investments opened up clear opportunities for some groups of rural producers, while placing others under pressure.

In the Botswana sorghum beer value chain, the large private investment in factory production of sorghum beer clearly placed the traditional home brewer in Channel 1 under pressure. Her market shrank overnight as brightly packaged factory-brewed “shake shake” entered to contest the sorghum beer market. As a result, employment in the sorghum beer value chain fell by about 30 percent and income distribution worsened considerably, with factory brewing transferring earnings from poor and middle-income groups to the wealthy factory owners and from women to men. However, at the same time these developments opened up new opportunities for some women entrepreneurs. About one quarter of the home brewers shifted from Channel 1 to Channel 2, where the availability of improved “trade” malt enabled them to lower production costs, improved product consistency reduce spoilage and increased returns from \$1.00 to \$1.80 per day. Another group was able to switch from home brewing (Channel 1) to retailing of factory-brewed sorghum beer (Channel 3), a move that increased returns still further, to \$3.50 per day (Figure 2). Thus, as new competitive pressures closed one door (in Channel 1), it opened up new opportunities in Channels 2 and 3 for women nimble enough to transition to these new, more profitable competitive niches.

The Thai silk value chain offers more unambiguously good news for poor rural households. Before the launching of the Jim Thompson Company, traditional Thai silk was a stagnant, even dying industry. Yet the investments, design and marketing work by the Jim Thompson Company, together with allied research in silkworm breeding by the government’s DOAE, led to the commercial revival of the Thai silk industry by developing new export and tourist markets that created employment for an additional 70,000 rural women in the poorest section of Thailand. To participate in growing segments of the silk market, rural household producers had to shift out of Channel 1 and into the rapidly growing channels supplying modern Thai silk. The most lucrative opportunities lie in Channel 4, where most women prefer to work as employees or contract weavers for the large weaving mills, earning about \$8.20 per day. But because of the heavy geographic clustering of weaving factories around the original Jim Thompson facility, this opportunity is only available to women living within a 15-kilometer radius of the village of Pakton Chai, where the many spinoff firms have emerged. Alternatively, women living outside the weaving hub can shift to become specialized producers of silk cocoons and yarn, hybrid yellow yarn in Channels 2 and pure exotic white cocoons in Channel 3. Adoption of improved reeling and rearing technology is necessary to make this option financially attractive. With mechanical reeling equipment and yellow hybrid egg sheets, women can earn \$1.00 per day in Channel 2 or \$3.25 per day using white silkworms in Channel 3.

The Kenya dairy value chain illustrates an intermediate case, where thousands of small producers can feasibly grow their productivity and incomes by shifting to improved dairy breeds, rearing

practices and supplying either raw milk (Figure 4, Channels 3) or fresh milk for pasteurizing and further processing by cooperatives or private dairies (in Channel 4). Raw milk sales (in Channels 3 and 4) dominate Kenya's urban milk markets because of raw milk retails for roughly half of the price of packaged, pasteurized milk (Table 1). Because most Kenyans consume fresh milk in hot tea, which they boil before consuming, raw milk serves their needs without pasteurization and the cost that entails. This considerable cost savings enables raw milk traders to procure milk from farmers at higher prices than those offered by formal processors and to retail at lower prices. Consumers benefit from low raw milk prices which, at half the level charged for pasteurized milk, considerably expand access to this source of animal protein and nutrients by low-income groups. Farmers benefit as well, receiving a 15-50% price premium when selling raw milk through Channels 3 and 4, while raw milk traders earn profits averaging \$3.00 to \$5.00 per day (Table 1).

Key questions in any inclusive value chain analysis revolve around the following:

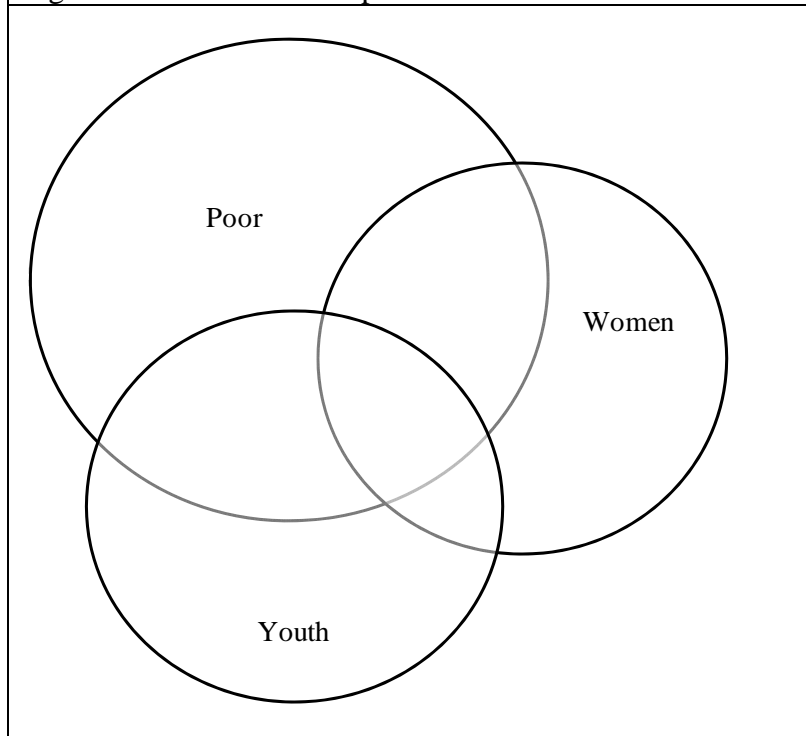
- In which channels and competitive niches can the poor, women and youth compete?
- How can they adapt in order to raise productivity and shift into the growing, lucrative and competitive channels?
- In what circumstances do the presence of large firms and small firms prove complementary?
- How can IFAD or other support groups help poor and vulnerable groups to compete in commercially viable market niches?

In each specific instance, answers to these questions will depend on the prevalence and composition of vulnerable groups and on their resource endowments, their geographic location, information flows and on a wide variety of political, social and economic institutions that affect their economic mobility. The three groups of special interest to IFAD – the rural poor, women and youth – share some common characteristics as well as specific opportunities and challenges (Figure 5).

	Milk Price (Ks/liter)		Farm price/ retail price	Profitability (\$/day)
	Farm-gate	Retail		
Pasteurized milk, formal supply channel	16	50	0.32	n.a.
Raw milk, informal channels				
Nakuru town				
milk bar	19	24	0.77	\$5.37
hawker	16	25	0.64	\$4.65
Nairobi				
milk bar	25	31	0.79	\$3.76
hawker	21	27	0.76	\$2.83

Source: Ngigi et al. (2000).

Figure 5. Vulnerable Groups



4.2. Poor

Although aggregate data remain subject to wide margins of error, the World Hunger Report estimates that the world's poor fall into roughly three categories. About 60% are small farmers and pastoralists, 20% are landless rural laborers and nonfarm entrepreneurs, and the remaining 20% urban poor (Sanchez and Swaminathan, 2005).

The rural poor include a heterogeneous mix of economic livelihoods, genders and ethnicities (Von Maltzahn and Durrheim 2008). Small farmers and pastoralists account for the majority of rural poor in most settings, particularly in rural Africa, although even their nonfarm earnings account for roughly 25% of rural incomes (Haggblade, Hazell and Reardon, 2007; IFAD 2011).

The principal resource of the rural poor is unskilled labor. Given generally low levels of education, they attain consistently lower literacy and numeracy rates than the rural nonpoor. In general, they have larger families as well as less land, livestock and access to clean water than the nonpoor. Low levels of human, physical, financial and social capital operate as frequent constraints to their economic mobility and condition their opportunities in specific value chains.⁴

⁴ Minten et al. (2005), Bolwig et al. (2008), Henson et al. (2008), Mitchell et al. (2009), Jayne et al. (2010), Raswant and Khanna (2010), Jaffee et al. (2011), Seville et al. (2011), Proctor and Lucchesi (2012).

4.3. Women

Women, like the rural poor, are a heterogeneous group. Age, marital status, religion, ethnicity, family size, location, culture and politics all influence their economic and social status (Quisumbing and Maluccio 2000). Married women and many widows may benefit from larger support networks and asset bases than do young, unmarried and abandoned mothers. But in polygamous families, big differences exist between first wives, second wives and third wives. So even the general category of “married” women includes a highly heterogeneous grouping.

Many women, nonetheless, face special constraints on their mobility and on their time. They typically assume responsibility for child care, for feeding the family and for ensuring water and fuel supplies. Hence, they are time-poor and often with limited access to land. They typically work in their own fields, in their husband’s fields and many times in home-based, labor-intensive nonfarm pursuits. They often face much more difficult access to credit than men, and in some cases have more difficulty than men in establishing title to land. Compared to men, rural women are less likely to be organized in marketing associations. Given limited mobility and frequently low access to capital, women many times remain relegated to the low-productivity, low-return niches in the value chain (Table 2). As a result, a gendered perspective becomes crucial for understanding the opportunities as well as the workload and time constraints faced by women and for designing interventions that can successfully expand economic opportunities for women.⁵

Table 2. Capital Intensity and Returns to Labor in Rural Nonfarm Activities, Bangladesh 1980

Activity	Capital per worker (Tk)	Value added per worker (Tk/day)	Share of female workers
Tailoring	4,982	27.5	20%
Dairy products	3,076	23.4	10%
Gur (sugar) making	711	20.0	0%
Carpentry	3,009	19.9	4%
Jewelry	1,283	18.7	2%
Blacksmithy	760	15.8	2%
Handloom weaving	1,594	15.1	38%
Oil pressing	1,006	12.6	43%
Pottery	799	11.8	47%
Paddy husking	303	7.4	56%
Bamboo products	313	5.2	49%
Mat Making	465	5.2	63%
Fishing nets	265	4.8	63%
Coir rope	145	4.1	64%

Source: Hossain (1984) cited in Lanjouw and Lanjouw (2001).

⁵ See, for example, Carter and Katz (1997), IFAD (2000), Brown (2008), USAID (2009), Carr and Hartl (2010), Coles and Mitchell (2010) and FAO (2010).

4.4. Youth

In the short run, high fertility rates among poor households translate into larger families, higher dependency ratios. In the medium term, high fertility gives rise to a demographic bulge of youth (between the ages of 15 and 24) whose numbers pressure labor markets, land access and social systems.

The challenge of this emerging youth bulge remains particularly acute in Africa. Given continued high fertility rates, the African continent remains the youngest in the world. As a result, youth (between the ages of 15 and 24) represent 40% of the workforce and 60% of the unemployed (World Bank 2009). In rural areas, youth account for about two-thirds of agricultural employment (ILO 2007). The growing demographic bulge suggests that youth employment will constitute one of the continent's key challenges over the coming decades.⁶

Young job seekers face generation-specific challenges, particularly difficulties in accessing land, livestock and other productive assets while their parents continue to farm actively. Under Africa's ruling rural gerontocracy, those holding power may not be in formal leadership positions. Growing demographic pressure on farmland and pastures restrict young adults' futures in agriculture. In general, these pressures make high-value, land-conserving agricultural products such as horticulture and poultry increasingly attractive.

Nonetheless, young workers do enjoy some advantages over older workers. They are typically more mobile, physically stronger and better able to adapt to new information and communication technologies. Moreover, they enjoy longer productive working spans over which to amortize training and education investments.

In many agricultural value chains, youth occupy specific entry-level niches, as apprentices, assembly traders and porters, from which they can accumulate savings and transition over time. Although gender has historically received more attention in value chain work than have youths,⁷ the same diagnostic methods and value chain overlays described here can be applied to focus attention on prospects for young entrepreneurs and young workers in specific value chains. The following discussion examines how vulnerable groups and their advocates groups can identify competitive niches in which the poor, women and youth can effectively compete in growing value chains.

⁶ Curtain (2001), Chiguata et al. (2005), Godfrey (2006), World Bank (2009).), Bennell and Hartl (2011), IFAD (2012), Proctor and Lucchesi (2012).

⁷ See, for example, Chen (1996), IFAD (2000) and USAID (2009).

5. Best-Practices for Designing Effective, Inclusive Value Chain Interventions

5.1. Select value chains wisely

Poor women and youth cannot always compete successfully in today's rapidly consolidating agribusiness value chains. Rapid supermarket expansion in South America led to the closure of tens of thousands small food retailers starting in the 1980s, while similar large-scale dairy investments led to the bankruptcy of thousands of small dairies (Box 1). So it is important to select targets wisely by identifying arenas where opportunities exist for large numbers of poor people to compete effectively in growing value chains.

Selection criteria favoring inclusive value chain interventions:

- Current large-scale employment
- Growth potential for both employment and income of poor, women and youth
- Low barriers to entry
- Complementary rather than competitive value chain relationships between large and small firms lead to “win-win” opportunities where large and small firms grow together (Table 3).

5.2. Conduct public-domain value chain diagnostics

A large number of detailed manuals exist describing step-by-step diagnostic procedures and data sources that advocates of vulnerable groups can use to identify competitive growth opportunities for their preferred client groups.⁸ Data collection typically proceeds in phases: first, a review of existing literature and secondary data, second a rapid rural appraisals involving key informant interviews, and finally, where necessary, collection of selected primary data to fill in key gaps. The many available field manuals describe in detail analytical and diagnostic procedures for designing interventions, typically following the four general steps outlined below.

5.2.1. Construct a snapshot of current value chain structure

- a. Map the current value chain structure (the base map).
- b. Quantify the size of each supply channel as well as other dimensions of interest: number of enterprises, volume of production in each channel, value added, prices at each stage, income, employment, investment requirements (quantitative overlays).
- c. Identify the key niches where poor people, women and youth are most prevalent.
- d. Evaluate the technology used at each stage: factor intensity, costs, skills needed to operate it, potential barriers to entry.
- e. Analyze the value chain governance structure and the institutional environment.

5.2.2. Identify the key dynamics under way

- f. Evaluate past growth trajectories: including aggregate and channel-specific growth rates.

⁸ See, for example, Goldberg (1968), Haggblade and Gamser (1991), Bear et al. (1993), Fabre (1993), Bourgeois and Herera (2000), Kaplinsky and Morris (2000), Ferrand et al. (2004), KIT et al. (2006), Roduner and Gerrits (2006), Mehlbrandt et al. (2006), da Silva and da Souza (2007), FIAS (2007), Lundy et al. (2007), van Melle et al. (2007), DfID (2008), DfID and SDC (2008), Riisgaard et al. (2008), Vermeulen et al. (2008) and UNIDO (2011) .

- g. Identify key driving forces using the supply and demand factors outlined in this paper.
- h. Assess growth prospects and competitive pressures faced by the poor, women and youth.

5.2.3. Identify feasible transitions for the poor, women and youth

- i. Conduct a rapid inventory of the strengths and weaknesses of these groups: literacy rates, numeracy, access to markets, financial capital, social capital stocks and familiarity with technology critical in the value chain.
- j. Identify needed steps for the poor, women and youth to adapt to changes (growth opportunities or competitive pressures) under way (combining information from steps g and h).

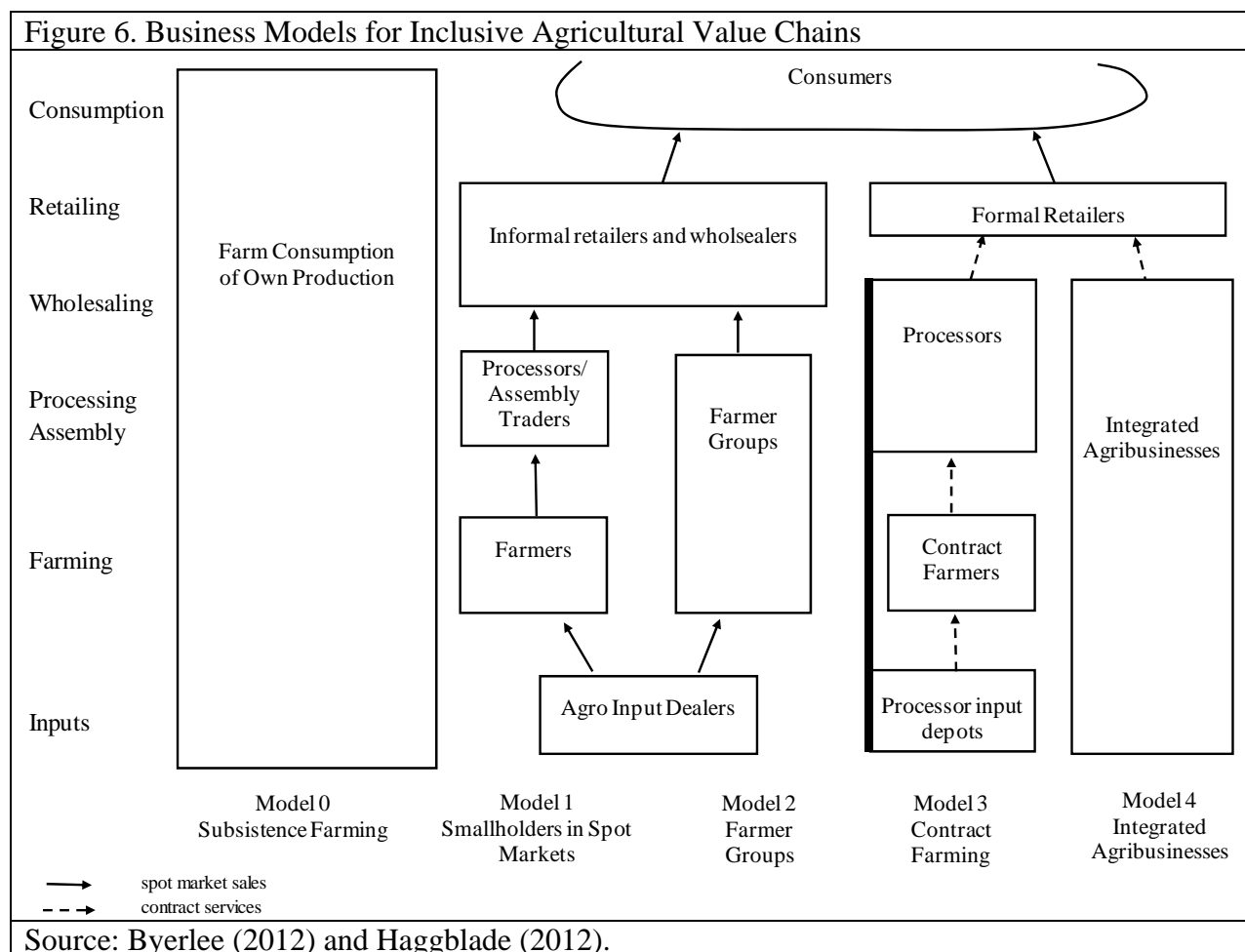
5.2.4. Design interventions likely to expand commercially viable, competitive opportunities for the poor, women and youth

The steps a through j detailed above typically lead to the identification of a set of feasible competitive niches as well as a menu of potential interventions designed to assist vulnerable groups adjust in ways that allow them to take advantage of growing commercial opportunities. These may include shifting to a more profitable or competitive niche (often this involves adopting different or improved technology) or improving skills, production quality and efficiency in existing niches (Figure 6).

Each potential intervening institution draws on its specific philosophy, human capital and institutional strengths in identifying attractive avenues for providing assistance. As a result, a wide variety of potential interventions may emerge in any given value chain.

The following characteristics generally offer the best chance for success:

- Temporary interventions that stimulate sustainable viable private businesses.
- Leveraged interventions, that is, intervention points that affect large numbers of vulnerable people at once through policy, training programs, financial institutions, business associations, cooperatives or work with up- or down-stream intermediaries that expand market opportunities for large numbers of linked small enterprises simultaneously. This is in contrast to focusing mainly on one-on-one assistance to individuals.
- Strong links with key private sector participants.



5.3. Build coalitions for implementation and value chain monitoring

In order for vulnerable groups to compete in rapidly changing value chains, they must be able to adapt to new competitive opportunities and pressures as they emerge. And change often comes rapidly, as the three examples in this paper have emphasized. For that reason, it becomes important for implementing organizations to maintain an ongoing capacity to monitor value chain performance. This, in turn, requires solid, ongoing communication links with the key business operators and institutions governing a given value chain. In many instances, existing service providers (market information systems, technical institutes, etc.) or local research organizations can fill these ongoing monitoring and liaison functions.

During the diagnostic, design and implementation phases of value chain involvement, it becomes important to maintain strong links with the private sector and to work with associations or industry groups that are widely respected and trusted by value chain participants. While busy businessmen and women rarely have the time to participate as full-time members of diagnostic and design teams, most successful design efforts engage in strong consultation with the private

sector early on and throughout the process. Strong private sector participation in a validation workshop offers a good tool for making sure their views are well represented.

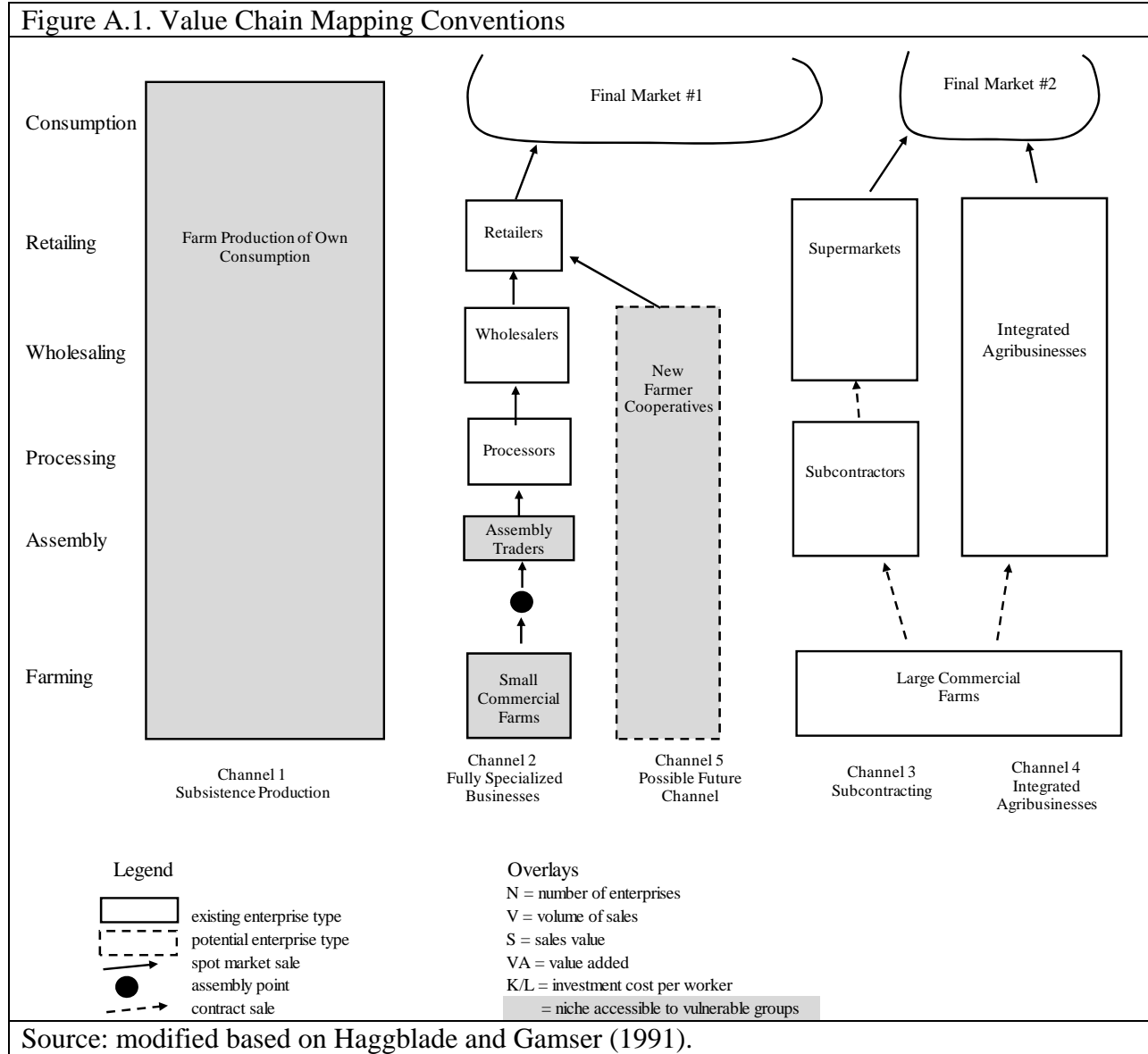
Many value chain operational manuals emphasize the importance of building coalitions among value chain participants and support institutions through what they variously call value chain task forces, industry councils, “interprofessionnels,” or “mesas de consultacon” (Bourgeois and Herera 2005, Chitundu et al. 2009, Ricks and Staatz, 2010). Ongoing dialogue among groups with a vested interest in value chain performance becomes a vehicle for recognizing shifting opportunities and monitoring ongoing performance of commercially viable vulnerable groups.

Table 3. Competitive and Complementary Small Firm-Large Firm Relationships

Product market	Location	Complementary Relationships		Competitive
		Input supplier	Output marketer	
Bamboo products	Bangladesh		large traders assemble and market output from small producers	small producers vs. large factories
Batik	Indonesia		wholesalers market output of household producers	household vs. medium-sized producers
Bean marketing	Bolivia		large exporter markets production from 2,500 rural producers	
Dairy	Egypt			large modern firms vs. micronenterprises
Maize marketing	Zimbabwe			small hammer mills vs. large mills
Poultry	Bangladesh	large hatchery supplies chicks to small farmers	traders market eggs produced by many small farmers	small producers vs. integrated large farms
Rice marketing	Bangladesh	itinerant traders supply large wholesalers		husking mills vs. small mills vs. automatic mills
Rattan furniture	Indonesia	factory producers market through itinerant retailers	large exporters market village production	small producers vs. large factories
Shrimp	Indonesia	large hatcheries supply fry to small producers	brokers buy from small producers	small producers vs. large fishermen
Silk	Thailand	large factories subcontract with home weavers	yarn merchants market weft yarn from home reelers	home weavers vs. large integrated factories
Vegetable marketing	India			small women vendors vs. licensed retailers
Wheat marketing	Bangladesh	itinerant traders supply large wholesalers		hammer mills vs. large flour millers

Source: Haggblade (2007).

Annex 1. Value Chain Mapping Conventions



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