Value Chain Synthesis and Analysis to Inform Policy, Stakeholders, and Program Design

Dr. Arief Daryanto

Director of Graduate Program of Management and Business-IPB

Presented at the Workshop on Capacity Building for Research: Promoting Inclusive Development of Agricultural Value-Chains, Collaboration between the University of Adelaide and Graduate Program of Management and Business-IPB, Bogor, 1-3 September 2014

Value Chain Key Concepts

Main Streams in the VC Literature

- The filière approach
- The conceptual framework elaborated by Porter
- The global approach proposed by (Kaplinsky, Gereffi et. al)

Stream 1: *Filière*

- Filière means thread or chain
- The filière concept used to map the flow of commodities and to identify actors and activities.
- The rationale of the filière is similar to the broader concept of value chain. However, the filière mainly focused on issues of physical and quantitative technical relationships, summarized in flow-charts of commodities and mapping of transformation relationship.
- Two strands of filière: the economic and financial evaluation of filières and the strategy-focused analysis of filière

Stream 2: Porter's Framework on Competitiveness

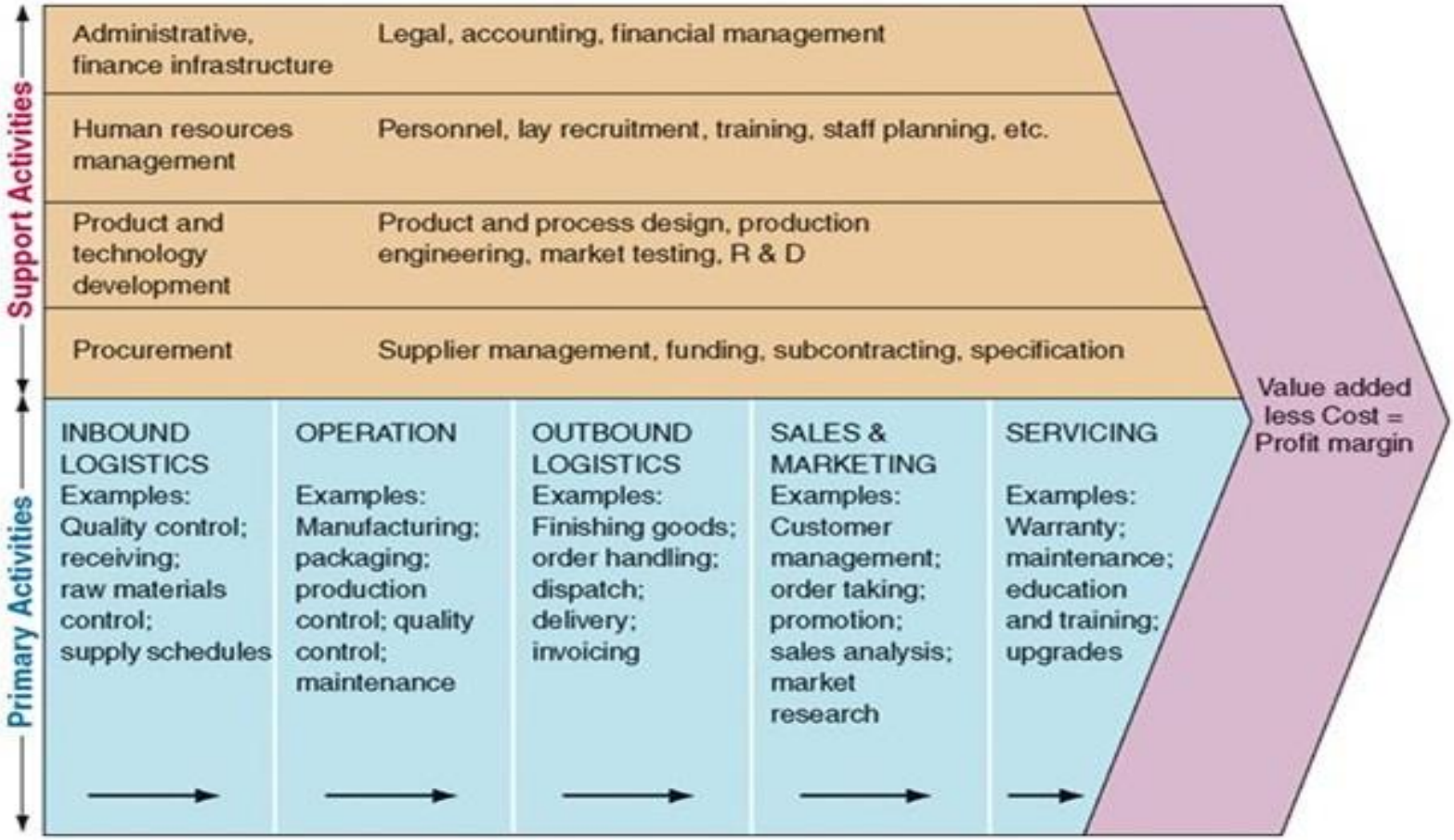
- Porter has used the framework of value chains to assess how a firm should position itself in the market and in the relationship with suppliers, buyers and competitors.

- In Porter's framework the value chain provides a tool that firms can use to determine their source (current or potential) of competitive advantage.

- Porter argued that the sources of competitive advantage cannot be detected by looking at the firm as a whole. Rather, the firm should be separated into a series of activities and competitive advantage found in one (or more) of such activities.

- Porter distinguishes between **primary activities**, which directly contribute to add value to the production of the product or services and **support activities**, which have an indirect effect on the final value of the product.

Figure 1. Porter's Value Chain



Source: Porter, 1985

Figure 2. The Roots of Competitive Advantage

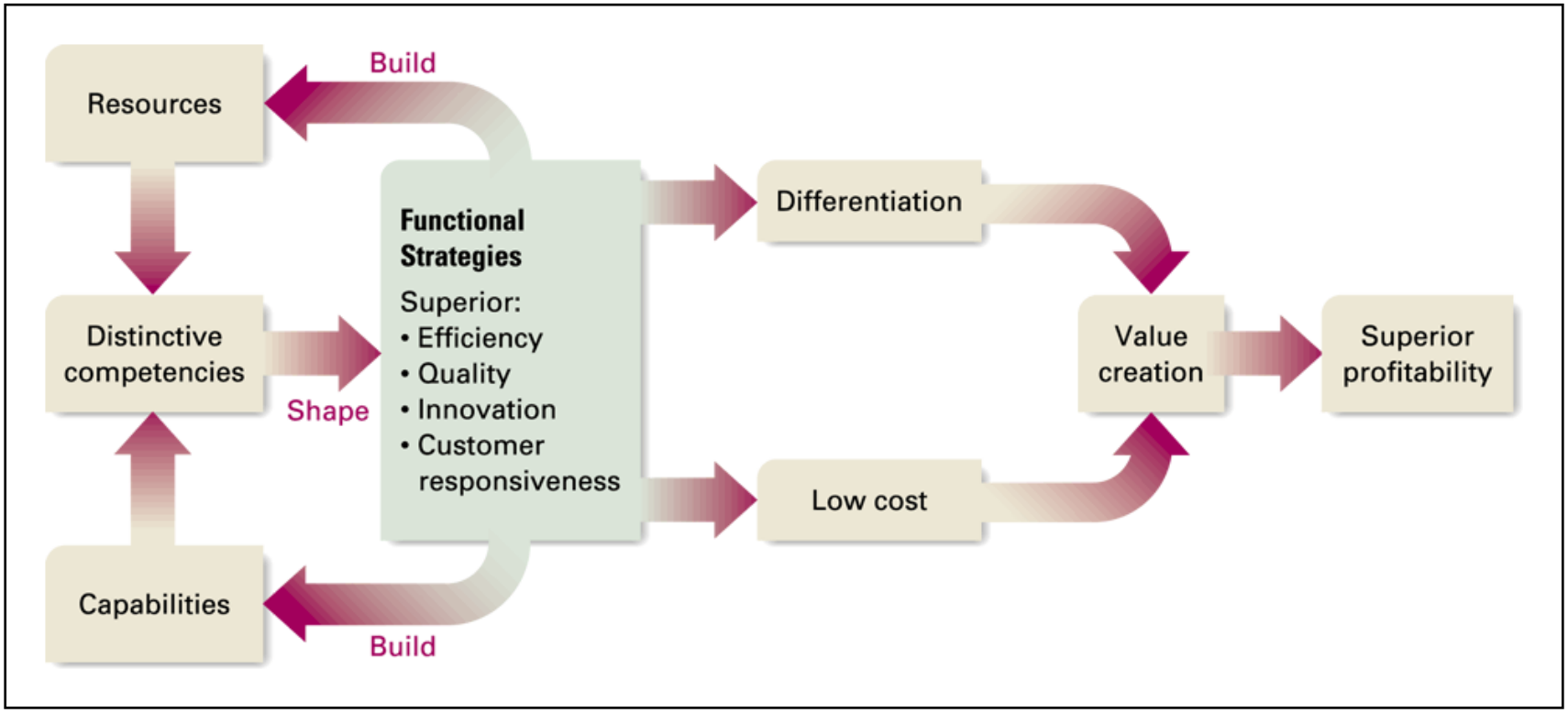


Figure 3. Generic Building Blocks of Competitive Advantage

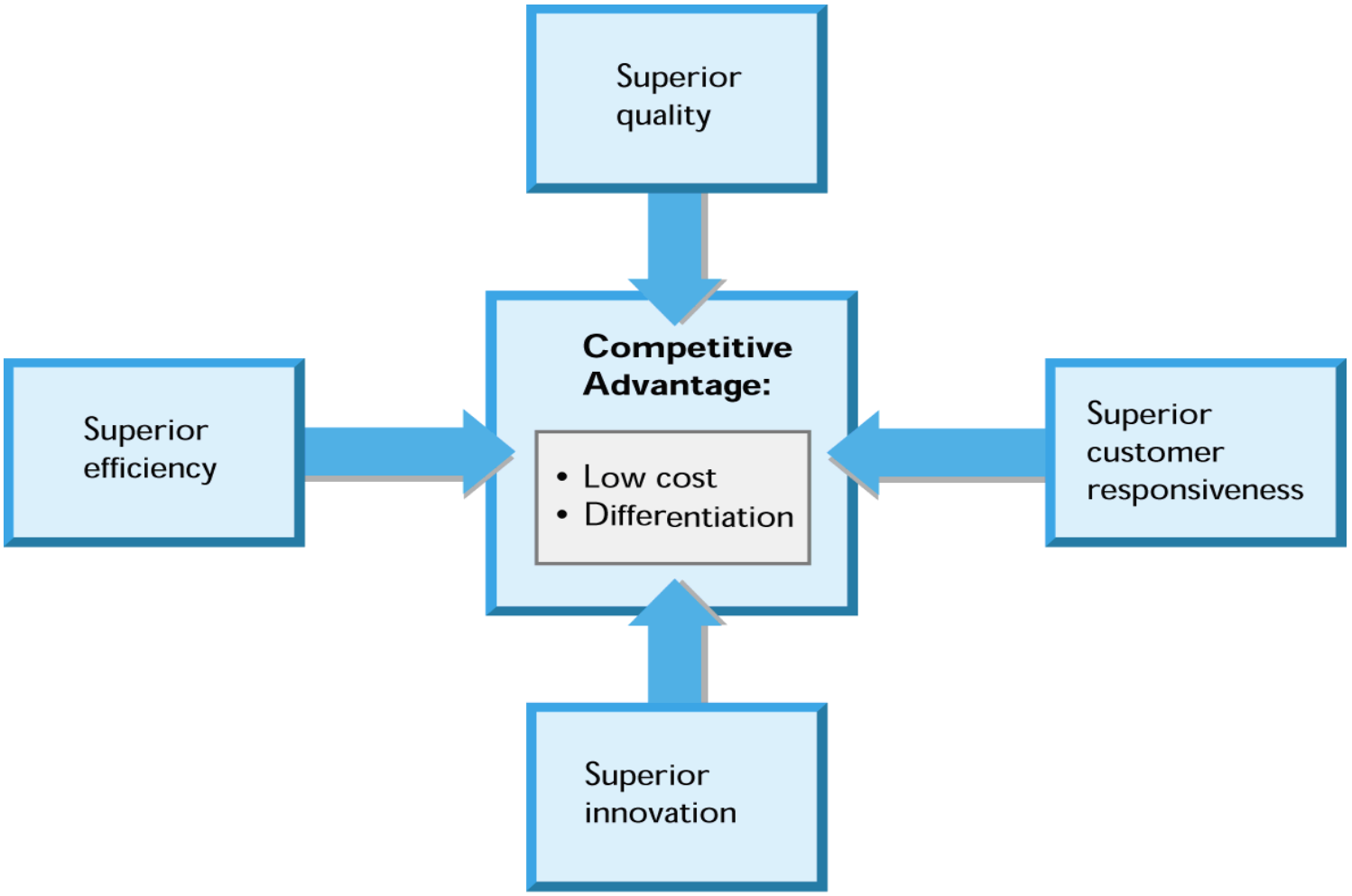
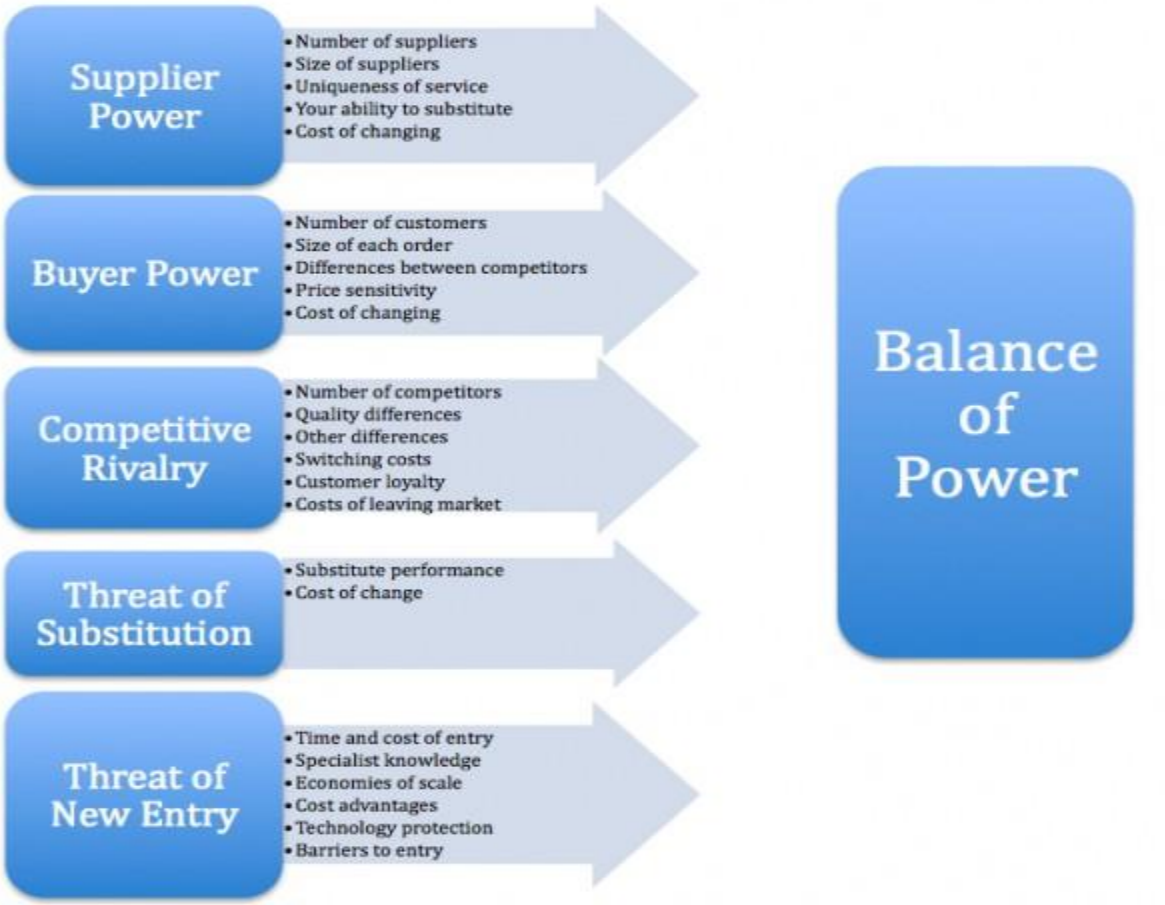


Table 1. Features of Competitive Advantage Strategy

Cost Leadership	Differentiation
✓ Efficient scale ✓ Standardization ✓ Design for low production cost ✓ Control of overheads and R&D ✓ Avoid marginal customers	✓ Quality ✓ Innovation ✓ Design ✓ Credibility ✓ Brand name ✓ Reputation ✓ Environmental posture ✓ Customer service ✓ Integrated services

Figure 4. Porter Five Forces of Industry Competitiveness



Source: Porter, 1979

Stream 3: The Global Approach

- This approach is used to examine the ways in which firms and countries are globally integrated and to assess the determinants of global income distribution.

- A key contribution of this tradition is a well-developed theory of governance of globally integrated production systems that is relevant to the power of lead firms to set standards that define the terms on which producers participate in these systems.

Table 2. The Value Chain Concept Timeline

Period	Concepts / Paradigms	Major Disciplines			Level of Analysis
		Economics	Business Management	Engineering / Management Science & Operations Research.	
'50s	Input/Output Analysis*	X		X	Macro
	Agribusiness (Harvard)	X	X		Meso
	Industrial Dynamics & Systems Science (MIT)	X	X	X	Macro/Meso/Micro
'60s and '70s	Industrial Organization (S-C-P)	X			Meso (horizontal)
	Subsector Analysis (Commodity Systems Approach)	X			Meso (vertical)
	French 'Filiére'	X	X		Meso
'80s	Porter's 'value chain'		X		Initially Micro; later Macro
	Supply Chain Management		X	X	Intra and Inter Organizational
'90s	Agrifood chains; agro-industrial chains; productive chains; etc	X	X	X	Mostly Meso
	Global Commodity Chains	X			Macro
	Transaction cost theory* applied to vertical coordination analysis in agrifood systems	X			Meso
	Policy Analysis Matrix (PAM)	X			Macro
2000s	Value chains (revisited)	X	X	X	Micro and Meso

* The fundamental concepts of transaction cost theory appeared earlier in literature

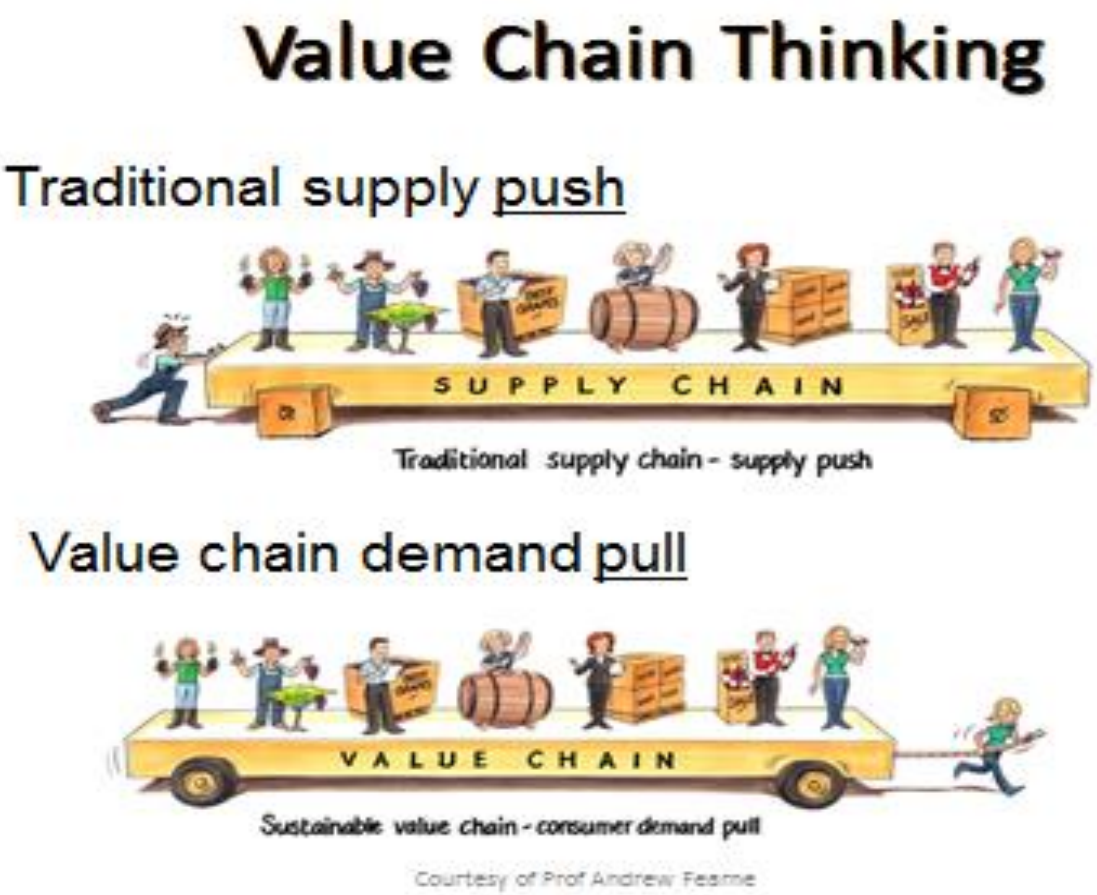
Source: Silva and Souza Filho, 2007

The Value Chain Approach

- A value chain is not the same as a supply chain. A value chain is about linkages generating value for the consumer. A supply chain is about processes of moving and transforming commodities into products from producers to consumers.

- While a value chain is about generating value for the consumer, a supply chain is about logistics.

Figure 5. Supply Chain vs Value Chain



Key Concepts in Value Chain Analysis

- The value chain organizes business linkages by getting stakeholders to work together.
- For different actors in a value chain to work together requires effective coordination of decisions and exchange.
- The rules regulating the coordination within a value chain constitute the governance of the chain.
- In order to increase value, the value chain needs to meet consumer demand.
- To meet consumer demand is not enough; the actors in the value chain need to meet consumer demand better than actors outside of the value chain—the value chain actors have to be competitive
- In order to keep competitiveness, the value chain needs to innovate continuously; otherwise, their initial gains in competitiveness will be eroded over time.
- In order for the chain to establish effective linkages, the chain needs to distribute benefits that provide incentives to the participants. If only one party in the value chain appropriates all the benefit, the chain will not be sustainable in a market system.

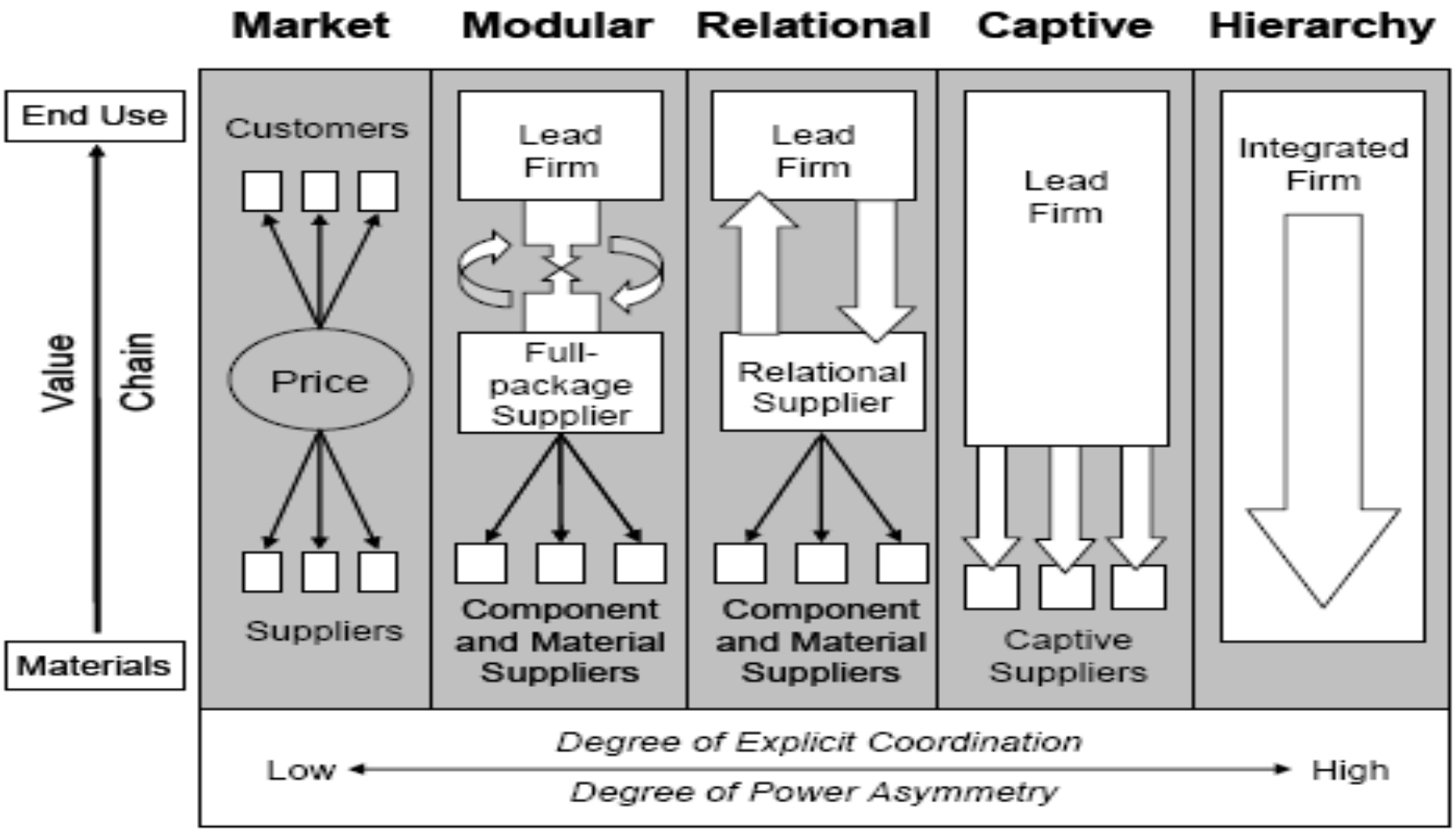
Source: Goletti, F. 2004. *Commercialization, Value Chains, and Poverty Reduction, Markets for the Poor Phase 1*. Agrifood Consulting International, Inc.

Feature of an Effective Value Chain

- Differentiate products;
- Continuously innovate—i.e., products, technologies, management, marketing, distribution;
- Create higher value;
- Use a variety of organizational mechanisms to achieve efficiency;
- Form alliances and achieve coordination;
- Go beyond spot market transactions and include contracts, vertical integration, networks, supply chains; and
- Introduce practices to meet environmental and social responsibility concerns.

Source: ADB (2000)

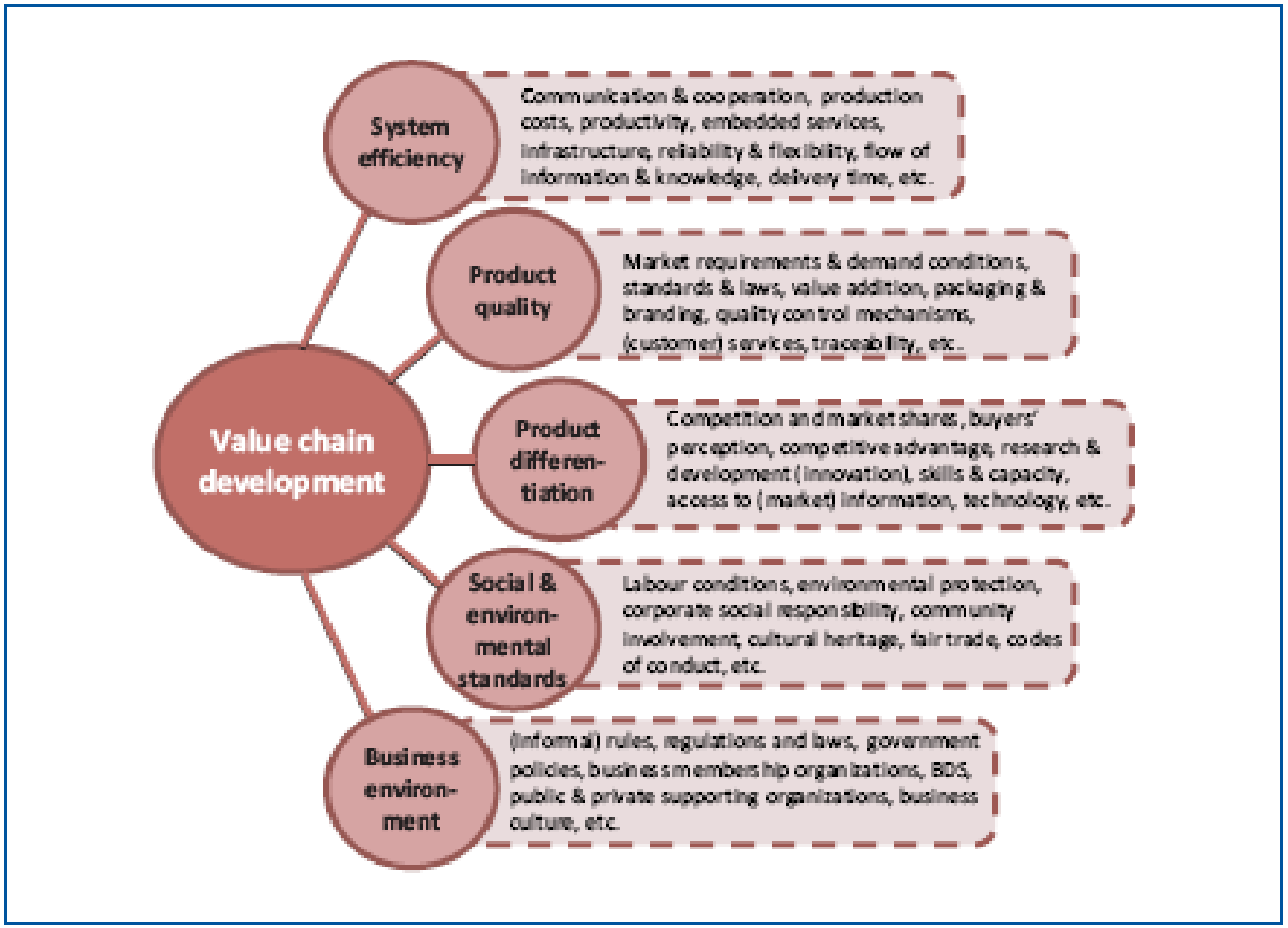
Figure 6. Types of Governance Structure



Source: Gereffi, 2005

Value Chain Tools

Figure 7. Five Drivers of Value Chain Development



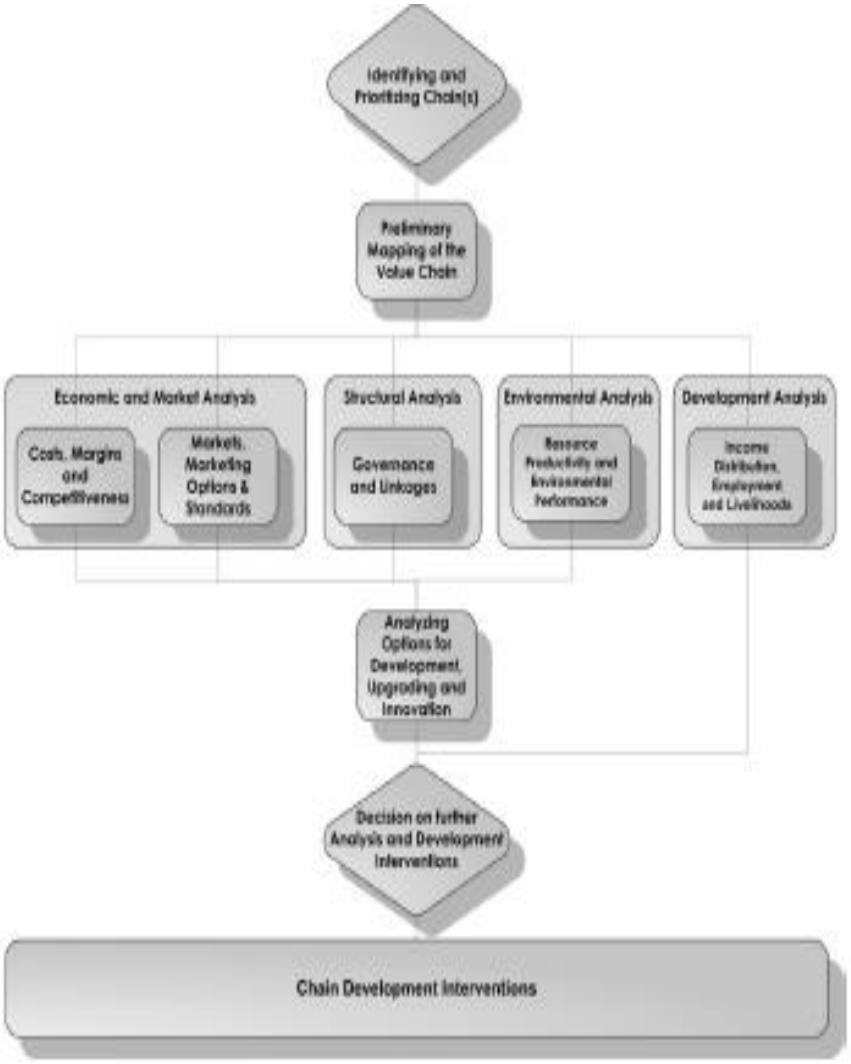
Source: ILO, 2009

Table 3. Points of Entry in the Value Chain Research

Primary area of research interest	Point of entry	What to map	Examples
The global distribution of income	The final consumer (and recycling) in a sector	Backwards down whole chain to retailers, buyers and producers	In furniture, begin with groups of customers of department and specialist stores in rich countries
Role of retailers	Supermarkets or retail chains	Forwards to type of customer; backwards through buyers, producers and their suppliers	In food, begin with supermarkets
The role of independent buyers	Independent buyers, wholesalers	Backwards to producers and their suppliers in same chain; forwards to retailers	In shoes, begin with specialist buyers; in fruit and vegetables, begin with category buyers
Design	Independent design houses, advertising agencies or large firms with global brands	Forwards to retailers in various final markets; backwards to a variety of producers and their suppliers	In clothing, begin with Prada and the GAP in the volume markets, and with Gucci in haute couture markets
Role of key producers	Large OEMs assembling final products	Forwards to retailing; backwards to suppliers and their suppliers	In autos, Ford; in consumer electronics, Sony
First-tier suppliers	Large firms providing subassemblies to OEMs	Forwards to OEMs and their customers, perhaps in more than one sector; backwards to suppliers and their suppliers	In autos, Magna and Delphi; in computers, to motherboard and monitor manufacturers
Second-tier and third-tier suppliers	Generally small firms	Forwards to customers in a variety of sectors; backwards to suppliers and their suppliers	In food, to firms printing packaging materials; in banking, to providers of software modules
Commodity producers	Generally large firms	Forwards to producers, buyers and final markets; backwards to machinery and input suppliers	In copper, to major buyers at London Metal Exchange and to suppliers to the telecom sector
Agricultural producers	Farms	Forwards to processors, buyers and their customers; backwards to input suppliers	Fresh vegetables to salad packers and category buyers in final markets
Small firms and farms	Small farms, industrial SMEs	Buyers in a range of value chains; input suppliers	Handicraft suppliers to exporters; small farms to processing plants
Informal economy producers and traders	Home-based workers, street traders	Forwards to processors, assemblers or third party organizers/distributors; backwards to retailers	Outsourcing in clothing and shoes; recycling cardboard cartons to mills; street-based tourist handicrafts
Gender, age and ethnicity	Female labor	Use of female labor throughout value chain	In clothing, women in cotton farms, factories, export agencies, design houses, advertising agencies, retail stores

Source: Kapinsky and Morris, 2001

Figure 8. Generic Value Chain Analysis



Source: UNIDO, 2009

Tools for Analyzing Various Dimension of the Value Chain

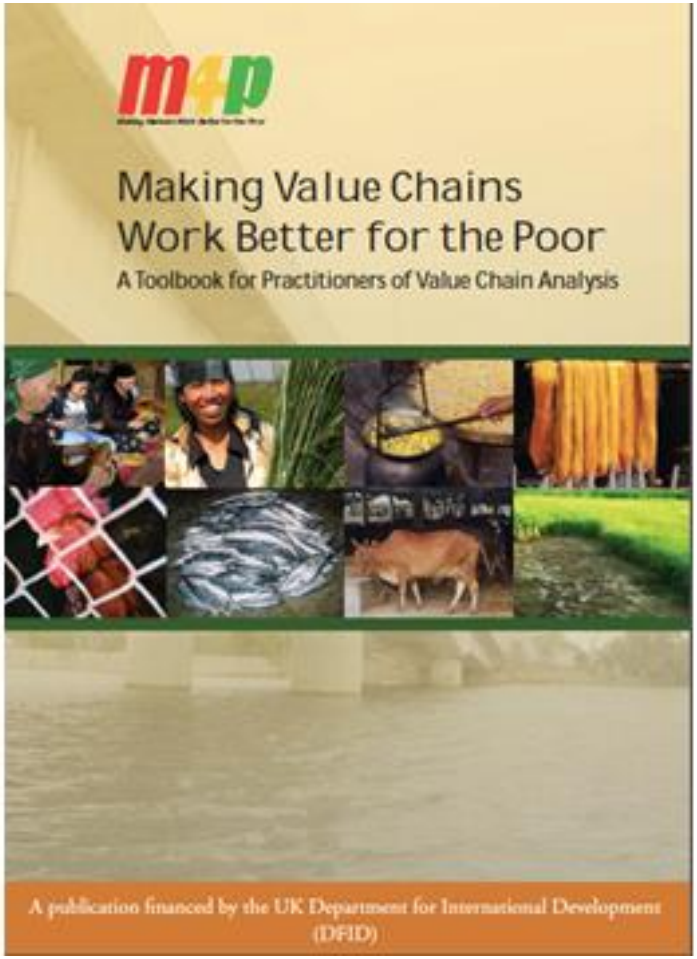


Table 4. Tools for Analyzing Various Dimension of the Value Chain

	General Tools		Qualitative Tools			Quantitative Tools		
	Tool 1	Tool 2	Tool 3	Tool 4	Tool 5	Tool 6	Tool 7	Tool 8
Dimensions	Prioritising Value Chains for Analysis	Mapping of the Value Chains	Governance: Coordination, Regulation and Control	Linkages, Relationship and Trust	Analysing Options for Demand Driven Upgrading: Knowledge, Skills, Technology and Support Services	Analysing Costs and Margins	Analysing Income Distribution	Analysing Employment Distribution
Participation of the poor	✓	✓	✓	✓ ✓	✓		✓ ✓ ✓	✓ ✓ ✓
Employment and working environment	✓	✓	✓		✓ ✓	✓	✓	✓ ✓ ✓
Wages and income	✓	✓	✓			✓ ✓	✓ ✓ ✓	✓
Access to assets	✓	✓		✓	✓ ✓ ✓	✓		
Access to information and technology	✓	✓	✓ ✓ ✓	✓ ✓	✓ ✓ ✓	✓		
Access to infrastructure	✓	✓	✓ ✓		✓			✓
Access to services	✓	✓	✓ ✓	✓ ✓				
Security and vulnerability	✓	✓	✓ ✓		✓	✓	✓ ✓	✓ ✓ ✓
Empowerment	✓	✓	✓ ✓	✓ ✓ ✓				

Tools for Analyzing Various Dimension of the Value Chain

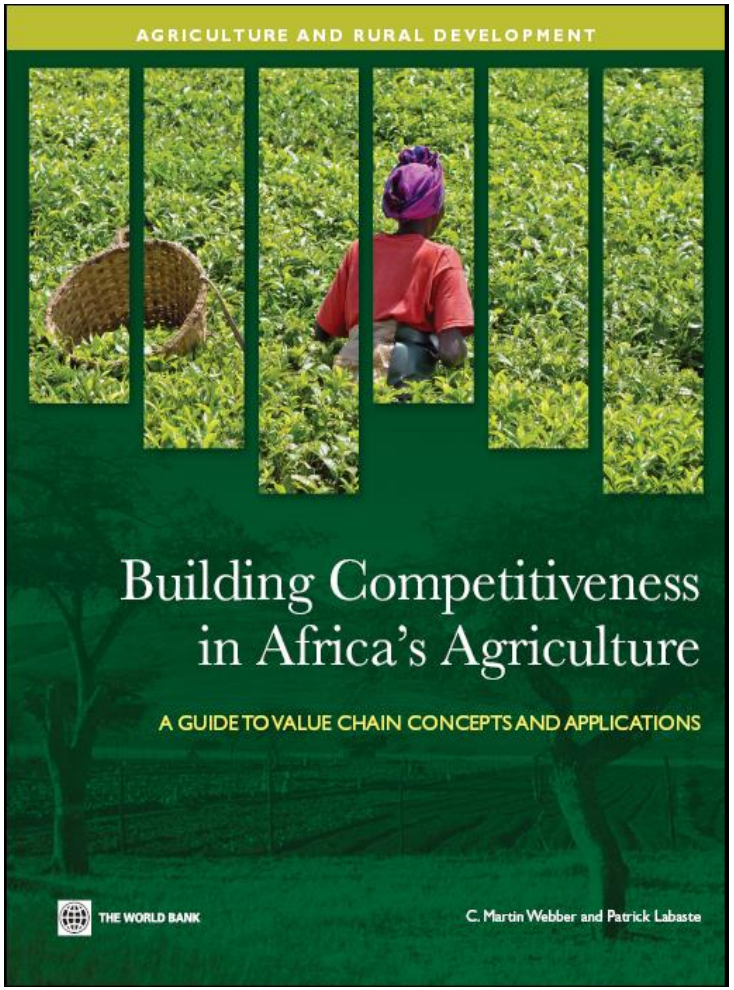
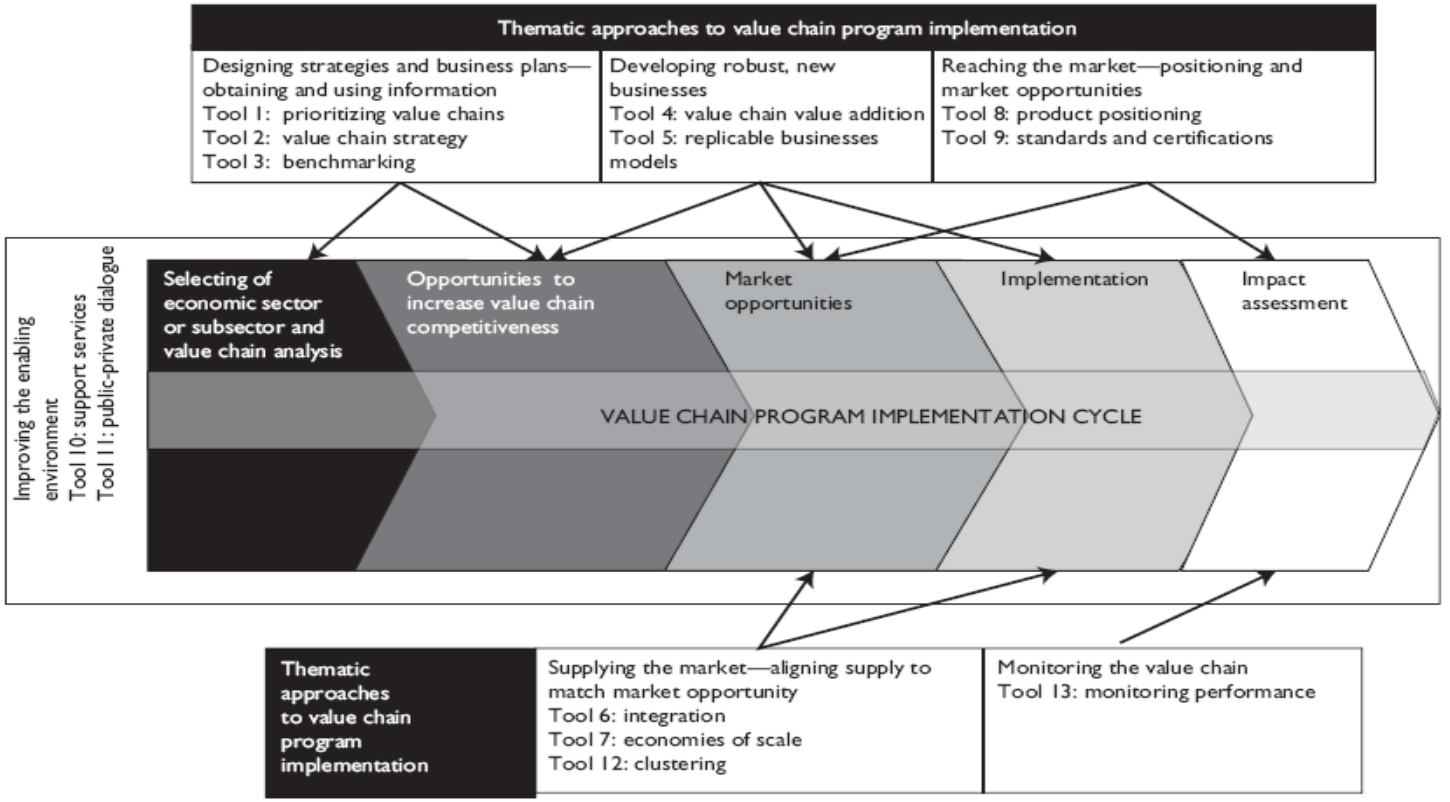


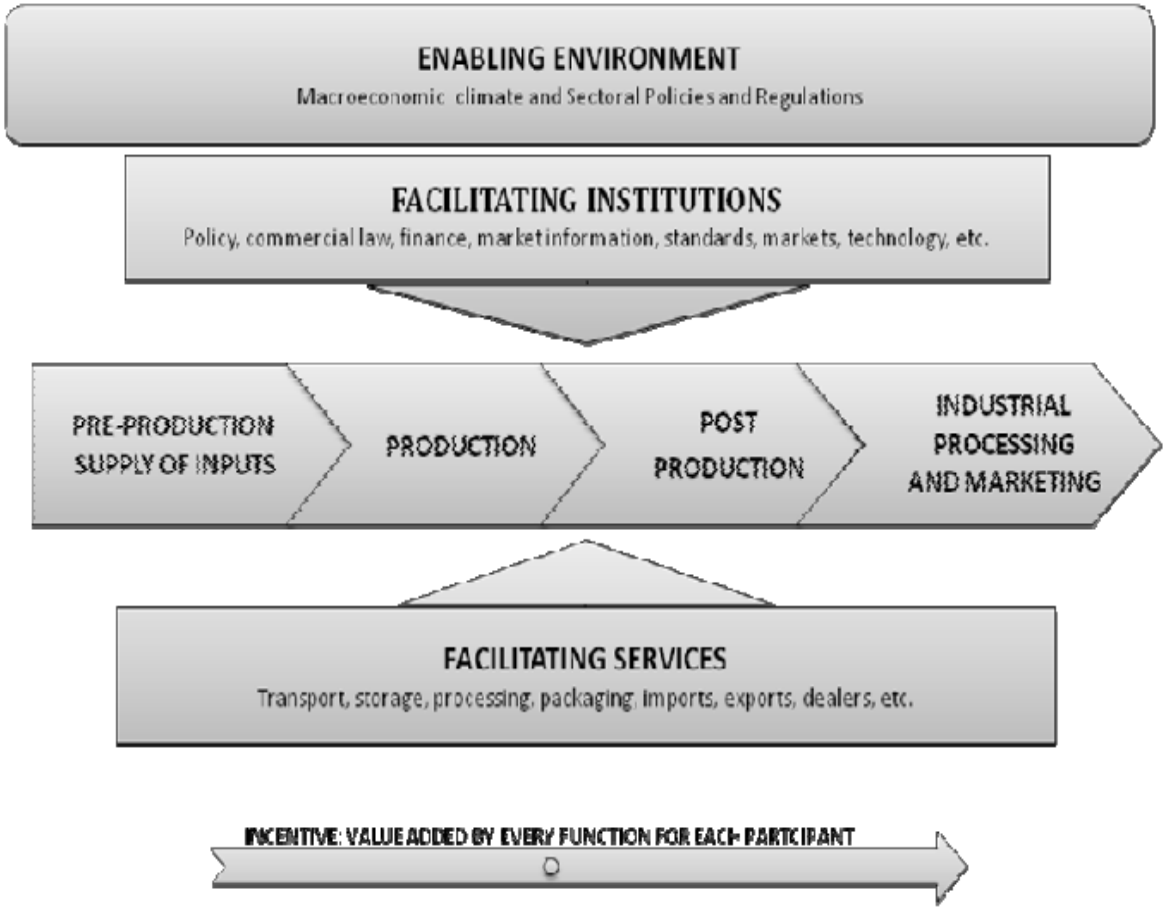
Figure 9. Tools for Analyzing Various Dimension of the Value Chain



[a] The value chain implementation cycle is adapted in part from Action for Enterprise's Value Chain Approach and J.E. Austin's Associates, Inc.'s productivity and value enhancement model (see figure 4.3).

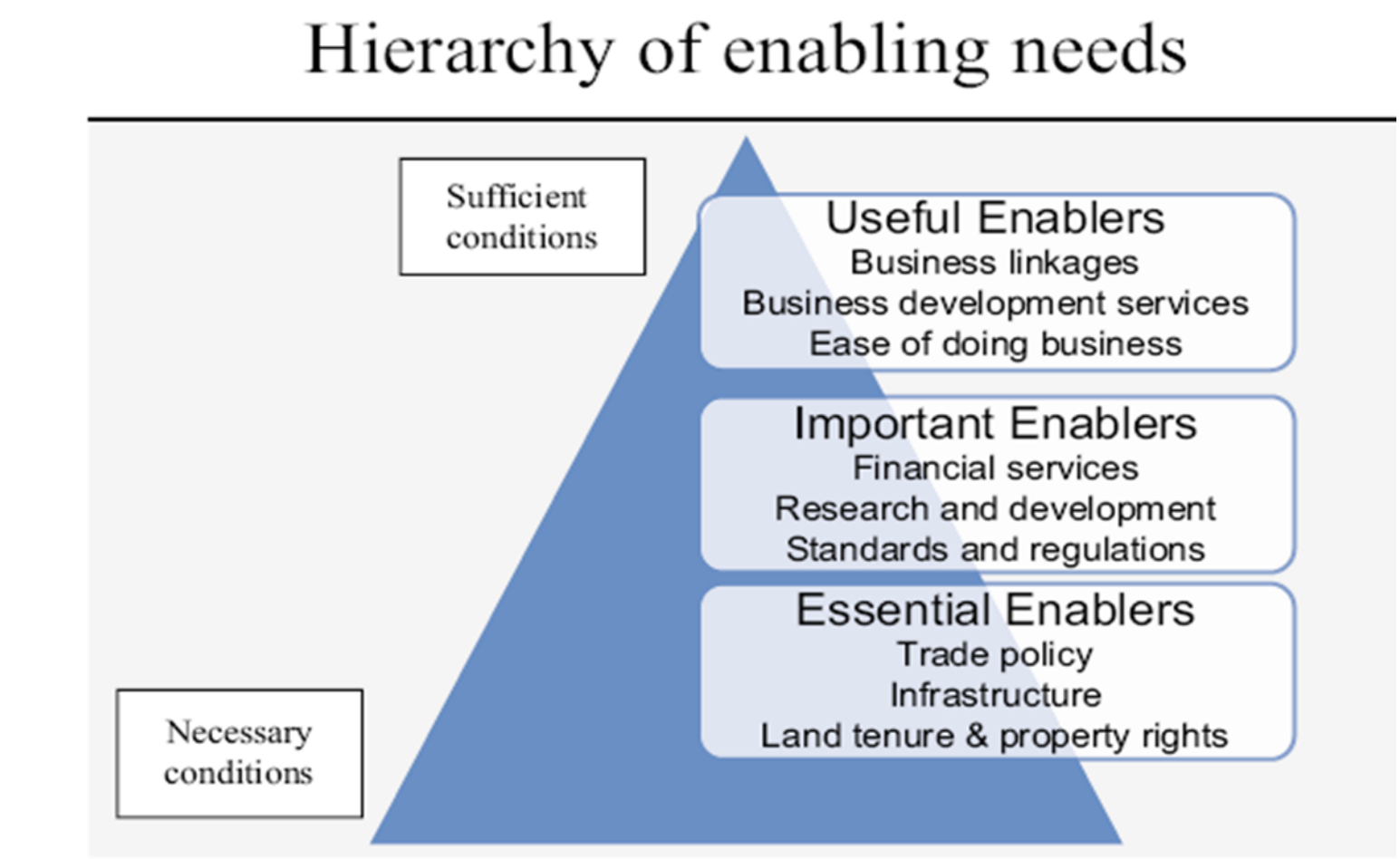
Source: J. E. Austin Associates, Inc.

Figure 10. Holistic Approach to Value Chain Analysis



Source: UNIDO, 2008

Figure 11. Enabling Environment



Prof. Ralph D. Christy's presentation at GAIF

Improving Agricultural Competitiveness in Indonesia: Strengthening Value Chains

Key Production and Marketing Pattern (Amarta, 2007)

- Primary production areas for highly perishable types of highland vegetables have traditionally been in close proximity to the main local population centers.
- Primary production areas of the less perishable vegetables have been in sites with particularly favorable agro-climatic conditions.
- Agribusiness enterprises are more progressive.
- Supermarket driven value chains tends to be multiple in nature, vary by commodity type and differ in their behavior by location.
- Difference in the behavior, attitudes, ways of doing things, and approaches to business relationship were evident between island groups
- Vegetable exporters is "the agent of change".

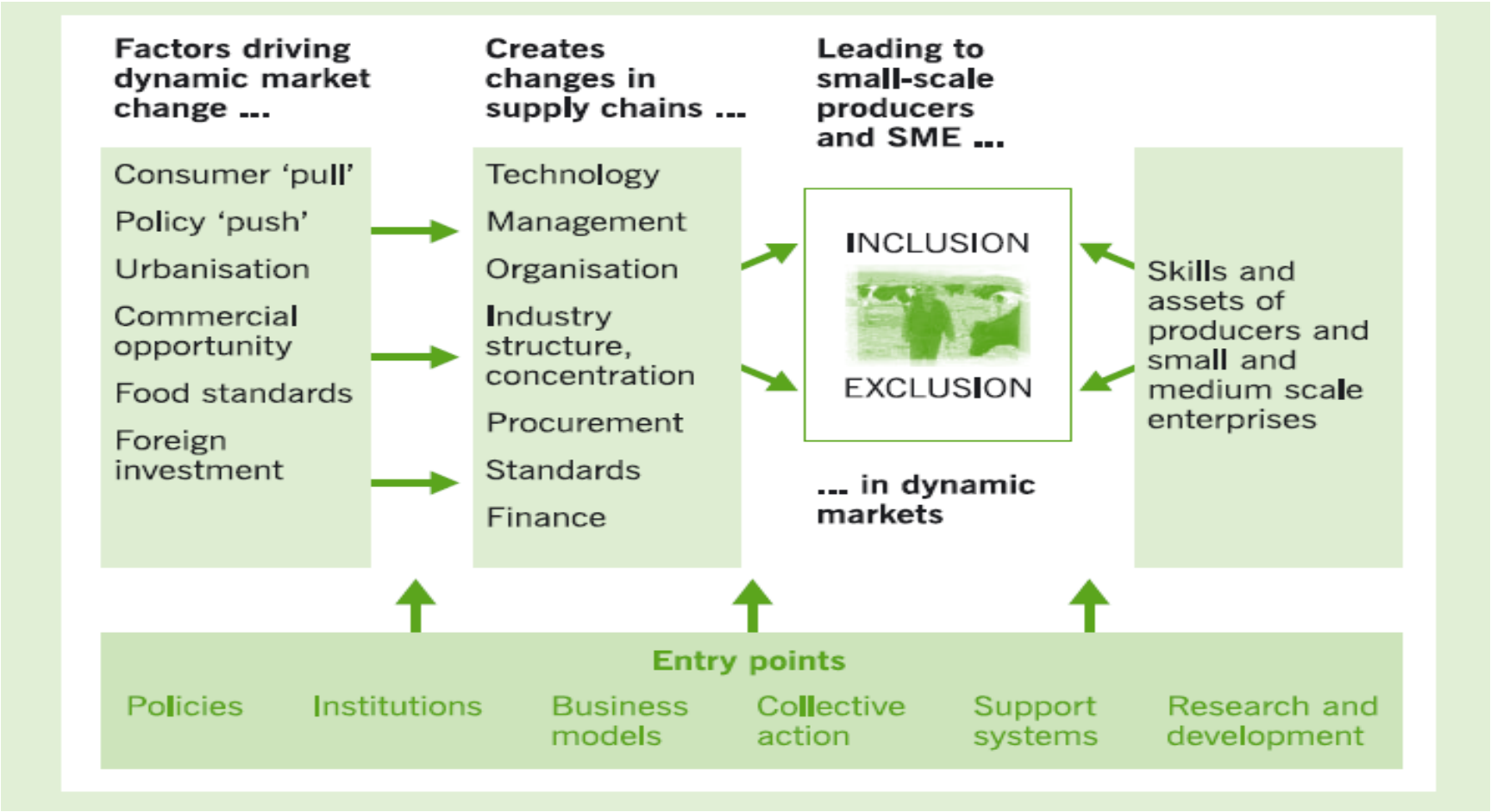
Challenges for Smallholder Farmers

- Small producers and processors
- Long supply chains
- Lack of capital and skills (low operating capital, lack of access to credit, lack of knowledge about modern production and farm management techniques)
- Lack of information, asymmetric (prices, markets, what quality consumers want)
- Limited production capacity
- Low quality
- Unable to guarantee continuity and consistency

Challenges to Smallholder Farmers

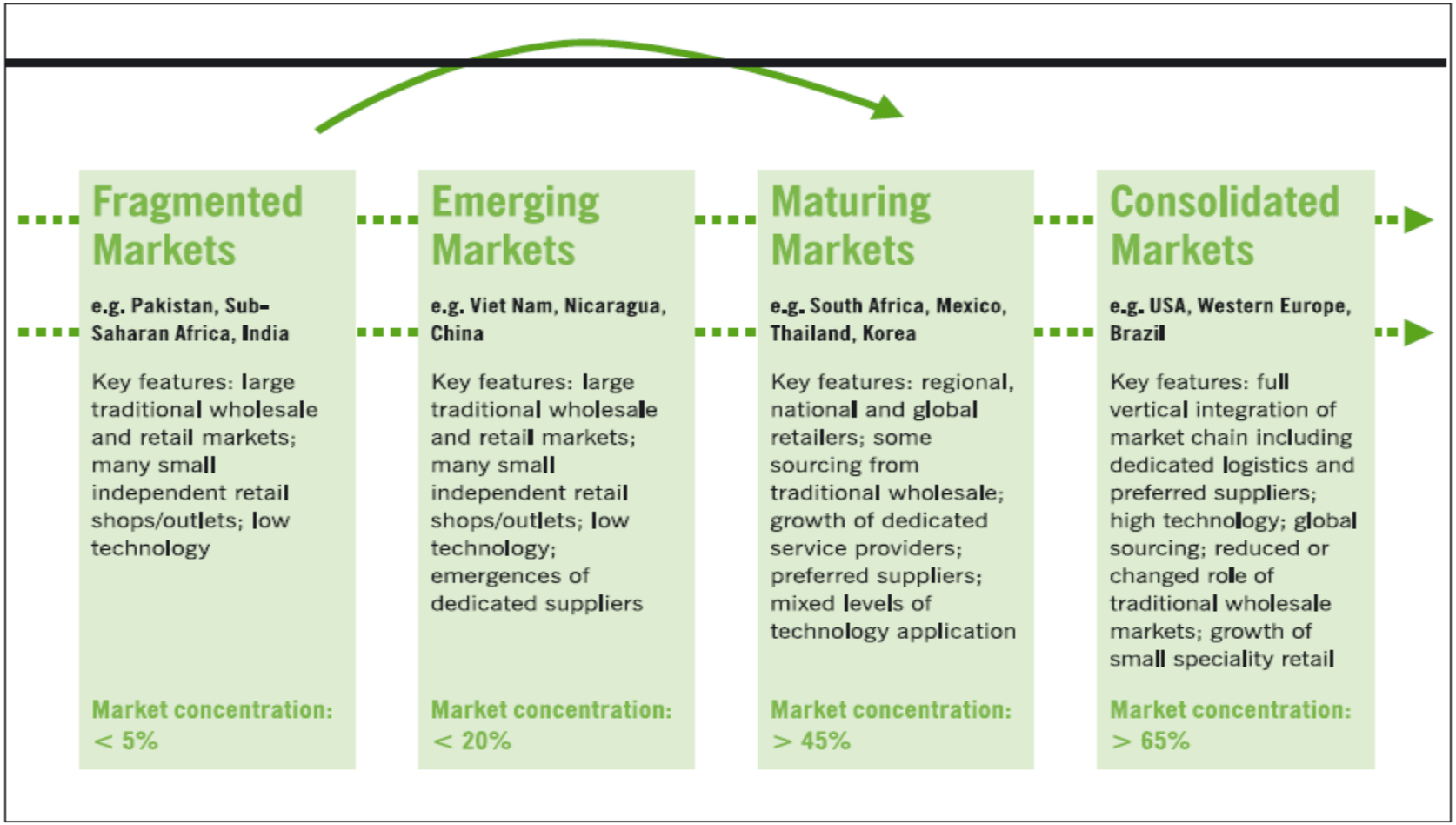
- Lack of appropriate technology
- Inappropriate packing and packaging
- Excessive levels of pesticide residues
- Poor product post harvest management
- Lack of sophisticated/professional players
- Lack of integration in the value chain

Figure 12. Framework of Inclusive Value Chains



Source: Vermeulen et al., 2008

Figure 13. Different Stages of Market Concentration



Source: Vermeulen et al., 2008

Contract Farming in Poultry Industry: Linking Farmers to Market

Contract Farming

- An Agreement between farmers and processing and/or marketing firms for the production and supply of agricultural products under forward agreements, frequently at predetermined prices

Source: FAO; *Contract Farming: Partnerships for Growth*; 2001

Contract Farming Models

- **The centralized model:** Large processors buying from many SHF. Use quotas and tight controls.
- **Nucleus estate model:** Sponsor is also involved in nucleus farm
- **Multipartite model.** Involves statutory bodies and private companies jointly participating with farmers
- **Informal model.** Individual small companies with production contracts with farmers on a seasonal basis.
- **Intermediary model.** Large food processing companies purchase crops from individual "collectors" or farmer committees, who make their own informal arrangements with farmers.

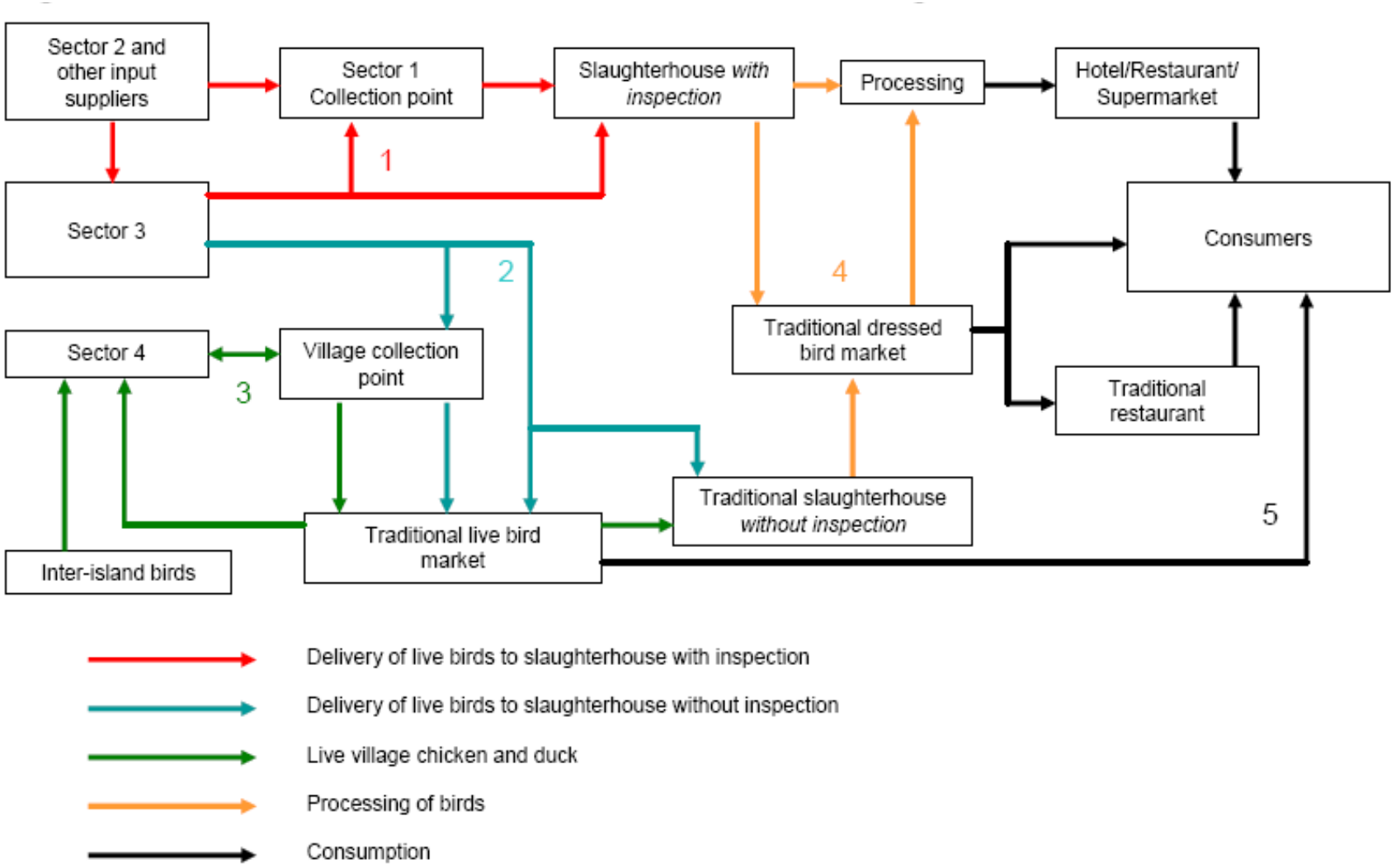
Contract Farming Models of Broilers in Indonesia

- CF generally involving large producer of animal feed and breeders of chickens. The chicken breeders raise the chickens for the company under contract.
- Farmers provide land for breeding ground and farm tools and hire workers and the company supplies DOCs (day old chicken), feed, medicines and managerial advices.
- After the chicken reach the age of 35 days they are ready to go to the market. The farmers will have their fee or share of the revenues after they are sold based on the contract.

Contract Farming Models of Broilers in Indonesia

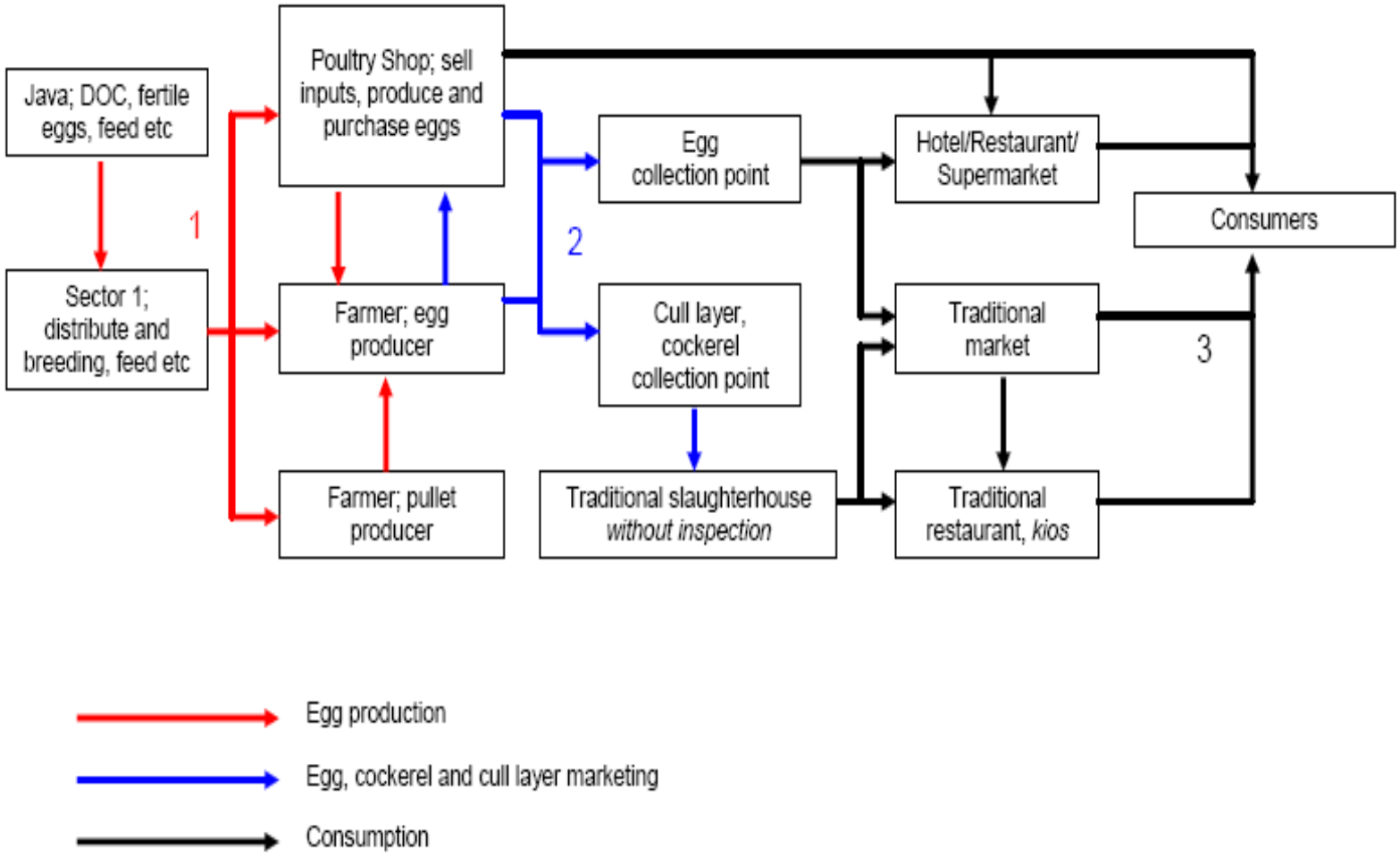
- There are different system of contract.
- Model 1: a farmer is paid after harvest time Rp xxx per chicken raised.
- Model 2: a farmer will have a certain percentage of the sales revenues after being deducted with the capital invested.
- Model 3: The selling price to be paid by the company is set under the contract, therefore, the market price would have no effect on the revenue share of the farmers.
- Model 4: To further motivate the contract farmers, fees are based on their performance and the quality of the chickens reared.

Figure 14. Contract and non-contract broiler marketing chain



Source: Patrick and Jubb (2008)

Figure 15. Layer, cull layer and cockerel marketing chain



Source: Patrick and Jubb (2009)

Potential Advantages and Disadvantages in Contract Farming

Potential Advantages of CF to Farmers

- Market Access
- Increased Income
- Reduction of production and price risks
- Credit and financial intermediaries ➔ interest free credit
- Timely inputs (chicks, feeds, medicines/vaccines) and production market
- Introduction to new breed and technology
- Incentives for higher efficient and higher market prices

Potential Advantages of CF for Firms

- Cost effectiveness to firms
- Quality consistency
- Comformation of standard quality

Potential Disadvantages of CF to Farmers

- Unequal partnership → Monopsony (refusal to purchase, lack of transparancy in pricing)
- Unequal partnership → Oligopoly
- No mutual trust
- Excessive dependence leads to indebtedness
- Loss of flexibility
- Commercialization versus household food insecurity

Potential Disadvantages of CF for Firms

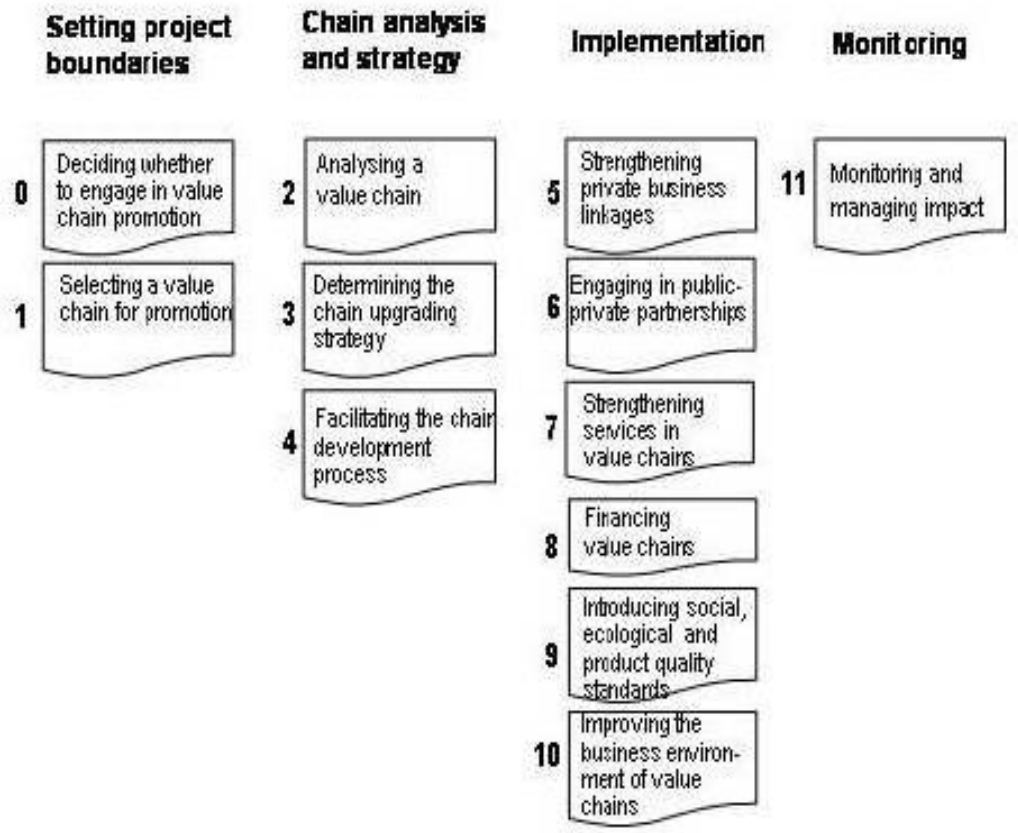
- Opportunistic behaviour by farmers
- High transaction costs of contract monitoring and enforcement
- High cost of distribution of inputs and services
- Misuse or diversion of inputs and credits and defaults

Lessons Learned: Successful CF

- Mutual trust
- Guaranteed production and prices
- Economies of scale → reduction in transaction costs
- Risk sharing
- Credit and financial intermediaries
- Provision of inputs, extension services and technology
- Timely inputs and payment
- Good communication, supervision and monitoring
- Incentives for quality, price and efficiency
- Long term commitment

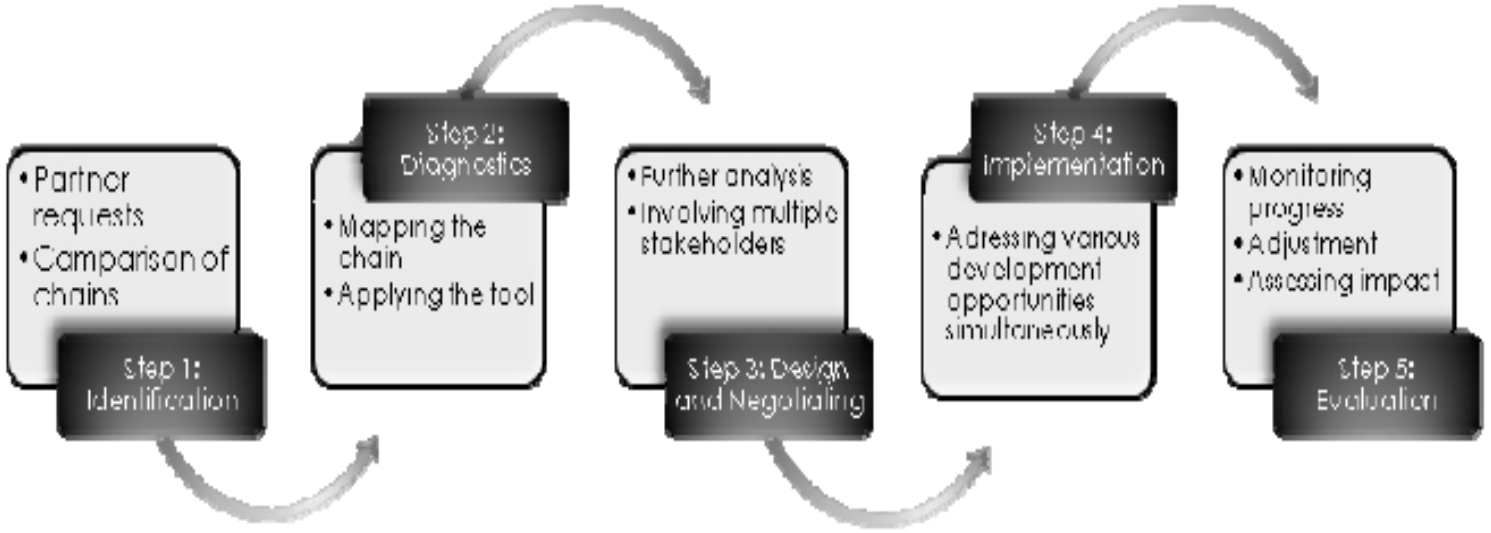
Value Chain Promotion Scheme/Design

Figure 16. Value Chain Promotion Scheme



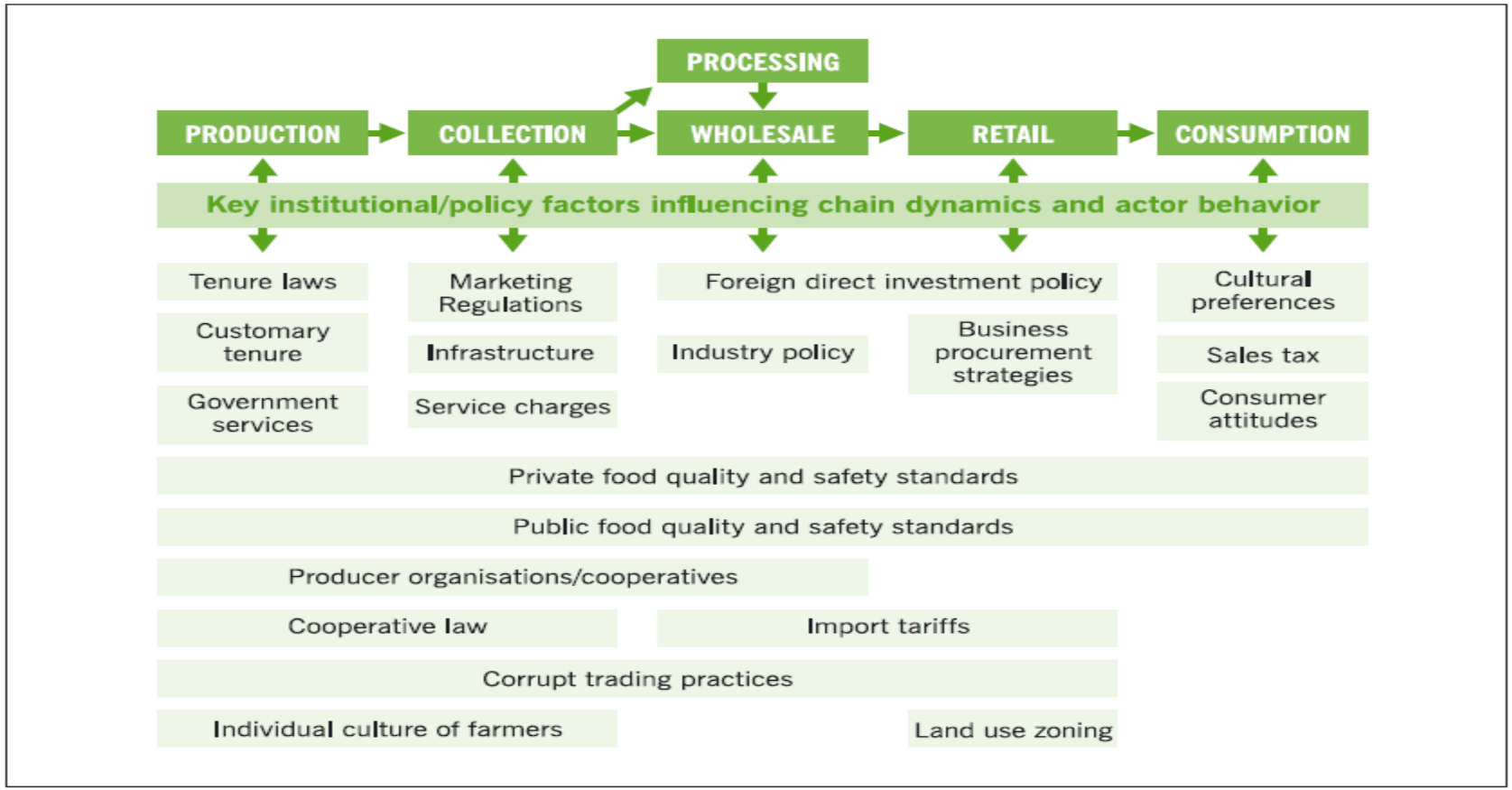
Source: GTZ 2007

Figure 17. Procedures For VC Diagnostics



Source: UNIDO, 2008

Figure 18. The Impact of Different Institutions along a Value Chain



Source: Vermeulen et al., 2008

Figure 19. Generalized Theory of Change for Dairy Sector Development

Goal	Competitive and developed dairy sector			
Changes at impact level:	*Increased farmer income Growth in rural economy*	*Food security Nutrition security*	*Food safety Self-sufficiency*	*Reduced environmental impact*
Objectives	Competitive dairy production	Developed dairy chains	Developed knowledge base	Developed organization and representation of the dairy sector
Changes at performance level not specified				
	Improve / strengthen:			
Strategies	Access to finance for milk producers	Linking producers in rural areas with processing industry and markets	Research and innovation	Producers' organizations
	Public and private investments in physical infrastructure (water, roads, electricity)	Inclusion of small scale milk producers to formal dairy chains	Education	Dairy sector organizations
	Policies supporting competitive dairy production	Increase rural milk processing and marketing (informal)	Farm and industry advisory services	Chain actor representation and coordination
	Policies related to food safety and implementation of regulations	Improve dairy marketing and consumption in urban areas	Knowledge on dairy production in supporting institutions (finance, government etc)	Public-private partnerships
	Land reform	Improve input and service supply to dairy producers		
		Implementation of improved food safety and quality standards		
		Improve investment climate in dairy sector		
Example interventions	Fodder introduction	Develop collection grid and business cluster	Business development services for producers' organizations and SMEs	Crossbreeding program
	AI service	Develop B2B linkages	Farmer advisory service	Disease surveillance
	Dairy zone development	Investment fund	Innovation coaching and funding, co-innovation	Land titling
	Medium-sized farm development	Quality-based milk payment system	Dairy network development	Independent milk testing laboratory
	Soil fertility management management	Producers' organization capacity building	Business-linked vocational training	
	Training young-stock rearing			

Source: Van der Lee et. al, 2014

TERIMAKASIH