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INTEGRATING POVERTY, GENDER AND ENVIRONMENTAL CONCERNS INTO VALUE CHAIN ANALYSIS

A CONCEPTUAL FRAMEWORK
AND LESSONS FOR ACTION RESEARCH

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Abstract

Many contemporary development solutions and policy prescriptions place emphasis on the potential for closer integration of poor people or areas with global markets. But the prospects for the reduction of chronic poverty depend in great measure on the nature of the broader economic processes that, according to how they are configured, can either exacerbate or alleviate poverty. These prospects also depend on the forms of local economic growth that impact on the lives of the poor. Since the mid 1990s, a literature has emerged on value chains that has helped increase our understanding of how firms and farms in developing countries are integrated in global markets. Studies using the global value chain approach examine different types of value chain governance and the opportunities they provide for technological or functional upgrading of traders and producers in developing countries. But few value chain studies have succeeded in explicitly documenting the impact of value chain activities on poverty, gender and the environment.

In this light, the paper develops a conceptual framework that can help overcome the shortcomings highlighted so far in 'stand-alone' value chain, livelihoods and environmental analyses by integrating the 'vertical' and 'horizontal' aspects of value chains that affect poverty and sustainability. This framework is used to draw lessons for external interventions in value chains targeted at small producers and other weak actors in developing countries, particularly the kinds of interventions known as 'action research' which puts emphasis on strategic and political approaches to achieving sustained improvements for disadvantaged groups.

A companion paper to the present one develops a strategic framework and practical methods to guide action research in value chains (Riisgaard *et al.*, 2008). The entire methodology will be tested during 2008-09 by seven action research projects targeted at poor rural producers in Africa and Asia. All projects form part of the Rural Poverty and Environment programme of the International Development Research Centre and are carried out as part of the RPE research theme "integrate poverty and environmental concerns into value chain analysis" under the guidance of the Overseas Development Institute, London.

1. Introduction

1.1 BACKGROUND AND OBJECTIVES

Many contemporary development solutions and policy prescriptions place emphasis on the potential for closer integration of poor people or areas with global markets. But the prospects for the reduction of chronic poverty depend in great measure on the nature of the broader economic processes that, according to how they are configured, can either exacerbate or alleviate poverty. These prospects also depend on the forms of local economic growth that impact on the lives of those stuck in long-term poverty, struggling to get out of it, or threatened with impoverishment.

Since the mid 1990s, a literature has emerged on value chains that has helped increase our understanding of how firms and farms in developing countries are integrated in global markets. Studies using the global value chain (GVC) approach examine different types of value chain governance and the opportunities they provide for technological or functional upgrading of traders and producers in developing countries (in the case of African agro-food exports, see, among others, Daviron and Ponte 2005; Dolan and Humphrey 2000; Fold 2002; Gibbon and Ponte 2005; Muradian and Pelupessy 2005; Mather and Greenberg 2003; Poulton *et al.* 2004). The approach developed in this literature revolves around analyzing the structure, actors and dynamics of value chains. It includes the examination of typologies and locations of chain actors, the linkages between them, and the dynamics of inclusion and exclusion in value chains. Finally, it entails understanding the structure of rewards in case of participation, the functional division of labour along a chain and its changing shape, the role of standards and labels in facilitating or hindering participation, and the distribution of value added along the chain.

But few value chain studies have succeeded in explicitly documenting the impact of value chain activities on poverty, gender and environmental management. The few attempts to quantitatively assess poverty impacts have been carried out mainly in terms of household income (see Gibbon and Bolwig 2007b; Kadigi *et al.* 2007). Explicitly gendered studies of value chains have been carried out mostly with reference to the horticultural sector (Barrientos *et al.* 2003; Tallontire *et al.* 2005). Little attention has been paid to how participation in value chains expose poor people to risks, as opposed to how it affects income opportunities. Research on the environmental implications of agro-food value chain dynamics generally lacks a deep analysis of the value chains concerned (e.g. Donald 2004; Dalgaard *et al.* 2007). Alternatively, it is focused on environmental labels and certifications (Giovannucci and Ponte 2005; Klooster 2005; Ponte 2008) or on fair trade (Raynolds 2002; Raynolds *et al.* 2004; 2007; Taylor 2005). In both cases, impacts are either

not analyzed systematically or simply assumed. Finally, value chain studies have not been particularly concerned with the specific constraints to (or opportunities for) successful integration in global markets faced by producers and workers living in marginal areas.[1]

Conversely, approaches that look in detail at the local dynamics of livelihoods and changes in the depth or nature of poverty often downplay the ways in which these issues are shaped by value chain dynamics and restructuring. The study of poverty and wellbeing is often dominated by large scale quantitative surveys and panel surveys that are good at spotting overall trends, but which collect information in a highly decontextualised way, and at a level of generality that does not allow researchers to make links between poverty changes and the situated dynamics of changes in economic formations (Bevan 2004). Though there have been calls recently for such surveys to be complemented by qualitative information (Kanbur 2002, Shepherd 2007), attempts to do this are often fairly limited and often still operate within an econometric imaginary that disregards the key role played by social process and social relations. They also have little real notion of just how qualitative information (e.g. life histories) and surveys are to be linked (du Toit 2005).

A contributing factor to this problem is that qualitative approaches to poverty in the field of development and poverty studies are dominated by increasingly standardised versions of the 'livelihoods model'. This approach to understanding the economic activities and material situations of (usually rural) people was developed originally by researchers who were trying to displace the teleological and oversimplified models imposed by neoclassical economics (Sen 1981; Chambers and Conway 1992; Carney 1998). As a general heuristic device the model is useful, as it focuses the attention on the need to understand economic activity in a cross-sectoral and multi-scaled way (Murray 2002). All too often, however, this approach is reduced to the decontextualised and mechanistic enumeration of different kinds of 'capital', with very little understanding of the economic and political processes, contextual factors and social relations that make these various kinds of capital what they are and that shape the ways in which they can be used. Thus used, livelihoods analysis can become divorced from an understanding of the broader and more complex social relations and processes created and dissolved through value chain restructuring.

Hence, developing an approach that combines 'the best of both worlds' entails linking a detailed and locally-nuanced understanding of the internal structure and composition of livelihoods with the broader political economy within which they are situated, and the transnational linkages and

[1] Key economic characteristics of these areas are low biological productivity, poor infrastructure, and low investment capacity. The populations in these regions are also often politically marginalised or are ethnic minorities.

networks that exist along a value chain. But in addition to, or as elements of, poverty and livelihoods issues, value dynamics and restructuring have important linkages to gender, labour and the environment, discussed below.

The concept of the 'gendered economy' has recently been adopted by Barrientos, Tallontire and colleagues in a series of value chain studies that seek to address the extent to which ethical trade addresses the conditions of marginalized workers in the horticultural export sector (Barrientos et al. 2003, Tallontire et al. 2005). In these studies it is explicitly recognized that global value chains (and employment within theses) are embedded in economies and labour markets that are themselves gendered institutions, which reflect and reinforce socially constructed gender divisions and inequalities (ibid).

Most value chain studies to date have concentrated on ties between global buyers and local suppliers, often differentiating between different types of producers while ignoring the role of labour as other than a productive asset (Barrientos et al. 2003; Hale and Opondo 2005). Recently, attempts have been made to analyze the consequences of value chain restructuring for labour (Barrientos 2003; Bair and Gereffi 2001; Nadvi 2004; Riisgaard 2007), sometimes in relation to Corporate Social Responsibility (Barrientos et al. 2003; Barrientos and Dolan 2006; Tallontire et al. 2005). These studies have added valuable insights. However, they are still focused on income impacts and have rarely ventured beyond the workplace level – except for the gender studies concentrating narrowly on 'ethical value chains' (Ibid).

Value chains affect the environment and how it is managed through a range of complex dynamics, with a wide range of possible outcomes. Environmental aspects of value chains denote, on the one hand, the natural resource base and climate which are the basis for poor producers to participate in a value chain and, on the other hand, the impact that production practices have on this resource base and its surroundings. The first meaning includes factors such as soil fertility, water resources, rainfall patterns and pest prevalence, while the second includes aspects such as soil degradation, pesticide use, biodiversity loss, eutrophication and green house gas emissions. These two environmental aspects are linked in complex ways. Although a variety of methods exist for environmental appraisal of systems of farming, aquaculture and wild harvesting of common pool resources, they are usually not integrated with analyses of the value chains which the farming systems are part of. For the assessment of resource uses and environmental impacts along an entire value chain, the main tool available is the Life Cycle Assessment (LCA) methodology (Guinée 2002). LCA has been used mainly to evaluate products from intensive, high-input food production systems, including organic farming in the North, while few LCA studies have assessed food products from developing countries. LCA is also the method used in 'carbon ac-

counting' – the measurement of the carbon emission 'embedded' in a product (taking account of the entire product life cycle) or resulting from a distinct product-related activity (e.g. production or transportation) – which is emerging as a way for food retailers and manufacturers to show their commitment to climate change mitigation and which could have significant cost and demand effects on producers and exporters in developing countries.

On this background the **first objective** of this paper is to develop a conceptual framework that can help overcoming the shortcomings highlighted so far in 'stand-alone' value chain, poverty, gender and environmental analyses. In other words, it aims at integrating the 'vertical' and 'horizontal' aspects of value chains that affect poverty and sustainability.

In recent years, international NGOs, UN agencies, and the World Bank have made increasing use of GVC analysis in policy and project work in developing countries. Yet, to our knowledge a coherent conceptual framework to guide such activities has not been developed. Past applications of GVC research have also been narrowly focused on functional 'upgrading' and have not considered the broader issue of the terms on which poor or marginalised people participate in value chains. There has also been a tendency to address upgrading and inclusion as 'management' and 'competence' problems. Such an approach ignores the often highly asymmetrical power relations in agro-food value chains that put tight constraints on the room for manoeuvre for 'upstream' (near the point of production) actors, especially for small firms and farmers in developing countries. This means that these actors are unlikely to achieve much through their own efforts alone. Relatedly, a management/competence approach to upgrading tends to downplay the fact that the terms of participation in agro-food chains are to a large extent controlled by 'downstream' (near the point of consumption) actors such as importers and retailers. This means that improving the participation for upstream actors will require interventions at sites located far beyond their areas of operation, often drawing on resources and networks in the North.

In this light, the **second objective** of the paper is to draw lessons from the conceptual framework (see above) for interventions targeted at improving value chain participation for weak chain actors in developing countries, particularly small producers and agro-businesses. Emphasis is on the kinds of interventions known as 'action research' which put emphasis on strategic and 'political' approaches to achieving sustained improvements for disadvantaged groups. The resulting approach forms the basis of a strategic framework and a set of practical tools for action research in value chains developed in a companion paper (Riisgaard *et al.* 2008).

The paper is based on a literature review, our own research experiences and interactions with South African researchers and practitioners during a workshop in Cape Town in October 2007.

During the workshop the conceptual framework and practical tools were discussed and then applied to real-world situations in a simulation exercise by the participants who were familiar with value chain development, environmental management and poverty reduction.

The entire methodology will be tested during 2008—09 by seven action research projects targeted at poor rural producers in Africa and Asia. All projects form part of the Rural Poverty and Environment programme of the International Development Research Centre (IDRC) and are carried out as part of the RPE research theme "integrate poverty and environmental concerns into value chain analysis" under the guidance of the Overseas Development Institute, London.

1.2 THE CONCEPTUAL FRAMEWORK IN BRIEF

The defining aspects of the conceptual framework for integrating the horizontal (poverty, gender, labour and environment) and vertical elements of value chains can be summarised as follows:

- **'Vertical' analysis**
    - analysis of value chains in their dimensions of governance and coordination, standards and certifications, functional division of labour, linkages, and performance requirements;
    - examination of the implications of these dimensions for the rewards and risks, the terms of participation and the possibilities for improving these (through upgrading) for 'upstream' chain actors (closer to production) in developing countries;
    - analysis of the trajectories of upgrading and their consequences.
- **'Horizontal' analysis**
    - Poverty dimensions
        - analysis of income and resources, livelihood strategies and employment, vulnerability and risk, and inequality;
        - examination of the terms and (pre)conditions of inclusion, participation, exclusion and non participation into a value chain.
    - Environmental dimensions
        - understanding of local environmental constraints, available natural resources and management issues;
        - assessment of local environmental impacts on health, biodiversity and natural resources;
        - life cycle assessment and other analyses of global environmental dimensions

relating to activities along the entire value chain or in particular nodes.

- Gender dimensions
  - incorporation of gender sensitivity into all elements of the framework;
  - the importance of gender differences for changes in value chain position and for impacts on poverty and the environment;
  - an understanding of the economy to include both market-oriented activities and reproductive (unpaid) work that underpins productive work.
- Labour issues
  - Analysis of the terms under which workers are integrated into value chains and how they are affected by changes in these, in terms of changes in income level, job security, personal health and social security protection.

- **Integration of vertical and horizontal analyses**
  - Types of actors – chain actors, external actors/networks, excluded chain actors and non participants.
  - Types of change in value chain 'position' – inclusion into value chain, continued participation under new terms, exclusion of participants, and non participation;
  - How the change in value chain position may be driven by changes
    - 'from above' – in value structure, governance, standards and certifications, or
    - 'from below' – in actor capabilities resulting from upgrading or local factors.
  - Key dimensions of poverty/the environment, for each type of change in position.
  - Illustrations of how commonly observed vertical chain dynamics (change in position and the causes) may impact on each dimension of poverty/the environment.
  - Gender issues relating to both vertical dynamics and horizontal impacts/issues.

This gives rise to the following lessons for action research that aim at improving value chain participation ('position') for small producers and agro-businesses in developing countries:

- **Understanding the governance structure of value chains**
  - Effective action depends on a good understanding of the governance structure of the value chain, particularly how decision making by 'lead firms' (powerful downstream actors) define the division of labour and terms of participation along the entire chain, and how external actors such as large NGOs influence the terms of participation through standard setting or other means. These characteristics are likely to limit the scope for local level interventions.

- **Identifying action points**
    - Careful selection of chain types and specific 'action points' (or pressure points) where interventions are likely to have most impact.
    - Emphasis on linking the target group with more powerful downstream chain actors and with external actors, in view of the competitive and often conflictual operating environments of value chains.
    - There is a need to mobilize political and economic resources external to the chain as interventions may require altering power relationships between chain actors and/or significantly increasing the capabilities of the target group.
- **Promoting upgrading**
    - Upgrading, understood as a desirable change in value chain 'position', is proposed as a central notion for action research targeted at weak chain actors. Upgrading has two key components:
        - strengthened value chain coordination (improved linkages) around the production node, achieved either through vertical integration (one actor undertaking multiple chain activities) or through increased contractualization (longer-term and more complex economic relationships between chain actors);
        - specific forms of upgrading that improve performance within the production node, such as improving product quality, increasing volume, complying with standards, etc.
- **Assessing both risks and rewards**
    - while increasing rewards through upgrading can be a sound strategy, it is often equally important to reduce the exposure to risks associated with value chain participation;
    - the risks and rewards from upgrading should not only be assessed for the target group of chain actors, but also for non participants and excluded actors.
- **Considering the multiple dimensions of horizontal elements**
    - Action research should assess the rewards and risks from upgrading not only in financial terms but also in relation to poverty, gender, labour and the environment. The emphasis placed on each of these 'horizontal' elements and on their various dimensions will depend on the context and purpose of the research and on the capacity of the research team. Managing the resulting complexity of research and action requires a focus on a clearly defined and relatively narrow set of issues.

1.3 LIMITATIONS AND STRUCTURE OF THE PAPER

This paper should be read in conjunction with a second paper (Riisgaard *et al.* 2008) where a strategic framework and a set of practical tools are developed in relation to the conceptual framework presented here. The two frameworks and the set of practical tools make up a coherent methodology. Whilst the latter is designed generically, it is built mainly upon the authors' experience in carrying out research in agro-food export value chains (agriculture, forestry, and fisheries). This makes it more easily applicable to these sectors and to other natural resource-based value chains, including aquaculture, resource extraction (minerals, timber and non-timber forest products) and nature-based tourism, than to services and manufacturing. Value chains as conceptualised here may have global as well as domestic or regional dimensions. Our focus is on small producers (rather than commercial farms) and to a lesser extent small agro-businesses in developing countries. This means that while labour issues are discussed as one of the horizontal dimensions of value chains, the methodology is not designed specifically to address the problems and needs of workers (for one that is, see McCormick and Schmitz 2001).

The paper is organised as follows. Section 2 discusses the 'vertical' elements of value chain analysis through a review of the global value chain (GVC) literature, focusing on key aspects such as governance, upgrading, standards and certification, and what these aspects entail for research and action on value chains. In Section 3 we then examine the 'horizontal' elements of value chain analysis – poverty, gender, labour and the environment. The conceptual framework for integrating the vertical and horizontal elements of value chain analysis is developed in Section 4. Based on the previous discussions, Section 5 then outlines the 'lessons learned' for action research in value chains, which provides a bridge to the strategic framework and the set of practical tools developed in Riisgaard *et al.* (2008). Section 6 concludes the paper.

2. Vertical elements of value chain analysis

2.1 GLOBAL VALUE CHAIN ANALYSIS

Global value chain (GVC) analysis[2] has emerged since the early 1990s as a novel methodological tool for understanding the dynamics of economic globalization and international trade. It is based on the analysis of discrete 'value chains' where input supply, production, trade and consumption or disposal are explicitly and (at least to some extent) coherently linked. In addition to the descriptive aspects of territoriality and input-output structure, much GVC discussion has revolved around two analytical issues: how GVC are governed (in the context of a larger institutional framework); and how upgrading or downgrading takes place along GVCs. Many of these discussions have been carried out with an interest in how power and rewards are embodied and distributed along GVCs, what entry barriers characterise GVCs, and how unequal distributions of rewards can be challenged in favour of labour and/or developing countries.

The use of the terminology '*chain*' suggests a focus on 'vertical' relationships between buyers and suppliers and the movement of a good or service from producer to consumer. This entails an analysis centred on *flows* of material resources, finance, knowledge and information between buyers and suppliers. Processes of coordination and competition among actors operating in the same function or segment of a particular market are given less attention in GVC analysis.

2.2 GOVERNANCE AND COORDINATION

In GVC analysis, governance is the process by which so-called 'lead firms' organize activities with the purpose of achieving a certain functional division of labour along a value chain – resulting in specific allocations of resources and distributions of gains. It involves the definition of the terms of chain membership, the related incorporation/exclusion of other actors, and the re-allocation of value-adding activities (Gereffi 1994; Kaplinsky 2000; Ponte and Gibbon 2005; Raikes *et al.* 2000). In the GVC literature, lead firms are seen as not only dictating the terms of participation to their immediate suppliers, but also as managing to transmit these demands upstream towards further layers of suppliers, sometimes all the way to primary producers.

[2] This term is used in this paper to also include work known as 'global commodity chain' (GCC) analysis from 1994 onwards.

In its original formulation, Gereffi (1994) distinguished broadly between '*producer-driven*' and '*buyer-driven'* types of governance. 'Producer-driven' chains were said to be found usually in sectors with high technological and capital requirements, where capital and proprietary know-how constitute the main entry barriers to 'lead firm' status. In these chains, producers tend to keep control of capital-intensive operations and sub-contract more labour-intensive functions, often in the form of vertically-integrated networks. 'Buyer-driven' chains were said to be found in generally more labour-intensive sectors, where market information, product design and marketing/advertising costs set the entry barriers for would-be lead firms. In these chains, production functions are usually out-sourced and key actors concentrate on branding, design, and marketing functions.

The initial stimulus for further discussions on governance issues in GVCs beyond the buyer-driven and producer-driven typology came from work by Sturgeon (2002) on the consumer electronics industry. As seen above, in the early GVC literature, out-sourcing of manufacturing functions was typically interpreted as an instance of externalization of low-profit and non-core functions upstream (towards producers) that is peculiar to buyer-driven chains – although increasingly relevant in some producer-driven chains as well. Sturgeon questioned this interpretation. He argued that the functions externalized by brand-name firms to global contract manufacturers are not necessarily low profit and that they do not generally entail a 'captive' position for suppliers. Global contract manufacturers have become prominent in electronic products, and they are also emerging in the auto parts industry, food processing and pharmaceuticals. In the agricultural sector, they are an important part of the cocoa-chocolate complex, where branded chocolate manufacturers are increasingly out-sourcing the supply of cocoa intermediate products (see Fold 2002).

A related observation about the producer-driven vs. buyer-driven dichotomy that was raised in the late 1990s was that some value chains exhibit the tendency to move from one category to the other. In some producer-driven chains such as automobiles, computers, and consumer electronics, producers are increasingly out-sourcing portions of component manufacture; sometimes, they even out-source supply-chain logistics and final assembly, while keeping control of promotion and marketing of the brand names on which market access is based – a trait of buyer-driven chains.

It has also been observed that the category of 'buyer' covers a variety of types of lead firms who may 'drive' chains in different ways. Buyers include retailers, branded marketers, industrial processors and international traders. Levels of 'driving' tend to be higher in chains led by retailers, branded marketers and industrial processors (clothing, footwear, bananas, other fresh fruit and

vegetables, coffee, cocoa) than in those led by international traders (cotton, fish, cashew nuts) (see Fold 2002; Gibbon 2001; Ponte 2002).

Finally, it has been pointed out in recent literature that external actors (those not directly handling a product or service) can have an important say in how a GVC is governed – these can be NGOs, 'experts', certification bodies, and/or providers of support services (see Ponte 2007b; Riisgaard 2007). An illustrative example is a proposal in 2007 by the dominant organic standard setting body in the UK, the Soil Association, to ban the certification of fresh organic produce imported by air. The proposed ban would significantly reduce market access to the UK for operators using airfreight and mean that most operators in developing countries would be forced to either convert to conventional farming or exit the value chain altogether (Gibbon and Bolwig 2007b).[3]

Such debates have led to efforts to refine definitions of governance in GVCs in terms of how certain firms set, measure and enforce the 'parameters under which others in the chain operate' (Humphrey and Schmitz 2002a). In other words, governance is now seen by some GVC analysts as the process of exercising control along the chain through the specification of what type of product needs to be supplied, in what quantity and when, how it should be produced, and at what price (Ibid: 6-7). When a group of firms in a particular functional position (or positions) in a value chain (or exercising external influence on the operation of the value chain) is able to shape who does what (and at what price, on the basis of which standards, to which specifications, and on the basis of which delivery schedules) along the chain, they are said to be in a 'lead firm' position.

More recently, Gereffi *et al.* (2005) have formulated an analytic framework that yields governance classifications that go beyond (and seem to replace) the original distinction between 'buyer-driven' and 'producer-driven' chains. They developed a matrix with three independent variables that can each take two values (high and low). These variables are: (1) the complexity of the information and knowledge required to sustain a particular transaction; (2) the ability to codify and transmit efficiently this information between the parties; and (3) the capabilities of the supply base in relation to the requirements of the transaction (Ibid). The matrix yields eight combina-

[3] After widespread critique from industry actors, government officials and sympathetic international organizations, the Soil Association decided that air freight of organic products will be allowed only if an additional fair trade certification is obtained and if a policy of phasing out air freight is adopted.

tions, three of which are ruled out 'in practice' as inherently improbable. This leaves five possible categories of governance (Ibid.):

1. Market: spot or repeated market-type inter-firm links characterized by low informational complexity, ease of codification of information, and high supplier capabilities; both parties' costs of switching to new partners are low.
2. Modular: inter-firm links involving somewhat more specialized suppliers who finance part of production on the part of the customer, but whose technology is sufficiently generic to allow its use by a broad customer base; characterized by high informational complexity, ease of codification and high supplier capabilities.
3. Relational: inter-firm links involving multiple inter-dependencies, often underwritten by close social ties; characterized by high informational complexity, low ability to codify information and high supplier capabilities.
4. Captive: inter-firm linkages involving one-way dependency of suppliers, high levels of supplier monitoring and high costs of switching for suppliers; characterized by high informational complexity and ease of codification, but low supplier capabilities.
5. Hierarchy: classical vertical integration; characterized by high informational complexity, difficulty of codification and low capabilities amongst independent suppliers.

2.2.1 Issues for research and action

Although the above framework captures some important elements that influence the *forms of co-ordination* between actors in different functional positions in a GVC, it has only limited explanatory power to explain the *overall form of governance*. GVCs may be characterized by different forms of coordination in different segments of the same chain. Also, as mentioned above, they can be governed (or at least partly influenced) by external actors to the GVC. In the approach proposed in this paper, governance in GVCs involves more than how firms decide whether to 'make or buy' something and more than how they relate with their immediate suppliers and buyers.

A companion paper (Riisgaard *et al.* 2008) focuses on how value chain coordination around the production node may be strengthened as part of a broader 'upgrading strategy' to improve value chain participation for small producers in developing countries (and for other weak chain actors near the production node such as small trading and processing firms). Using the Gereffi *et al.* (2005) framework as a way of understanding forms of coordination between chain actors (rather than categories of governance), they identify three major forms of coordination in the production segment, which are useful for strategizing at this level: (1) market (spot or repeated market-type inter-firm links), (2) hierarchy (vertical integration – when an actor performs several functions),

and (3) contractualization (between 'market' and 'hierarchy', encompassing 'modular', 'relational' and 'captive').

The concept of 'contractualization' includes two dimensions: (1) vertical contractualization entails longer-term relationships or 'contracts'[4] between producers and buyers (large traders or processors), which can provide greater security of market for small producers as well as benefits such as improved access to market information (e.g. on quality demands), services and inputs; and (2) horizontal contractualization, where producers agree among themselves to cooperate over input provision, marketing, certification, crop insurance or other forms of collective action in order to increase revenues, reduce costs, or reduce individual risks.[5] While the vertical dimension of contractualization is explicitly examined in the GVC literature, it is usually subsumed under the discussion of 'learning from global buyers' and a normative expectation that it may lead to the 'best path' – functional upgrading (see later). But vertical contractualization can also be useful for reducing price risks for small producers, reducing marketing costs, and even yield higher average rewards through price premia.[6] Finally, the two dimensions of contractualization are often connected, as collective action (horizontal contractualization) among small producers is frequently necessary for increasing vertical contractualization.

Returning to the Gereffi *et al.* framework, then we argue that while the 'market' is the dominant form of coordination in the production segment of agro-food chains originating in developing countries, the conditions for making it an efficient one are often not present, particular when the aim is producer upgrading. Small producers clearly do not possess 'high supplier capabilities', while 'informational complexity' tends to increase with the value of the product, and in particular with certification to food safety or sustainability standards – all of which are common elements in upgrading. The 'low cost of switching to other partners' may not apply to producers in areas where buyers are few or are colluding, or where producers are 'locked in' with particular buyers through credit or other ties. All this suggests that upgrading for small producers in many cases

[4] A 'contract' is defined broadly as a binding agreement between two or more parties for performing, or refraining from performing, some specified act(s). A contract in this sense is not limited to legally enforceable agreements and 'sanctions' for breaking contracts are often in the form of lost economic opportunities in the future. Contracts can also vary in respect of their time frame and how binding they are.

[5] It can be argued that this kind of collective action constitutes a separate form of coordination, but we include it here as an aspect of 'contractualization' although this use of the term is unconventional.

[6] Additionally, the dynamic effects of contractualization on rewards through increased output and quality can be considerable. At the same time, vertical contractualization can involve higher performance requirements – e.g. in respect of quality, volume, timing of supply and certification.

will depend on developing other (stronger and more equitable) forms of coordination in the production segment (and perhaps also further downstream), i.e. increasing contractualisation and/or vertical integration. Alternatively, or additionally, producers must strengthen their supply and negotiation capabilities. These changes in coordination and capability in the production segment can in turn enhance overall chain performance in terms of cost, quality, volume, traceability, timing of supply, etc. In some cases they may nevertheless be resisted by other actors in the production segment who may see their position threatened or rewards reduced. In others, such as in organic export agriculture in Africa, buyers (exporters and importers) have implemented contractualization in the production segment through the establishment contract farming schemes combined with group certification (Bolwig et al. 2008).

2.3 STANDARDS AND CERTIFICATIONS

An existing way of linking vertical and horizontal concerns in value chain analysis has been through the examination of social, labour and environmental standards and certifications. Standards can be set up to specify technical characteristics of a product, specific process and producing methods, quality traits, and safety. Increasingly, standards in agro-food and natural resource value chains include specifications relating to environmental impact, animal welfare concerns, and worker conditions.

Standards are important for developing country farms and firms because they determine access to specific segments of the market (e.g. in defining forestry products that are 'sustainable'), to specific countries (e.g. through regulation on food safety and technical requirements) and the terms of participation in global value chains (e.g. through matching quality standards). On the one hand, standards set entry barriers for new entrants in a value chain, and throw new challenges to existing developing country suppliers. On the other hand, the challenge of rising standards provides the opportunity for selected suppliers to add value, assimilate new functions, improve their products, and even spur new or enhanced forms of cooperation among actors in a specific industry or country (Jaffee 2003).

Standards can be classified in three broad categories: mandatory, voluntary and private. Standards are *mandatory* when they are set by governments in the form of regulation. These may affect trade flows by placing technical requirements, testing, certification and labelling procedures on imported goods. Although mandatory standards are a key feature of agro-food trade, they are often overshadowed by even stricter, multiple, and often-changing requirements set by multinational corporations or industry associations. These can take the form of voluntary and/or private standards.

Voluntary standards arise from a coordinated process in which key participants in an industry or sector seek consensus. Some are set in formal international institutional settings (e.g. through the International Standardization Organization of Codex Alimentarius). Others are introduced as a response to consumer requests (such as eco-labels), or as a result of NGO-initiatives (such as fair trade labelling). Sectoral or industry associations can also establish voluntary standards that apply to their members. Voluntary standards are usually verified through third-party auditing. *Private* standards are developed internally by individual enterprises. In some cases, they may be monitored externally or audited.

The distinction between mandatory, voluntary and private standards, however, is becoming increasingly blurred. Although voluntary standards are not mandatory by rule, some of them (such as the ISO 9000 standards on quality management) have become *de facto* mandatory standards, meaning that they are required for producers if they want to compete globally. The distinction between private and voluntary standards is also to some extent arbitrary, as many private enterprises borrow parts of voluntary standards when designing their own. Adherence to voluntary and/or private standards is often a pre-condition for the acceptability of products by consumers and/or distributors. Moreover, insurance companies may request compliance with standards to reduce product liability exposure. Voluntary standards may also be incorporated in regulation.

Much of the burgeoning literature on the 'developmental' impact of standards, labels and certifications in natural resource-based value chains has been focused on standard setting (the development of principles, indicators, measurement devices and compliance systems) and standard implementation (compliance and certification) (most recently, see Gibbon and Bolwig 2007a; Hanataka, Bain and Busch 2005; Henson and Reardon 2005; Raynolds 2004; World Bank 2005). Other work has examined the ethics and governance of standards, standards as a tool of governance, and the service industry of consultants, auditors and certifiers that has emerged around these standards (among others, see Busch 2000; 2002; Hughes 2006; Mutersbaugh 2005; Ponte and Gibbon 2005; Ponte 2007a; Taylor 2005). Two areas that have been relatively neglected are standard adoption (the decision to attempt compliance and certification) and standard verification after certification (routine monitoring, auditing, re-certification) (for an exception, see Ponte 2008).

The literature on standards and certifications that protect workers, the environment and social conditions of production suggests that their 'positive' impact on the supposed beneficiaries can not be taken for granted (Barrientos and Dolan 2006; Constance and Bonanno 2000; du Toit 2002; Giovannucci and Ponte 2005; Klooster 2005; Morris and Dunne 2004; Mutersbaugh 2005; Pattberg 2006; Ponte 2008). While these initiatives have created new opportunities for their bene-

ficiaries, there is evidence that there have been negative impacts among those who are unable or unwilling to participate. In some cases, consumer concerns, perceived or real, have even had negative consequences on their 'beneficiaries'.[7] It is also clear that these schemes have been weak in targeting disadvantaged groups. For example, women have often been left out of organic export schemes in Africa (Bolwig and Odeke 2007). Finally, stakeholders have rarely been able to influence codes of practice and labels, with the result that they may not address the priority issues for workers, labour unions and smallholders (Blowfield 1999; Giovannucci and Ponte 2005; Riisgaard 2007).

Thus, even though protecting consumers from unsafe food, the environment from over-exploitation of resources and pollution, and workers and producers from unjust labour and trade relations are generally considered objectives worthy of intervention in development circles, abstract principles are eventually applied in concrete situations and have a variety of effects on differently endowed countries, groups and individuals. What may seem a good idea to consumer groups, food retailers and processors, or government agencies in a Northern setting, may not turn out to be so advantageous to producers in the South – even though the initial stimulus in the North may have been exactly to safeguard these producers (Ponte 2008). At the same time, these labels and certifications are becoming more important to obtain market access, whether they do 'good' for the environment and social conditions of production or not.

2.3.1 Issues for research and action

In light of the above discussion, it is important that the integration of poverty, gender and environmental aspects into value chain analysis includes knowledge of the demands and expectations that compliance with different kinds of standards entail, and an assessment of specific costs and benefits – not only of financial, organizational, and investment nature, but also in terms of vulnerability, risk, and inequality, and in particular relation to small producers and disadvantaged groups and areas.

Checklists and methods for value chain analysis (including issues related to structure, governance, standards and certifications, costs and revenues in each node, etc.) for use in action research are provided in Riisgaard *et al.* (2008), Section 4.5.

[7] A recent example is a proposal from the main organic standard setting body in the United Kingdom not to certify of re-certify organic products imported by air. It has been estimated that such a ban on air-freight of organics in the UK alone would compromise more than 20,000 livelihoods in developing countries (Gibbon and Bolwig 2007b).

2.4 UPGRADING

In Global Value Chain (GVC) analysis, the concept of upgrading is used to identify the possibilities for producers to 'move up the value chain', either by shifting to more rewarding functional positions, or by making products that have more value-added invested in them, and/or that can provide better returns to producers. In the GVC approach, the upgrading process is examined through the lenses of how knowledge and information flow within value chains from 'lead firms' to their suppliers (or buyers) (Gereffi 1999). Upgrading is about acquiring capabilities and accessing new market segments through participating in particular chains (Humphrey and Schmitz 2002b). Humphrey and Schmitz (2002a) have developed a typology of upgrading based on four categories:

1. *process* upgrading: achieving a more efficient transformation of inputs into outputs through the reorganization of productive activities;
2. *product* upgrading: moving into more sophisticated products with increased unit value;
3. *functional* upgrading: acquiring new functions (or abandoning old ones) that increase the skill content of activities;
4. *inter-chain* upgrading: applying competences acquired in one function of a chain and using them in a different sector/chain.

However, recent literature has also highlighted that *other forms* of 'upgrading' are equally important, and may combine some of the categories above, or even go beyond them: delivering larger volumes (even at lower quality), matching standards and certifications, delivering on logistics and lead times, getting paid better for the same product (e.g. fair trade) (Gibbon 2001; Gibbon and Ponte 2005). Specifically, 'functional downgrading', combined with economies of scale, can also be successfully employed to maximize returns or to remain in an increasingly demanding GVC.

2.4.1 Issues for research and action

Riisgaard *et al.* (2008) highlights how the concept of upgrading can be employed to think strategically about change in value chains to the benefit of weak chain actors, particularly small producers and agri-businesses in developing countries. For this purpose, they propose a broader definition of upgrading than given above, i.e. as 'a positive or desirable change in chain participation that enhances rewards and/or reduces the exposure to risks'. Rewards and risks are understood not only in financial terms but also in relation to the environment, poverty alleviation and gender equity. In the strategic framework developed in Riisgaard *et al.*, an upgrading strategy for small producers has two main dimensions or components: *forms of coordination* and *forms of upgrading*. The first component concerns options for strengthening value chain coordination around the

production node (see Section 2.3.1), where moves from the 'market' form of coordination towards vertical integration or increased contractualisation (or their combination) is proposed as powerful means of achieving many of the forms of upgrading belonging to the second component (product, process, etc. – see below). In particular, entering into contractual arrangements with buyers can improve the producer's access to the market information and resources (finance, inputs, technology, etc) as well as provide the investment incentives (particular by reducing market risks) that together enable upgrading.

The second component includes functional upgrading (often as part of vertical integration) as well as the forms of upgrading within the production node mentioned above (process, product, inter-chain, and 'other'). In contrast to the dominant notion that functional upgrading is the 'best path' (see Section 2.3.1), the framework makes no such assumptions; indeed, the other forms mentioned are likely to be the most common among small producers. We also observe that upgrading in the production node will often be employed in combinations and be mutually reinforcing. Complying with standards might for example lead to improved quality and improved efficiency in the production process. Finally, upgrading in the production node will often enable, or be a precondition for, increasing contractualisation since establishing closer business ties with buyers comes with higher performance requirements. Hence, forms of coordination and forms of upgrading are likely to be mutually reinforcing.

Checklists and methods for the design and implementation of upgrading strategies through action research are provided in Riisgaard *et al.* (2008), Section 4.6 and 4.7.

3. Expanding the horizontal elements of value chain analysis

3.1 VALUE CHAINS AND POVERTY

3.1.1 Issues for research and action

Linking value chain and poverty/livelihood analysis

The integration of poverty considerations in value chain analysis significantly broaden out the range of issues that need to be examined when exploring issues in value chain governance and restructuring. In addition to a careful and detailed analysis of the various kinds of resources upon which individuals and households draw on for their livelihoods, there is a need for theoretical

accounts and methodologies that can mediate between different arenas and levels of social process - that can link, for example, household and intrahousehold-level micro-analyses with accounts of global, national, regional and subregional processes (Murray 2002). As du Toit highlights (2004), this is a complex task. Attention has to be paid both to the vertical links – the value chains that link local livelihoods 'upstream' and 'downstream' to distant and complex networks of economic production and exchange (Du Toit 2002; Kaplinsky 2000) – and to the horizontal ones – the ways in which the impact and nature of integration into globalized systems are locally mediated (Goodman and Watts 1994). Understanding the implications for poverty, vulnerability and inequality of integration or repositioning within value chains thus requires us not only to look at the power relations that exist within the value chain itself, but also at the local systems and networks within which the individuals concerned and the groups that they are part of are situated.

Terms and conditions of participation

Furthermore, the integration of poverty considerations entails looking at poverty not only in terms of exclusion (from value chains for example) but also in terms of the conditions of participation (Bracking 2003; du Toit 2004; 2005; Hickey & du Toit 2007; Murray 2002). People may be included in a labour market via value chain participation, but excluded as citizens, for instance; or included as taxpayers, customers or clients, but excluded as workers. Even if people are included, they may not be included on very advantageous terms, and analysis should look very carefully at what the costs and benefits are whereby people are included in a particular value chain. People may be thoroughly incorporated in a particular value chain, but highly marginalised or excluded in another sense. African migrant workers picking fruit in South Africa, or migrant Dalits doing agricultural labour in India, are both highly integrated in global agro-food value chains – and thoroughly marginalised and excluded as citizens. Finally, it is also worth remembering that exclusion is not necessarily disadvantageous. Small farmers opting out of production for a global value chain, and choosing rather to produce for less lucrative but less risky local markets, are in one sense choosing to be more marginal to a particular value chain – but may find they have relatively more leverage and power in their local market.

Questions for research

Research aiming at integrating poverty concerns into value chain analyses would need to ask overall questions such as:

- How does integration into, exclusion from, or repositioning within, value chains affect poverty, vulnerability and inequality (including gender inequality)?[8]
- What are the implications of (pre-)conditions of inclusion, exclusion or repositioning within the value chain for the articulation of 'solutions' and frameworks for pro-poor growth?
- This could involve examining specific questions such as:
- What are the factors that drive or perpetuate poverty, vulnerability and inequality (including gender inequality) in any particular locality?
- What are the options open for people themselves to find pathways out of poverty or to ameliorate it, to reduce their vulnerability and to challenge inequality?
- How do particular changes in the way in which value chains are structured or governed affect the terms of participation for particular people or groups? What are the implications for their situation?
- What kinds of chains and networks are more likely to provide better opportunities?
- Is exclusion always a 'bad deal'? What other alternatives does it open? Is exclusion that follows inclusion any different from ongoing exclusion?

Even this narrowly circumscribed list of issues and questions pose significant challenges for analysis. The questions and answers are not simple – indeed, many of them are hotly contested, both academically and politically; indeed, these debates continue to be pursued in mainstream and alternative approaches to studying poverty, inequality and development. All that can be done in the present paper is to highlight some of the key conceptual issues involved (see below), and to develop a basic framework or checklist that can guide research and investigation (see Riisgaard *et al.* 2008).

3.1.2 Conceptual issues

In this section, attention is focussed mostly on highlighting and clarifying some key conceptual issues relating to poverty, vulnerability and inequality with a view to focussing and guiding research in a broad and general way. Specific action research strategies and tools are discussed in Riisgaard et al. (2008).

[8] We define these terms in following sections.

Poverty[9]

The economic and sociological literature is replete with detailed and elaborate debates and discussions as to how poverty should best be conceptualised (see e.g. Alcock 2006). Many of these debates are arguably not very relevant for the purpose of this paper. Rather than trying to come up with an encompassing, final or generally accepted definition of what poverty is, it is perhaps better to start from the recognition that 'poverty' *itself* is in the first place a political and moral, not an analytical term. Discourses about poverty draw on and are informed by deeply political and often ideologically loaded underlying political narratives about human needs, the nature of society, and the obligations and entitlements of its members (Noble *et al.* 2004, du Toit 2005). For the purposes of this paper, we therefore avoid detailed discussion of the often rather arcane and sometimes less than useful intricacies of different poverty concepts and how they should or should not be operationalized. A more sensible approach is to say that assessments of the 'poverty' impact of value chain restructuring and governance should be alive to the whole range of meanings and concerns that animate both policy jargon and popular discourse about poverty.

Livelihoods. A value chain approach tends to focus on the incomes and assets associated with the value chain of concern, while other sources of wealth get less attention. Yet from the livelihoods literature we know that poor households typically depend on several economic activities for their survival and growth, including subsistence farming, commercial agriculture, harvesting of wild products, local off-farm work and migrant remittances. Income diversification normally involves greater stability of income (less risk of falling below a critical income level) and, up to a certain level, a more efficient use of household resources (land, labour, cash etc). In the present context, we note that diversification implies that households at one time participate in multiple value chains. This involves the possibility that revenues earned in one value chain may be invested in another chain, but it also means that different chains compete for the same household resources. This competition is moreover mediated by age and gender relations, as age and gender status to some extent determine the choice of economic activity by household members. Such livelihood strategy considerations suggest that the willingness and ability of a household to improve its participation in a given value chain depends not only on its resource endowment and on the expected returns and risks from this instance of upgrading, but significantly also on how it will affect resource allocation, income, risk and benefit distribution for the household as a whole.

[9] The discussion here draws on and elaborates on ideas and arguments expounded in a report compiled by Andries du Toit and other for the Studies in Poverty and Inequality Institute (SPII) – for more information see SPII 2007.

Income and resources. One important set of issues involved in approaches to poverty focuses on identifying the resources over which the people concerned have disposal (Lister 2004; Sen 1981; Townsend 1974). The most prominent of these, of course, is cash income, but this is only one of the kinds of resources that this kind of analysis can include. Non-monetary kinds of income are important, as are other kinds of resources or assets (land, labour, skills, capital, etc.) that can be central to the generation of value. Significant amounts of time and attention has been focussed on devising and contesting various thresholds or transition points below which people are considered to be poor (e.g. Goedhart *et al.* 1977; Townsend 1990) and on arguing the merit or demerits of 'absolute' or 'relative' approaches to devising such imaginary thresholds (e.g. , Townsend 1962; Sen 1983). For the purposes of this study however, it is suggested that such debates and concerns are not that relevant. The purpose in measuring the impacts or implications of value chain restructuring is not to count how many people are poor or 'non-poor' but to consider whether the impacts are increasing or decreasing income and resources.

Capabilities and well-being outcomes. Another important set of issues of concern to those assessing poverty impact is emphasised in the work of Amartya Sen (Sen 1981). These approaches look not simply at the monetary or other resources over which people or households dispose, but consider, also, the actual levels of well-being and achieved agency that these resources allow them to achieve – what Sen famously called the human 'capabilities' to achieve various 'beings and doings' or 'functionings' (Sen 1990; Sen 1992). The advantage of such approaches is that, rather than trying to prise information about income and expenditure from informants, researchers can get more direct understandings of poverty and well-being impacts by noting the extent to which want or material lack undermines the ability of the people concerned to actually achieve adequate nutrition, health, shelter, clothing, education and so on (see e.g. Klasen 2000). Again, debate often fixes on trying to identify incontrovertibly just what 'adequate' is, what the capabilities essential to human nature really are, and where the thresholds lie that define the difference between, on the one hand, 'good enough' 'functionings' and, on the other hand, shortfalls that can be held to violate basic human needs and dignity to the extent that they can be characterised as poverty (Clarke 2005; Nussbaum 1999). Once again, these issues, hotly contested though they are, are not central to our concerns here: a more practical approach is to get a sense of how such wellbeing outcomes or 'functionings' might be affected by changes in the way value chains are governed or structured.

Experiences, meanings and expectations. Thirdly, poverty assessments should also consider how the people concerned *themselves* understand and make sense of their wellbeing or levels of poverty. Again, there is a huge literature, particularly in the field of participatory appraisal and action research, that has highlighted the importance of people's subjective self-assessments of poverty,

and it will not be necessary to discuss this in detail here (see e.g. Narayan 2000). Not just whether people consider themselves poor or not poor, but what poverty means for them and what their short, medium and long-term expectations are.

Chronic, persistent and structural poverty. Of particular concern in the field of development and pro-poor policy are the notions of chronic, persistent and structural poverty. These terms are themselves rather contested and do not necessarily refer to the same thing. The term 'chronic poverty' aims at distinguishing between the 'poor' and the 'non-poor' at any particular moment. The 'chronic poor' are then defined as those who live below the poverty line for long periods of time (or, more accurately, who show up 'poor' at each 'observation'), while the transitory poor are those who move in and out of poverty (showing up 'poor' some times and not at others) (Hulme and Shepherd 2003). The notion of 'persistent' poverty simply draws attention to situations and context where people are trapped by structural or other factors in situations that make escape from poverty difficult, and where it is therefore unlikely that they or even their children will be able to better their lot. A concern with persistent poverty is often linked to a concern with 'inter-generational transmission' of poverty – a notion that focuses attention on the issue of the extent to which the conditions created in poor households harms the life chances of subsequent generations (Hulme and Shepherd 2003; Moore 2001). Finally, analyses of 'structural' poverty are concerned with the links between persistent poverty and the ways in which individuals and households are inserted in society. They are therefore attentive to the factors that shape individuals' and households' access to key productive resources. Again, debate here often focuses on the existence or otherwise of 'asset thresholds' – levels of asset holding – the non-attainment of which dooms households to perpetual poverty and makes accumulation impossible (Carter and May 2001; Carter and Barrett 2005). For the purposes of this paper, it is more useful simply to focus on understanding the extent to which value chain governance or restructuring will exacerbate or ameliorate access to key productive resources.

Vulnerability and risk[10]

Another concept closely related to poverty is that of vulnerability. Again, numerous approaches to vulnerability exist (see e.g. Alwang *et al* 2001); perhaps the most useful from the point of view of the task in hand comes from the extensive geographical literature on ecology and hazards. The writing on hazard and ecological vulnerability emphasises that vulnerability is not the same as risk. Whereas risk is the likelihood of a specific shock occurring, vulnerability is a property of systems, and is a way of describing their response to shocks. Vulnerable systems, to use common

[10] The discussion in this section relies on the insights developed in du Toit and Ziervogel (2004).

parlance, are at a 'tipping point' where a shock could cause a change of state that is hard to recover from (Ellis 2003). More specifically, vulnerability is a function of two other properties – resiliency and sensitivity (see e.g. Kasperson and Kasperson 2001).

A system is *sensitive* to a particular shock if its response to that shock is quite large. If farmers are growing a crop which is primarily geared towards export, for instance, or dependent on imported inputs, their livelihood systems will be very sensitive to exchange rate fluctuations, whereas the livelihood systems of farmers producing for local markets will not be sensitive in that way. A system is *resilient* if it recovers or reverts to equilibrium after a shock easily or rapidly – for instance, if farmers hit hard by exchange rate fluctuations can respond quickly by changing the nature of the inputs on which they rely, or can easily find resources that allow them to afford more expensive inputs.

Vulnerability and robustness can be understood within this framework. Where a system is sensitive and not resilient, it is vulnerable; where it is resilient and not sensitive, it is robust. These distinctions are particularly helpful for the consideration of the impact of value chain restructuring. From such a perspective, the analysis of the impact should consider not only the extent of the benefits realised by participation in the value chain; it should also consider, for instance, the extent to which value chain reorganisation, integration or governance locks participants into reliance on a system that is disproportionately sensitive to shocks; and what are the safety nets or other measures that might allow recovery. Vulnerability should also be considered in the context of the broader livelihoods systems on which people depend, quite aside from the issue of their vulnerability within the value chain in question.

Inequality

A key effect of 'threshold' based approach to poverty is to disconnect discussion thereof from a concern with inequality. This is problematic for two key reasons. In the first place, poverty and inequality (including gender inequality, see below) are often very closely linked conceptually, particularly when a particular individual group is being defined as poor in relation to society as a whole, or in relation to another group. Secondly, there are often complex empirical links between the levels of poverty on the one hand, and the nature and extent of inequality on the other. There is significant research, for instance, suggesting that the impact of economic growth on poor people is very different in context of relative pre-existing equality than when the baseline situation is one of significant inequality (Nissanke and Thorbecke 2005). For this reason, it is of some significance to consider not merely what the impact of value chain restructuring and governance on the wellbeing or access to resources of a particular group will be, but also to explore the nature of change in the individual or group's position vis-à-vis other groups.

3.1.3 Guiding questions for value chain research

This discussion should highlight just how broad and complex the terrain for assessment really is, and should reinforce the rather daunting nature of the task facing those investigating the impact of value chain restructuring and governance. At the same time, they suggest a fairly tight range of issues for investigation in a value chain context. In particular, they suggest fairly strongly that analysis should concern itself in particular with taking a 'systems approach' to understanding the livelihoods of the people (and in the area) concerned. This investigation into local systems should be aimed in particular at understanding three key and overlapping issues. Research should:

1. focus on the dynamics, patterns, arrangements and processes that could entrench durable inequality or structural, persistent poverty in the area concerned;
2. explore the extent to which the livelihood systems involved are sensitive to shocks, and the factors that improve or undermine their resilience, and;
3. consider the ways in which the target group or groups are incorporated and integrated into these systems, and what their leverage within these systems are.

These are broadly defined themes. Given the complexity of social reality, each of them can be pursued in different ways. Researchers and practitioners will need to be flexible to design their approach to fit the local situation. However, it is possible to develop a very broad framework within which these questions can be pursued. Such a framework is not definitive and should not be treated as a rigid model; rather it should be seen as a heuristic aide or guideline to research. In essence, it is suggested that analysis is conducted on three different levels:

1. The level of the *individuals* concerned, and be focussed on understanding likely impacts on their livelihoods and 'functionings' and on those they are connected to. Here, research is concerned directly to understand who is being involved in the value chain, what the terms of their incorporation are, and how the value chain affects their income, vulnerability and exposure to risk.
2. The *households* within which individuals are situated. The key issue here is to recognise that membership / non membership of households is a vital way in which people are inserted into society, and a key way in which claims for resources, support, and care is organised (and gender inequality embedded). For many people, the difference between survival and starvation depends on whether or not they are part of a household which, as a whole, commands significant resources or income. At the same time, the extent to which people benefit (or not) from membership of a household is often shaped by a range of complex factors including age, gender relations, intra-household negotiation, co-operation, trade-offs and conflict. Households should not be seen as unitary or homogenous units but as 'small open systems'

characterised by internal conflict / co-operation / negotiation, claim and counter claims – processes in which age and gender power relations are particularly vital.

3. The wider *community / regional setting* where the households are located. Here, attention is to be focussed on the local and regional institutional, economic and political arrangements that create the context within which individuals and households operate, and on the impact of value chain restructuring on inequality (within and among communities). This is a very complex task, and there is no simple model that can deal with all the different kinds of regional and contextual variation. The most important issue to look for at this level is the ways in which meso and macro political relationships and institutional arrangement shape resource control, power relations and the nature of conflict.

Checklists and methods for the consideration of these issues in action research are provided in Riisgaard *et al.* (2008), Section 4.4.

3.2 VALUE CHAINS AND GENDER

3.2.1 Issues for research and action

Incorporating gender awareness into all elements of the methodology entails working with a conceptual understanding of poverty, vulnerability and inequality that can capture gender differences as well as incorporating gender analysis into the methodology of the value chain strategic frame
work and research tools for action research (see Riisgaard et al. 2008).

Conceptually, we take as a starting point the notion of the 'gendered economy' as developed by Elson (1999). This notion contrasts with standard economic analysis that views the economy as gender-neutral and is concerned only with economic activity that is linked to the market. A gendered economy approach insists on the inseparability of the reproductive and the productive spheres so that the understanding of the economy is extended to include not only market-oriented activities but also the unpaid work (such as domestic work and childcare) that underpins productive (paid) work (Barrientos 2003; Elson 1999).

The concept of the gendered economy has recently been adopted by Barrientos, Tallontire and colleagues in a series of value chain studies that seek to address the extent to which ethical trade addresses the conditions of marginalized workers in the horticultural export sector (Barrientos et al. 2003; Tallontire et al. 2005). In these studies it is explicitly recognized that global value chains (and employment within theses) are embedded in economies and labour markets that are themselves gendered institutions, which reflect and reinforce socially constructed gender divisions and inequalities (ibid).

Many gender concerns can be covered in the framework for integrating poverty concerns into value chain analysis, since gender inequality is often intricately linked with poverty, vulnerability and the mechanisms of inclusion, exclusion and adverse incorporation. However, there are issue specific to gender too. Consequently, gender issues related to value chain participation should be addressed separately to assure a systematic and encompassing analysis.

A rare practical example of a methodology for conducting a gender sensitive value chain analysis can be found in McCormick and Schmitz' manual for practitioners and researchers involved with home workers in the garment industry (McCormick and Schmitz 2001). In the tools they develop for mapping garment value chains (and segments of the chain) they employ a gender analysis structured in four steps, including answering questions such as: Do women/men have the resources to work in the segment of the industry? What is lacking and why? How might gender relations constrain the acquisition of resources at particular nodes in the chain? A gender analysis is a systematic gathering and examination of information on gender differences and social relations using sex-disaggregated data and participatory methods. For example, in a recent study of certified organic value chains for coffee and pineapple, Bolwig and Odeke (2007) show how the distribution of costs and benefits from organic conversion was biased against women and that this was related to gender-specific labour roles and land rights, among other factors.

We propose that such a gender analysis can be an important tool in sensitizing research on how the integration of poor people into global value chains (as workers or producers) can reduce or exacerbate poverty. We further see gender analysis as important in relation to environmental management concerns related to these value chains because experiences of both poverty and environmental change are gender-differentiated.

3.2.2 Guiding questions for value chain research

The above conceptualisation of gender issues in relation to value chains gives rise to new sets of research questions as well as to methodological considerations – particularly of the use of participatory methods and the use of sex-disaggregated data. Research aiming at integrating gender concerns into value chain analyses needs to ask overall questions such as:

- What kinds of value chains and forms of incorporation are likely to exacerbate gender inequalities and which provide the best options for reducing gender inequalities and gender related vulnerability?
- How might gender relations constrain access to, or rewards entailed by, value chain participation?

Checklists and methods for the consideration of these issues in action research are provided in Riisgaard *et al.* (2008), Section 4.4.

3.3 VALUE CHAINS AND LABOUR

3.3.1 Issues for research and action

Incorporating awareness of labour issues into the value chain methodology entails a focus not just on the desired development of producers, but a breakdown of consequences and potential benefits for workers. This means analyzing how value chains and value chain restructuring affect job creation and job loss (both within and outside of the chain) and the location of jobs as well as analysing the link between labour availability and skills for the upgrading possibilities of producers (Gereffi and Sturgeon 2004, Bair and Gereffi 2001). However, it also entails going beyond seeing labour as productive asset and take into consideration the terms and conditions under which workers participate in value chains and how they are affected by changes in these (Barrientos et al. 2001, Hale and Opondo 2005, Riisgaard 2007, Riisgaard and Hammer 2008). For most workers employed in global value chains (many of which are women) their income will comprise the major source of household income. The risks faced by particularly women workers are thus compounded by their family and childcare responsibilities, and the risks and benefits for workers from employment in value chains therefore have wider poverty implications.

Studies incorporating a labour focus have recently revealed how organizational restructuring by global firms has important consequences for labour and labour institutions in terms of encouraging flexibilization and feminization of labour at the production end of global value chains (Barrientos 2003, Barrientos and Kritzinger 2004). While the latter have brought an increasing number of workers (particularly women) into paid employment, much of it is temporary or sourced through third party contractors. This type of work is commonly informal in nature without legal rights or benefits. Ethical standards, particularly adopted by large retailers and branded marketers seek to address some of these concerns, but often fail to reach more vulnerable workers like casuals, migrants and/ or women.

Other studies have revealed how the terms of trade between retailers and suppliers in large retailer driven value chains are intimately connected to the conditions of work at sites of production. Retailer practices such as the extraction of favourable pricing terms and discounts, just in time ordering, the avoidance of legally binding contracts for supply, supply spreading, and supplier switching have more or less direct effects on the conditions of work at production, including a lack of job security, low wages, pressure to work overtime and the employment of large numbers of temporary workers. These studies powerfully illustrate how labour conditions at

sites of export production cannot be treated as hermetically-sealed economic environments separate from the dynamics of the value chains that strongly shape them (Hughes 2001, Tallontire et al 2005).

3.3.2 Guiding questions for value chain research

In practice, including a labour focus in value chain research would entail asking questions such as:

- What are the poverty reduction implications of worker participation in a particular value chain?
- What are the dynamics of a 'restructured' value chain (as opposed to a conventional strand) characterized by fewer nodes, tighter coordination and higher standards, and what does this mean for workers in terms of welfare outcomes such as income level, job security, personal health and social security protection?

Checklists for the consideration of employment and labour issues in action research are provided in Riisgaard *et al.* (2008), Section 4.4. A more comprehensive guide is found in McCormick and Schmitz (2001).

3.4 VALUE CHAINS AND THE ENVIRONMENT

3.4.1 Issues for research and action

Value chains affect the environment and how it is managed through various dynamics. For example, increases in producer prices may induce an intensified use of land, resulting in soil erosion and the release of carbon stored in the soil. Higher quality standards imposed by retailers may lead to an increased use of pesticides, causing water contamination and health problems among workers. Conversely, the adoption of sustainability standards could lead to improved soil quality and human health, or to the conservation of common pool resources. Tourism, by expanding accommodation facilities, may increase use of water resources and the handling of waste, and may have positive or negative impacts on wildlife.

The conceptual framework developed in this paper attempts to handle these complex relationships by making two kinds of analytical distinctions. First, environmental aspects of value chains in this study denote, on the one hand, the natural resource base and climate which are the basis for producers participating in a value chain and, on the other, the impacts that production or processing have on the resource base and its surroundings. Second, when researching environmental impacts and management problems in the context of value chains it is useful to distinguish between two types of processes, based on the scale at which they operate:

1. *Local processes* related to the management and use of local natural resources (land and water) whose impact is mainly confined to the area of their origin. Important, specific environmental impacts and management issues within this type are biodiversity degradation, soil erosion, soil nutrient mining, soil and water contamination (e.g. from pesticides or mercury used in gold mining) and unsustainable use of *water resources* (e.g. in irrigation schemes).
2. *Global processes* that transgress ecosystem and regional boundaries and therefore have impacts and must be managed at a much larger scale (Halberg *et al.* 2005). Key environmental impacts and management problems with a global extent are green house gas emissions (GHG), acidification, eutrophication, human toxicity and eco-toxicity.

We note that these are analytical distinctions and that environmental change in reality can have both local and global dimensions. For example, the conversion of forest into farmland may cause both soil erosion (with local and downstream effects) as well as green house gas emissions (with truly global impacts); the management of this resource is therefore a concern to both local people and to foreign governments, organisations and consumers. Likewise, insecticide use may cause toxicity for both local farmers and for downstream communities, and have large-scale impacts on biodiversity (Dalgaard *et al.* 2007). Obviously, which issues are the most important will depend on the value chain in question. And in practice a given research project can only thoroughly examine the most important ones – the environmental 'hot spots' of the chain. Below, we discuss methodologies suitable for research on local and global environmental processes, respectively.

3.4.2 Local environmental impacts and management issues

Nutrient balances (Halberg 1999; Mubiru *et al.* 2003) may be used to assess to which degree the farming systems used in primary production are mining soil nutrients or – on the contrary – are contributing to environmentally critical nutrient enrichment of aquatic environments (eutrophication). Gross nutrient balances refer to input-output nutrient balances at farm level, taking into account the major fluxes of N, P and K from inputs of purchased or collected feeds, fertilisers or organic material (mulching) less outputs of products given or sold (or burned or consumed if important). These balances may be roughly assessed through interviews or participatory methods through which the magnitude of these inputs and outputs are estimated, combined with existing inventories of the nutrient contents of the relevant inputs and outputs.

Land use change (LUC) is a key process through which primary production, resource extraction and service provision affect ecosystem properties and functions, such as biodiversity, carbon sequestration, soil and water quality, and landscape quality. Yet the complexity and heterogeneity of ecosystems mean that documenting change in each relevant property or function would be very demanding on research finance and specialised skills. LUC has a range of fairly well documented

effects on biodiversity and natural resources and LUC analysis can therefore often substitute for more demanding analyses. Various 'rapid' and participatory methods and simple indicators exist for tracing changes in land use, which may be used to integrate LUC with value chain analysis in a low-cost and practical manner (see, Riisgaard *et al.* 2008).

LUC biodiversity indicators should be combined with indicators of so-called *planned diversity* (Uphoff 2002), for example the number of species grown per acre, the use of intercrops, repellents, etc. This (agro)diversity expresses the degree to which a farming system attempts to interact with biodiversity for preventive pest control methods and in this way indirectly contributes to wild biodiversity. Such relatively simplistic biodiversity approaches together with gross nutrient balance assessments may be used in participatory approaches involving the local stakeholders in a dialogue of possibilities and challenges (Onduru *et al.* 2002).

Natural resource management (NRM) analysis focuses on the institutions, economic incentives, and capabilities that together determine how producers, extractors and service providers manage natural resources (water, soils, forests, grasslands, wildlife etc) and how sustainable the system of management is. There is a large NRM literature, but little that adopts a value chain perspective (but see Bolwig and Odeke 2007; Gibbon and Bolwig 2007a). A challenge lies in adapting existing NRM research methods to a value chain context, and in assessing technology and other spill-overs from the value chain to the local area and community.

3.4.3 Global environmental impacts and management issues

A number of environmental processes such as green house gas (GHG) emissions have impacts well beyond their area of origin and therefore must be assessed and managed on a much larger – regional or global – scale. These global management problems and impacts may be related to different value/product chain activities – production, processing, transportation, storage, consumption, and they may be equally important as those experienced locally. Examples are: pesticides used in the conventional production of cotton and cut flowers, additives and chemicals used in food processing and/or cleaning, handling of waste products (dumping or recycling), and GHG emissions and air pollution from the transportation of the product ('food miles'). Global issues in service-based chains (tourism) include the handling of waste products from accommodation and transport related emissions. The most important sources of GHG for many agricultural products are the emissions at the farm level and from transport. For products which are dried or frozen, the energy use for these processes may also be significant.

The significance of global environmental impact and management issues implies the need for an environmental impact assessment (EIA) spanning the entire chain from producer/service pro-

vider to consumer. The best known method for doing that is *life cycle assessment*, a variant of which is *ecological footprint analysis* (including analysis of *carbon footprint*). Yet these methods are quite demanding of time, data, software and analytical skills. This suggests a need for simplified or 'short cut' methods, particularly in a developing-country context where resources are likely to be limited or in cases where there are lower requirements to the scope of precision of the EIA. Short cut methods include the *life cycle check* method and rapid assessments based on existing life cycle inventories and LCAs. Below we discuss each of these methods in turn.

Life cycle assessment

Life cycle assessment (LCA) is an established methodology for an integrated and product-oriented EIA. It aggregates the main emissions throughout the product chain into a limited number of environmental impact categories such as GHG emissions, eutrophication (nutrient enrichment through losses of Nitrate and Phosphates to the environment), and acidification (airborne emissions of Ammonia and Sulphate compounds etc.) (Guinée 2002, Wenzel *et al.* 1997). LCA methodology and tools have been established for food chains (Halberg *et al.* 2004) including for products exported globally such as soy beans (Dalgaard *et al.* 2007).

In a normal LCA, a specialist will work together with a company or other stakeholders to create an inventory of resources used, waste generated and emissions coming from different segments in a product chain. Ideally, this should cover the whole chain from extraction of raw materials to the end use and disposal of the product. The inventory should include quantified data on all waste and emissions generated from production of a specific amount of the product or service in question (a functional unit, such as one kilogram of bananas consumed in a household). The LCA methodology then offers principles for aggregating different emissions into a reduced number of environmental impacts with a specific unit (see, www.lcafood.dk, Nielsen *et al.* 2003). The most well known example is probably the emissions of green house gasses measured in CO2 unit-equivalents, which combines emissions of Carbon dioxide, Nitrogen oxide and methane by multiplying the latter two with factors representing their stronger contribution to the green house effect per kilogram emitted. The task of establishing such inventories is usually relatively costly and time consuming, as mentioned.

Ecological footprint analysis

Ecological footprint analysis (Wackernagel and Rees 1996, www.footprintnetwork.org) is a methodology comparable to LCA, which is mostly used for the calculation of how much land and water area a human population requires to produce the resources it consumes and to absorb its waste under prevailing technology. The method has mostly been used to compare nations or cities and to a lesser degree single products or value chains. The data demands for calculation of

the ecological footprint of a product chain are just as high as for an LCA study. The main difference is in the way the inputs and emissions are aggregated and interpreted.

The importance of transport-related energy use for GHG emissions has been discussed, among others, in the British and French retail sector and by European organic standard setters. Yet thorough LCA studies of the relative importance of transport compared with other sources of carbon emissions in food chains most often show that emissions from agricultural production itself are far more important than those from most transport forms. Therefore, simply estimating and labelling the food miles or the carbon 'footprint' related to transport will be misleading if such estimates are not put in the context of all the GHG emissions along the entire value chain. Considerations related to introducing voluntary labels on 'food miles' or 'carbon footprints' are ongoing and involve, in the case of the UK where the process is most advanced, the Department of Environment, Food and Rural Affairs (DEFRA), the British Standards Institute (BSI) and the Carbon Trust. Some UK retailers have already introduced elements of this (e.g. using the symbol of an aeroplane on products that have been air freighted) while the major UK organic certifying body, the Soil Association, is discussing a proposal to de-certify organic products flown by air.

A number of different definitions and uses of the term 'carbon footprint' exists, but Wiedmann and Minx (2007: 4) propose the following: 'the carbon footprint is a measure of the exclusive total amount of carbon dioxide emissions that is directly and indirectly caused by an activity or is accumulated over the life stages of a product'. [11] This definition excludes other important GHG such as methane and Nitrogen oxide, which reduces its utility. A more comprehensive GHG indicator would need to aggregate all significant GHG, expressed in CO2 unit-equivalents (ibid), and could be termed 'climate footprint' (ibid).

It is important to stress that any method for calculate GHG emissions with the purpose of comparing and labelling products should be consistent and holistic in the sense that all significant emissions are included, not only CO2 and not only emissions related to transport or some other partial element of a product life cycle. This was acknowledged at a recent Roundtable on Carbon Labelling organised by the UK Energy Research Centre with the support of the retail chain Tesco. There is an ongoing discussion among experts and stakeholders including DEFRA on

[11] The definition includes "activities of individuals, populations, governments, companies, organizations, processes, industry sectors etc. Products include goods and services. In any case, all direct (on-site, internal) and indirect emissions (off-site, external, embodied, upstream, downstream) need to be taken into account" (Wiedmann and Minx (2007: 4).

how to proceed in the development of a joint label describing the GHG emissions in the form of 'carbon footprint' for individual products. The report from the Roundtable (Wiedmann and Minx 2007) states that the approach would be based on LCA methodology and that there may be a need to develop reference data sets to secure comparability. Therefore, in reality a carbon footprint would also be data-demanding for single products or chains, especially the ones focused on in this paper.[12] Mainly due to the immense methodological problems, to date the carbon footprint has only been calculated for a few dozen products (most from the UK), and in the case of products from developing countries we know of only mango, passion fruit and cocoa (as ingredients in foods produced in the North). The other, related major constraint is cost. For example, using the Carbon Trust methodology, it cost £40,000 to calculate the carbon footprint of a shampoo sold by Booths (Paulavets 2008).

The 'product life cycle check' guide

The 'Product Life Cycle Check' guide (Wenzel *et al.* 2001) describes a procedure for screening the most significant environmental impacts. It can provide an overview of the most important emissions and act as a starting point for more elaborate and quantitative LCA if necessary (for example, due to demand for food miles or carbon footprint documentation from a retail chain). The guide was developed for use in small companies by LCA specialists with support from the Danish Environmental Protection Authorities (ibid). It aims at introducing shortcuts and it bypasses the traditional procedure without contradicting it. Instead of making a detailed inventory followed by a detailed assessment, as done in a conventional LCA, one undertakes a screening of the most significant environmental impacts. This is achieved by combining the inventory and assessment of 'materials, energy, chemicals, other' at various stages (material, manufacturing, use and disposal) in the product cycle.

The principle of the screening is to evaluate the agents causing environmental problems instead of focusing on the actual environmental impact categories. The strength of this structure lies in the fact that these cover all types of environmental problems with only a small degree of overlap in the type of problems categorised. Material consumption typically results in use of natural re-

[12] Several other private organisations are discussing 'carbon labelling' in various forms: KRAV, the Swedish organic standard setting body, is working to develop a comprehensive 'Climate Certification Scheme'; the Institute for Market Ecology, an organic certifying agency based in Germany, is working on a transport labelling scheme ('Footstep'), and; AGRA-TEG (Germany) has developed a comprehensive 'Stop Climate Change' label (given to products that have achieved 'carbon neutrality' through emission reductions throughout the product chain combined with the purchase of carbon credits).

sources and consequent waste problems. Energy consumption means use of energy resources and consequent problems as global warming, nutrient enrichment and waste in the form of slag, ashes or radioactive waste. Chemical consumption typically results in impacts as toxicity to humans and the environment, stratospheric ozone depletion, and photochemical ozone formation. The 'Other' category includes noise, radiation, microbiological problems, land use and physical impacts on nature (Ibid.). The subsequent steps in filling out the MECO table and how to interpret it is described in Wenzel et al. (2001) (see, Riisgaard *et al.* 2008, Annex 1). A weakness of the Product Life Cycle Check guide in the context of this paper is its focus on manufacturing in industrialised countries (the example used to illustrate the method is a coffee brewer).

3.4.4 Guiding questions for value chain research

The above conceptualisation of the local and global environmental impact and management issues in relation to value chains gives rise to new sets of research questions as well as to considerations of how we approach them in a practical context. Research aiming at integrating environmental concerns into value chain analyses would need to ask questions such as:

- What kinds of value chains and forms of participation are likely to exacerbate local environmental management and health problems and which provide the best options for improved management? How do changes in natural resource use related to value chain participation affect natural resource access and use for 'non participants'?
- Which global environmental threats and management problems result from value chains that incorporate or exclude poor people and areas? How might the incorporation of poor people and areas into value chains help mitigate environmental problems of global concern, such as biodiversity conservation, green house gas emissions, and acidification? What challenges and opportunities do the increasing focus on carbon/GHG footprint assessments (and labelling) of products present for producers and traders in developing countries?

Checklists and methods for the consideration of local and global environmental issues in action research are provided in Riisgaard *et al.* (2008), Section 4.4.

3.5 MANAGING COMPLEXITY IN RESEARCH

Understanding the implications of changes in the ways in which value chains are governed, requires us to understand how these value chains are plugged into and affect other, contiguous systems and sets of relationships. Though such a broader perspective can be an important source of strength, allowing researchers to broaden out their analysis and link it to a more encompassing

understanding of other factors that affect how value chain restructuring impacts on people locally, there is also a significant risk. Developing a more holistic understanding can immobilise research, since it radically multiplies the range of issues that need to be considered. Understanding the vertical dynamics of value chains is complex enough: developing a thorough understanding of horizontal dynamics could easily lead one to add to this a long shopping list of additional issues – local history, for instance, institutional arrangements, political processes, livelihood practices, land use change – each of which is, in its own right, as complex and as difficult to analyse adequately as the vertical dimensions of value chains themselves.

None of the dynamics of local context, and local social relationships are ever simple, and there is no simple recipe or algorithm for a research process which will unlock them. One way of dealing with this complexity is to take seriously the capacity implications for the teams involved in value chain research. Important as technical value chain-related skills and knowledge are, teams should also include people with adequate training in social and environmental analysis. Crucially, this would include the ability to deal with both quantitative and qualitative aspects of social enquiry. Another way of containing and managing the complexity involved in researching *both* the 'vertical' dynamics of value chain restructuring *and* the 'horizontal' aspects of is to focus such research as far as possible on a clearly defined and relatively narrowly specified list of concerns. The step-wise approach to action research design developed in Riisgaard *et al.* (2008), Section 4.1, helps to do this.

4. Integrating vertical and horizontal analyses of value chains

4.1. TYPOLOGY OF VALUE CHAIN POSITIONS AND VALUE CHAIN ACTORS

The integration of vertical and horizontal analyses of value chains is organised around four types of changes in the vertical 'position' of chain actors (and their communities) relative to a given value chain: inclusion into the chain, continued participation under new terms, exclusion and non participation. 'Position' refers to both whether one participates or not in a value chain and to the terms under which one participates. As discussed in Section 2, a change in position may result from changes 'from above' (in value chain structure, governance and coordination, or standards and certifications) or be due to changes 'from below' in the actor's capabilities resulting from up-

grading or external factors. Capabilities are in respect of the specific performance requirements in the relevant chain node.

1. *Inclusion of participants* refers to the incorporation of actors in an existing or newly created value chain (or strand of chain), for example when small coffee farmers take up the production of vanilla for export.
2. *Continued participation under new terms* refers to changes 'from above' that alter the terms of participation for chain actors already in the chain. For example when supermarkets impose stricter quality standards, require conformity to fair trade standards, or simply squeeze prices, this can significantly change investment demands, rewards or risk exposure for exporters and producers. Chain actors may also change their terms of participation 'from below' through upgrading.
3. *Exclusion of participants*. This is often the result of changes 'from above', for example when importers concentrate their sourcing on fewer and larger producer, and/or increasingly buy processed products, small producers are likely to be squeezed out, unless they get sub-contracted by the larger producers. Exclusion may also result from the deterioration in local conditions – environmental, economic or political – or other external factors that undermine the ability to meet performance requirements. Finally, as discussed, exclusion may be voluntary in the presence of attractive alternatives.
4. *Non-participation* concerns implications of value chain activities for local people who are not part of the chain and never have been.

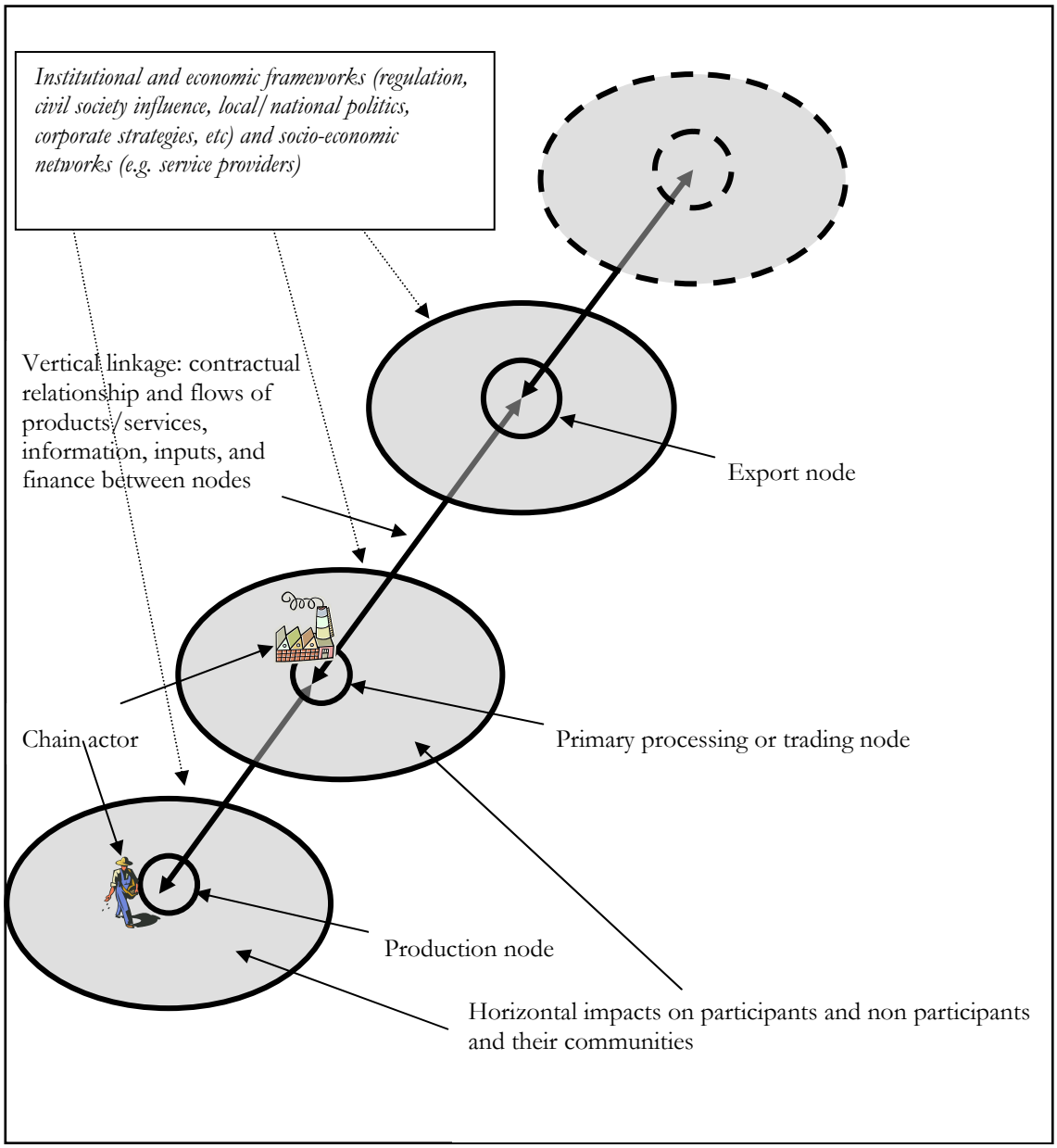
These changes in vertical position in turn relate to four categories of actors:

1. *Chain actors*: individuals or organisations directly involved in within-chain exchanges – typically estates/farmers/extractive companies, processors, cooperatives, traders and exporters.
2. *External actors or networks* are individuals or organisations that do not directly handle the product (or service) but that provide services, expertise, and exert influence (e.g. environmental NGOs, standard setting bodies and government agencies); we include in this category workers employed by firms and farms in the chain, because they have no or very limited agency into the exchange of the product/service within the chain.
3. *Excluded actors* can be either chain actors or external actors that no longer participate in the value chain, by force or by choice.
4. *Non participants* are those who never participated in the value chain, by lack of interest or capability.

4.2. POSITIONAL CHANGE, VALUE CHAIN DYNAMICS AND HORIZONTAL IMPACTS

The change in position of different chain actors are examined in relation to the vertical linkages and horizontal elements in value chains, as graphically represented in Figure 4.1 below.

Figure 4.1. Stylised value chain mapping highlighting horizontal and vertical elements



The figure shows selected chain nodes in terms of the *vertical linkages* between a node and other nodes in the chain (illustrated by arrows) and in terms of the chain actor and external actors at each node. The arrows also represent flows of product/services, information, inputs and finance

between the nodes, as well as the contractual or other arrangement mediating these flows, but for graphical clarity these are not made explicit. The *horizontal elements* of value chains are represented by 'discs' radiating from each node. We find the chain actors in the centre of the disc and in the periphery the external actors, the excluded actors, the non-participants, and the communities surrounding these. Considering the excluded and the non-participants is not only relevant at the production level but also in nodes further downstream. In respect of the environment, the disc can illustrate the landscape (and the atmosphere) and its constituent natural resources and ecosystems which are managed and impacted on in each node. Finally, the institutional and economic frameworks and socio-economic networks influence both vertical and horizontal dimensions, both systemically and in relation to specific nodes (see dotted arrows).

Analytically, each type of change in position – inclusion into chain, continued participation under new terms, exclusion and non participation – is listed in the first column of Tables 4.1 and 4.2, which concern gendered poverty and environmental elements, respectively. For each type of positional change, we list:

- Selected *dimensions of poverty/environment*, based on the discussion in Section 3, in the second column. Depending on the value chain examined and the local context, other dimensions of poverty discussed in Section 3 may be included, or emphasis may be placed on more specific aspects, such as food security.
- Common examples of *value chain dynamics/patterns* associated with each type of change in position (see Section 2) and the impacts on dimensions of poverty/the environment, in the third column. The list of examples is non-exhaustive.
- Issues arising from *gender differences* related to each poverty/environment dimension, in the fourth column.

We emphasise that the dynamics and impacts depicted in Table 4.1 and Table 4.2 are meant to reflect real-world situations and do not necessarily imply desirable ones. Both negative and positive impacts are represented, which illustrates the complex ways through which value chain dynamics and patterns affect local communities and the environment.

Table 4.1. Integration of gendered poverty concerns with value chain dynamics

Type of change in position	Poverty dimension	Value chain dynamics/patterns and their impacts on poverty (examples)	Gender issues (examples)
Inclusion of participants	Income and resources	More suppliers broaden the income impact of value chains but may reduce profitability as prices are squeezed by increased supply.	Equal pay for equal work. Opportunities for empowerment in household.
	Livelihoods and employment	Entry of large producers (at the expense of family farms) and processors change local employment opportunities. Changes in the composition of on- and off-farm activities, with more importance given to the latter.	Type of employment deemed suitable for women.
	Vulnerability and risk	Participation may require investments in specific assets (increasing financial risks). Participation may improve stability of market outlet and prices (reducing market risks). Participation may increase asset holdings through improved income (reducing vulnerability).	Time taken from reproductive work. Woman often in casual/insecure employment.
	Inequality (intra and inter-community)	Participation increases income of wage labour but reduces it for smallholders within a community. Inclusion of the better endowed producers into value chains (e.g. through certification and/or contract farming schemes) accentuates local inequalities.	Wage labour suitable for women decreases household gender inequality. Gender-specific resource endowments tend to exclude women.
	Terms and pre-conditions of inclusion	Favourable agro-ecological conditions. Privileged access to key factors of production (e.g. land and labour) or inputs. Proximity to primary buyer / processor. Gender, caste or ethnicity.	Woman often employed as unskilled casual workers with low pay and no benefits/security.
Continued participation under new terms	Income and resources	New standards transmitted upstream in the chain affect net income through changes in costs. Change in position in relation to the structure of rewards of the value chain (functional up- or downgrading) affects income potential.	Returns to different types of labour. Added costs unequally distributed between genders.
	Livelihoods and employment	Increasing the number of chain functions undertaken by upstream actors improve local employment opportunities (e.g. in packaging), in turn changing local livelihood profiles.	Gender differences in opportunities for advancement and skills upgrading.

Type of change in position	Poverty dimension	Value chain dynamics/patterns and their impacts on poverty (examples)	Gender issues (examples)
	Vulnerability and risk	New standards may require investments in specific assets (increasing risks). Value chain restructuring entails new types of risks for chain actors in different positions. Participation under new terms change the portfolio of livelihood assets and hence the vulnerability to external shocks. Contractualization in production segment increases stability of revenue and price for small producers.	Flexibilization of employment with reduced opportunities for benefits like maternity leave and less opportunity to balance reproductive and productive work.
	Inequality (intra and inter-community)	Changes in procurement strategies towards reliance on fewer and larger producers will increase income of wage labour while reduce it for smallholders within a community.	Flexibilization of employment with reduced opportunities for benefits increases household gender inequality.
	Terms of participation	Stricter performance requirements set by lead firms change terms of participation, often resulting in increased costs of production and trade 'upstream'.	Women often employed as casual unskilled workers.
Exclusion of participants	Income and resources	Income of excluded actors is affected in short term; longer term impact depends on available alternatives and on their adaptive capabilities.	Loss of income for men and women has different household implications (e.g. on nutrition).
	Livelihoods and employment	Wage employment opportunities lost or shifted to other areas or farms/firms. Livelihood strategies of the excluded refocused on other economic activities.	Gender differences in access to alternative employment.
	Vulnerability and risk	Income loss involves risk of losing important livelihood assets.	Women have more marginal forms of participation than men.
	Inequality (intra and inter-community)	Exclusion reduces income of wage labour while not affecting smallholders within a community. Exclusion impoverishes one community while providing opportunities for another, better endowed, one.	Loss of women's employment increases household gender inequality.
	Terms of marginalization and exclusion	Restructuring of value chains (e.g. dominance of supermarkets in local retail markets) may marginalise small producers by hollowing out local socio-economic arrangements (e.g. interlinked farm credit and output markets) that underpin particular kinds of production.	Women often employed as casual unskilled workers that are easy to let go.
Non participation	Income and resources	Increased demand for land to supply a value chain may raise its price to levels unaffordable for non participants producing low-value food crops. Non participants may benefit from greater demand for locally-produced goods and services resulting from income increases by value chain participants.	Impact is biased against women who rely on low-value food production. Women may benefit through greater demand for the food they sell.

Type of change in position	Poverty dimension	Value chain dynamics/patterns and their impacts on poverty (examples)	Gender issues (examples)
	Livelihoods and employment	Commercialisation of a common pool resource (fish, wild harvested) may exclude non participants from accessing it (loss of food and income).	Impact is biased against women.
	Vulnerability and risk	Commercialisation of a wild harvested food may reduce its availability during times of food shortage.	Women depend more on this source of food.
	Inequality (intra and inter-community)	The economic opportunities available to non participants may be less rewarding than those offered by participation (increasing inequality).	Gender differences tend accentuate this source of inequality.
	Terms and pre-conditions of exclusion	Entry barriers to chain participation exclude certain groups and areas.	Entry barriers may disadvantage women.

Table 4.2. Integration of gendered environmental concerns with 'vertical' value chain dynamics

Type of change in position	Environmental dimension	Value chain dynamics/patterns and associated environmental impacts and management issues (examples)	Gender issues
Inclusion of participants	Local impacts and management issues	Conversion of natural vegetation into farm land as agriculture is expanded or intensified. Increased size of production units and adoption of mono cropping practices reduce on-farm biodiversity. Improved prices increase incentives for natural resource management (NRM**).** Sustainability standards induce improved NRM. Commercialisation of common pool resources (fisheries, non-timber forest products) may lead to their degradation.	Importance of natural vegetation in livelihood is gender-specific. Women often rely more on common pool resources.
	Global impacts and management issues	Ecosystems and human health affected by pesticides used in production. Increased green house gas emissions and acidification from transportation of more produce.	Gender specific vulnerabilities to deteriorating environment.
Continued participation under new terms	Local impacts and management issues	Changes in production standards induce or discourage conservation of on-farm biodiversity (trees). Technology-based upgrading improves capacity for NRM. Improved prices increase incentives for NRM. Sustainability standards induce improved NRM.	Management of on-farm biodiversity is gender-specific. Women may carry a disproportionate share of additional labour inputs in NRM.
	Global impacts and management issues	Size of production units and scale of production affects use of chemicals and exposure of workers to these. New standards – quality or sustainability – affect use and handling of chemicals. Quality standards may require adoption of cool chain and air freight, which increase green house gas emissions and acidification. Upgrading to local processing may cause problems of handling of waste products (nutrients, toxics) with local and downstream effects.	Gender specific vulnerabilities to deteriorating environment
Exclusion of participants	Local impacts and management issues	Changes in production system affect land cover (LC). Change in incentives for sustainable NRM. Workers may shift to jobs with lower safety standards.	Gender specific vulnerabilities to LC/NR change. Women can only access jobs with higher health hazards.
	Global impacts and management issues	Excluded producers may shift to unsustainable use of forests and farmland, increasing green house gas emissions and biodiversity degradation.	
Non participation	Local impacts and management issues	Land use change in local community lands. Local 'spill over' of new production technologies introduced by participants.	Gender specific vulnerabilities to changes in land use and technology.
	Global impacts and management issues	Management of toxic waste affecting downstream community members and lands.	Gender specific exposure to toxic waste.

4.3. LIMITATIONS OF THE CONCEPTUAL FRAMEWORK

A limitation of the conceptual framework is its focus on value chains and its participants rather than on the institutional and economic frameworks (e.g., public regulation of standards, trade policies, infrastructure development, corporate strategies) and socio-economic networks (e.g., providers of services, inputs or credit) in which they are embedded. This serves to demarcate and focus the research. Relevant parts of these frameworks and networks should still be examined with respect to how they affect the value chain and its participants, but the conceptual framework is not designed to help explain their dynamics. Whilst we recognise labour as an important horizontal element of value chains (see Section 3.3), it was beyond the scope of the study to relate it to the vertical analyses as a separate category in the above tables. Finally, whilst the dynamics and impacts listed in Table 4.1 and 4.2 are commonly observed ones, they are not based on a systematic review of empirical cases; rather the conceptual framework could be used to guide such reviews focusing on particular types of value chains, vertical dynamics or horizontal elements.

5. Lessons for action research targeted at weak chain actors

In this section we first outline the basic elements of action research and briefly review existing approaches to action research in value chains. Based on the conceptual framework developed above, we then discuss elements that we find are critically important for action research (and similar interventions) aiming at improving value chain participation (through upgrading) for weak chain actors. We focus on situations where small producers and agro-businesses in developing countries are the primary target group of the research, but consider also implications for workers and local communities. The discussion is based mainly on a review of the 'conventional' research literature and on experiences from other types of interventions than action research. The lessons derived therefore need to be validated through actual action research experience (see Section 1.1). They are operationalized in the paper by Riisgaard et al. (2008).

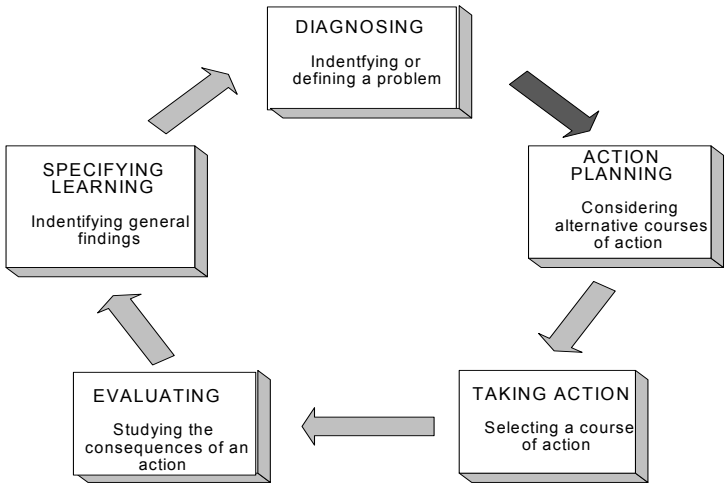
5.1 THE BASICS OF ACTION RESEARCH

Action research has its origins in the late 1940s and is known by many other names, including participatory research and collaborative inquiry, which are all variations on the same theme. Several attributes separate action research from other types of research. One is its focus on turn-

ing the people involved into co-researchers, with the underlying assumption that people learn best, and more willingly apply what they have learned, when they do it themselves. Action research moreover stresses the importance of co-learning as a primary aspect of the research process. It also has a social dimension – the research takes place in real-world situations, and aims at solving perceived and specific problems. Finally, the initiating researchers, unlike in other disciplines, make no attempt to remain objective, but openly acknowledge their bias to the other participants (O'Brien 2001).

Apart from being participatory at all stages, action research aims at restructuring the research process from a linear process into a cyclical one. Practical issues in action research are typically addressed through cycles of action and reflection, in which the outcomes of each cycle are checked against plans and intentions (Reason 2006). Each cycle goes through a range of steps. Susman (1983) distinguishes five phases to be conducted within each research cycle (see Figure 5.1): diagnosing, action planning, taking action, evaluating, and specifying learning.

Figure 5.1. An action research model



Source: Adapted from Susman (1983)

Initially, a problem is identified and data is collected for a more detailed diagnosis. This is followed by a collective postulation of several possible solutions, from which a single plan of action emerges and is implemented. Data on the results of the intervention are collected and

analyzed, and the findings are interpreted in light of how successful the action has been. At this point, the problem is re-assessed and another cycle begins (O'Brien 2001).

5.2. EXISTING APPROACHES TO ACTION RESEARCH IN VALUE CHAINS

In recent years, several individuals and organizations have aimed at developing (more or less participatory) strategies that can help workers or groups of smallholders analyze their position in a chain in view of improving their incomes and livelihoods (early examples include McCormick and Schmitz 2001 and Mayoux 2003). A large number of studies, manuals and guides are now available – among other places – through the 'Value Chains for Development' portal.[13] Particularly, value chain analysis has been used as a tool for action research by Fair Trade organizations and organizations such as 'Women in the Informal Economy: Globalizing and Organizing' (WIEGO), the 'Self Employed Women's Association' (SEWA) and HomeNet. Mayoux (2003) represents one of the more successful and systematic attempts to integrate value chain analysis with action research methods. The approach is called 'participatory value chain analysis' and is based on two key elements: Facilitation of dialogue and mutual accountability between actors, and (2) Promotion of equity and empowerment of the most vulnerable actors.[14]

Several value chain manuals have been produced. Some, while fairly sophisticated (e.g., Ferrand et al 2004; Kaplinsky and Morris 2001; van den Berg et al. n.d.) are essentially analytical tools, not action-oriented ones. Others are to some degree advocating action research methods (Bernet *et al.* 2006; KIT *et al.* 2006; Roduner 2007). However, most subscribe to a cooperative, mutually beneficial framework, where power relations are underplayed to the benefit of win-win managerial solutions and 'partnerships' (for exceptions, see McCormick and Schmitz 2001; Schmitz 2005).

[13] See http://portals.kit.nl/smartsite.shtml?id=12505

[14] The content of the two elements in Mayoux's approach are outlined here: *(1) Facilitation of dialogue and mutual accountability between actors*. This is proposed as a means of analysing and negotiating actors' common interests in improving the ways in which the chain functions and in identifying the types of intervention likely to be of common benefit. The purpose is to highlight the constraints operating on those controlling the chain (or chain segment) and to clarify possibilities for change upstream. It also meant to provide a tool for overcoming barriers and communicating the perspectives of those 'at the bottom' of the chain to those 'at the top'. *(2) Promotion of equity and empowerment of the most vulnerable actors*. The participatory value chain analysis aims at ensuring that chains and networks are fair and free from discrimination and that redistribution of benefits reaches those currently disadvantaged and vulnerable in the chain. This includes sustainable systems for ongoing accountability within and between chain actors (farms and enterprises) and development agencies, using participatory and visualisation techniques that enable information to be accessible even to very poor and disadvantaged actors.

An exception may be a recently published guide or methodology based on experiences from the Regoverning Markets Programme (Vermeulen et al. 2008). Whilst this guide like most others emphasises the virtue of collaboration among 'stakeholders', it also recognises the existence of conflict of interests and power inequalities in value chains. Yet one could question whether the method of 'multi-stakeholder processes' proposed by the guide to improve participation for weak actors is sufficient (while possibly necessary) in the case of international value chains originating in poor rural areas, which are characterised by very unequal power relations as well as very low supplier capabilities.[15]

5.3 KEY ELEMENTS OF SUCCESSFUL ACTION RESEARCH IN VALUE CHAINS

5.3.1 Understanding the governance structure of value chains

Some of the action research approaches discussed above do not adequately account for the governance structure of 'buyer-driven' value chains, which include virtually all natural resource-based chains and chains emanating from poor countries. As discussed in Section 2.2, in these chains decisions on performance requirements (e.g. quality standards and lead times), functional divisions of labour, and pricing are to a large extent taken by downstream actors – typically large retailers or processors in importing countries – and transmitted upstream to traders and producers in developing countries (Gibbon and Ponte 2005). External actors such as large NGOs may also influence the conditions of chain participation, for example through standard setting. An important strategic lesson can be drawn from these studies of value chain governance: action research interventions that are confined to the local level, e.g. to the chain segment of small producers, are unlikely to make significantly change to the position (inclusion/exclusion and terms of participation) of poor and disadvantaged actors. Instead this will often require linking up with, and applying pressure on, actors further downstream at the level of first-tier suppliers or retailers.[16] In this regard, one (less confrontational) tactic is to promote change in value chain linkages

[15] This methodology may reflect the focus of the regoverning markets programme on domestic and regional markets and the poor representation of low income countries.

[16] For example, improving producer prices for undifferentiated (mainstream) coffee through national-level interventions (within the producer-to-exporter segment) is likely to have little impact because pricing in this market is dominated by a handful of powerful roasters located in the North (and given the fact that in most producer countries coffee procurement is highly competitive). Action research within this type of chain, if feasible, would require engaging with roasters in importing countries or with the international trading companies supplying them. It would also require engaging with Northern advocacy groups such as Oxfam that are in a better position than poor producers to put pressure on powerful chain actors to change their commercial practices.

in ways that increase the stake of more powerful actors in the conditions of weaker ones. A key method here is increased contractualization, i.e. the development longer-term and more complex economic relationships between chain actors (see Section 2.2.1).

The importance of 'linking up', and of contractualization in particular, means that action research is likely to be more successful if undertaken in more tightly coordinated value chains, as opposed to market-based ones. This is because in the former type the product is traceable upstream to specific producers (or other upstream actors) and this enables the action researchers to identify and engage with actors (e.g. retailers and consumer groups) further downstream with which small producers are linked through trade.[17] In contrast, in chains characterised by market-based interactions in key nodes, where trade flows are anonymous, it is difficult or impossible to establish such downstream linkages.[18]

5.3.2 Identifying action points

As mentioned, the way most value chains are structured and governed means that stimulating change will often requires taking 'the action' to 'higher' places or levels of decision making inside or outside the value chain.[19] We have also seen that relationships between value chain actors often are highly competitive and potentially conflictual. These features mean that improving participation for weak chain actors will often necessitate identifying 'action points' where 'political' action in relation to (and often against the interests of) more powerful actors further downstream in the chain is feasible.[20] Our working definition of such action points is: "organisations, firms, institutions, private or public regulatory frameworks, the media and other 'sites' where value chains can be modified or regulated. An action point also has a temporal dimension

[17] An example is value chains involving certification of producers to a standard.

[18] For example mainstream coffee, which is sold as blends from several origins and with a labelling that conceals the exact identity of these origins.

[19] These can be outside the country where the research is carried out (e.g. in relation to importers in the North) or inside it (e.g. in relation to local retailers).

[20] In contrast, relying on 'participatory processes' among the small producers themselves is unlikely to cause significant change in their situation given their position and resource levels vis-à-vis other chain actors, but will rather create an illusion of enlightened empowerment.

and may be thought of as a moment or period where there is an opportunity for change or leverage in a particular place in the chain." [21]

Stimulating change in an action point will often require political leverage and financial and human resources beyond the capacity of weak chain actors (the target group). Mobilising such resources from external sources is therefore central to action research. This may involve strengthening linkages with stronger chain actors (e.g. exporters or retailers) or building alliances with sympathetic actors external to the chain such as lawmakers, advocacy and consumer groups, donors, international organisations, industry associations and standard setting bodies. Finally, weak actors operating in the same functional position in a value chain can often improve their performance and leverage in value chains through collective action, such as group certification to a sustainability standard, joint marketing of their produce, or the formation of larger associations to better advocate for their interests. Indeed, collective action is often a precondition for stimulating change, improving linkages and accessing external resources.

5.3.3 Promoting upgrading

The types of upgrading available to weak chain actors that might be promoted through action research were discussed in Section 2.4.1 and are operationalized in Riisgaard *et al.* (2008). Some points in relation to action research are emphasised here.

Whilst the conceptual framework lists four types change in value chain 'position', action research is concerned with those that represent a desirable change for the target group. These are: inclusion into a value chain (under favourable terms), continued participation under improved terms (repositioning within the chain), and voluntary exit from the chain. All three fall into the broad definition of 'upgrading' as 'a positive or desirable change in chain participation that enhances rewards and/or reduces the exposure to risks' (see Section 2.4.1). Furthermore, the discussion in Section 2.4 suggests that action research aiming at the upgrading of small producers should consider two key components of upgrading: (1) Strengthened value chain coordination (improved linkages) around the production node, achieved either through vertical integration (one actor

[21] Examples of action points are: an identified chain actor (e.g. a potential buyer); an organisational form (e.g. a coop or a contract farming scheme); a partner external to the value chain (e.g. an NGO or an industry association) who can help the target group put pressure on firms or organizations whose policies or practices the research wants to change; a standard or a standard setting body; a regulatory framework (e.g. for the management of common pool resources); a market institution (e.g. an auction or an interlocking contract); a new market for an existing product; the passing of a new policy or regulation.

undertaking multiple chain activities) or through increased contractualization (Section 2.2.1); (2) specific forms of upgrading that improve performance within the production node, such as improving product quality, increasing volume, complying with standards, etc.

The combinations of the various forms of these two components give rise to many possible upgrading options and careful analysis is needed to identify the 'best' one for a given project. In this regard, in contrast to dominant the notion of upgrading, it cannot be assumed that functional upgrading is the 'best path' for small producers and agro-businesses. We also argue that strengthened value chain coordination is often critical for achieving many of the forms of upgrading belonging to the second component. In particular, entering into contractual arrangements with buyers can potentially increase producer performance by improving access to information, finance and productive assets as well as by reducing market risks (a major investment disincentive).

5.3.4 Stimulating change 'from below' or 'from above'

Whilst changes in the position of small producers most often result from changes 'from above' (and these most often cause a negative change in position), action research may improve the position of smallholders by stimulating change both 'from above' and 'from below' (see Section 4.1). The first type – termed 'cross-cutting strategies' in Riisgaard et al (2008) – is clearly more challenging as it involves bringing about (often structural) changes across the entire value and/or changing the practices of powerful (downstream) chain actors. Making changes 'from below' (through upgrading) is often a more feasible strategy, but is less likely to alter the basic parameters of inclusion/exclusion, terms of participation and distribution of risks and rewards along the chain. In what 'end' the action research should focus its efforts will depend on the concrete situation and the overall objectives of the intervention. Often a combination will be desirable, while focusing on changes 'from below' due to their greater feasibility. As mentioned, stimulating change 'from below' will often require actions at 'higher' levels of chain governance.

5.3.5 Assessing both rewards and risks

Value chain research has so far focused mainly on the rewards associated with different functions in a chain and on the related opportunities for increasing benefits through functional upgrading. Less attention has been paid to the economic risks that actors in different positions in the chain are exposed to, or to the options for reducing the exposure to such risks. Small producers and businesses typically have few assets to withstand the effects of risks. Neither can they influence key risk factors such as price cuts, cancellation of orders, moral hazard problems (cheating) and changes in standards, which are often transmitted from downstream actors to producers through exporters or wholesalers (who are also exposed to them). For weak actors, reducing the exposure

to risk from chain participation, thereby avoiding exclusion and the loss of critical livelihood assets, may therefore be more important than increasing rewards. Improving the terms of chain participation, e.g. through increased contractualization or implementing codes of conduct for buyers, is a key risk reducing strategy. Indeed, any action research strategy should analyse the livelihood risks associated with upgrading as well as those related to environment and gender. Finally, risks and rewards should be assessed not only for chain actors but also for excluded actors and non participants (who may experience negative rewards).

5.3.6. Considering the multiple dimensions of horizontal elements

The discussions in Section 3 suggest that action research should assess the rewards and risks from upgrading not only in financial terms but also in relation to poverty, gender, labour and the environment. The emphasis placed on each of these 'horizontal' elements (impacts/issues) of value chain upgrading, and on their specific dimensions, will depend on the context and purpose of the research project in question and on the capacity of the research team. In all cases, managing the resulting complexity of research and action requires one to focus on a clearly defined and relatively narrow set of issues. At a general level, the following lessons for action research may be derived:

Poverty

Anticipating and examining the implications for poverty, vulnerability and inequality of value chain upgrading require the action research not only to examine the power relations and dynamics within the value chain itself, but also the local systems and networks within which the target group is situated. Second, the research should examine poverty impacts not only in terms of exclusion or inclusion but also in relation to changes in the terms and preconditions under which the target group participates in the value chain. Third, it should consider the implications of upgrading for the poverty status of other community members – the non participants and the excluded – and not only for the target group. Fourth, poverty is a multi dimensional concept that goes beyond simple income measures. For action research this means a need strike a balance between practicality in terms of the poverty dimensions considered and the desire to capture important changes in 'poverty' status resulting from upgrading. Related, researchers should be open to the range of meanings of 'poverty' (and to their moral or political basis) and be explicit about the choice of dimensions included in the research. Fifth, rural livelihoods often depend on a diverse range of economic activities, encompassing several value chains. This means that upgrading in a given value chain may be just one among several strategies pursued to reduce poverty by the target group, which in turn influences the allocation of household resources for this purpose and the willingness to take on associated risks. It also suggests the existence of technology and other spill over effects from upgrading on other value chains.

Gender

Gender inequality is often intricately linked with poverty, vulnerability and the mechanisms of inclusion, exclusion and changing terms of participation, but there are issues specific to gender too. Action research should thus address gender issues separately to assure a systematic and encompassing analysis, both in relation to the upgrading process itself *and* to the implications of upgrading for poverty, labour and the environment. This involve addressing questions such as: Do women/men have the resources to participate in the value chain node targeted by the research? Do gender inequalities in downstream nodes (e.g. within lead firms) constrain participation by men/women in the targeted node? How might gender relations constrain participation in, or rewards entailed by, the upgrading strategies considered by the research? What strategies provide the best options for reducing gender inequalities and gender related vulnerability? Are there trade-offs between gender equity and other poverty reduction objectives (e.g., increased household income)?

Labour

Poor people participate in value chains as farm or industry workers and not only as producers. For action research this entails a breakdown of the rewards and risks of upgrading for workers employed by the target group *and* for workers employed by other chain actors that might be affected by the upgrading. Specifically, considering labour issues related to upgrading involves analysing job creation and loss, changes in the terms under which workers participate in the value chain, and welfare outcomes such as income level, job security and personal health. These analyses should be sensitive to gender differences. Analysing labour can thus significantly affect the overall assessment of upgrading strategies in terms of poverty, vulnerability and inequality.

Environment

Value chains affect the environment and how it is managed through a range of complex dynamics, with a wide range of possible outcomes. In Section 3.3.4 we outlined some of the questions associated with attempts to integrate environmental concerns into value chain analysis. Below we discuss how action research may handle the related methodological problems.

First, environmental aspects of value chains denote here, on the one hand, the natural resource base and climate which are the basis for producers participating in a value chain and, on the other, the impacts that production or processing have on the resource base and its surroundings.

Second, we can distinguish between two types of environmental processes, based on the scale at which they operate: *local processes* related to the management and use of local natural resources (land and water) whose impact is mainly confined to the area of their origin, and; *global processes*

that transgress ecosystem and regional boundaries and therefore have impacts and must be managed at a much larger scale. We note that these are analytical distinctions and that environmental change in reality can have both local and global dimensions.

Third, action research should not only consider the environmental implications of upgrading for the target group, but also analyse the impacts on workers, excluded actors and non participants (local communities and people living downstream from the site of production or processing). This analysis should be sensitive to the possibility that the economic and health consequences of environmental change may be highly differentiated according to wealth and gender status.

Fourth, in practice an action research project can only consider a small number of the impacts and issues relating to a given value chain or upgrading strategy, implying the need to identify the most significant ones – the environmental hotspots – in a systematic way. Riisgaard *et al.* (2008) provides some guidance on this. Moreover, most assessments will often have to rely on proxy methods (including participatory ones) as conventional EIA methods are very demanding of data and analytical capacity, particular those needed to assess impacts along the entire value chain (Life Cycle Analysis and ecological footprint analysis). A new challenge here is 'carbon accounting' – the measurement of the carbon emission 'embedded' in a product (taking account of the entire product life cycle) or resulting from a distinct product-related activity (e.g. production or transportation). Riisgaard *et al.* (2008) contains a guide on the use of short-cut EIA methods.

6. Conclusion

Returning to the first objective set out in the Introduction, then this paper has attempted to combine existing but largely separate bodies of knowledge on 'vertical' and 'horizontal' aspects of value chains in a framework centred on the *kinds of change in value chain 'position'* – inclusion, exclusion, changed terms of participation and non participation – experienced by small producers and agro-businesses and their communities in developing countries ('weak actors'). The integration of vertical and horizontal analyses was done by listing *selected dimensions of poverty and the environment*, respectively, for each of the four types of positional change noted above. The resulting matrix was used to organise the presentation of common examples of *value chain dynamics* (a

change in position and its 'vertical' driver), their horizontal effects on poverty/the environment experienced by different kinds of actors, and the related gender issues.[22]

In relation to the *kinds of actors* (subjects of the research or action), the framework considers not only chain actors (those handling the product), but also excluded actors, external actors (including workers) and non participants who may be impacted by, or influence, positional changes.

In relation to the *vertical aspects* of value chains, we have discussed the major causes or drivers of positional change, especially: value chain governance and restructuring and changes in standards and certification and other performance requirements (changes 'from above'); and changes 'from below' in actor capabilities through upgrading (desirable change in value chain position). In respect of the latter, we argued that strengthening value chain coordination in the upstream end of the value chain through increased contractualization (longer-term and more complex linkages between chain actors) is an important part of upgrading for weak actors due to widespread factor and product market failure and because of economies of scale in trade. Other forms of upgrading (technological and functional) often depend on creating stronger contractual ties with buyers or among the weak actors themselves. Finally, we observed that agro-food value chains often are characterised by highly asymmetrical power relations and that the terms of participation in these chains to a large extent are controlled by downstream actors. This puts tight constraints on the room for manoeuvre for upstream chain actors, while suggesting that upgrading on any significant scale will depend on their ability to mobilize external political and economic resources from within or outside the chain. On the other hand, because upgrading in the production segment may increase the overall performance of a value chain, downstream actors may be willing to support upgrading there, but only where the product is traceable and where free-rider and moral hazard problems can be managed. This has been observed for example in value chains for certified organic production in Africa (Bolwig et al. 2008).

In relation to the *horizontal aspects* of value chains, then we have discussed important aspects of poverty, gender, labour and the environment and identified key issues for research and interventions on value chains. Notwithstanding the great complexity of the concepts of 'poverty' and 'the environment' and the richness of the literature, we selected a few dimensions of each one that we found especially relevant for value chain analysis, and used them in the integrated frame-

[22] A range of contextual factors influence the horizontal outcomes of a given value chain dynamic, while the latter itself is subject to large variation. Hence we made no attempt to produce a comprehensive list of examples nor did we evaluate the relative importance for poverty and sustainability of different dynamics.

work (see above). In general, however, we argue that research and interventions on value chains should be open to the many different dimensions and interpretations of poverty and the environment, while selecting (in an informed way) the most relevant ones for the case at hand to ensure practicality. In the case of *gender*, we used the 'gendered economy' as the central concept to help expose how gender-specific roles and inequalities lead to differences between men and women in value chain position, in the upgrading options available to them, and in their experience of poverty and environmental change resulting from value chain dynamics. Hence gender issues related to value chains should be addressed separately to ensure a systematic and encompassing analysis.

Regarding *labour*, then we have discussed how poor people participate in value chains as farm or industry workers and not only as self-employed producers or traders, although the extent of wage employment in agro-food chains varies greatly between developing countries. A focus on labour entails a breakdown of the rewards and risks of value chain dynamics experienced by workers throughout the value chain, and not only for the chain actors. Additional issues specific to labour are employment conditions, job security and health hazards. All have gender dimensions.

Regarding the *second objective* of the paper, then we have drawn lessons from the conceptual framework for the development of a strategic framework and practical tools to guide action research in value chains targeted at weak chain actors. The lessons are operationalized in Riisgaard *et al.* (2008). The discussion was set against the background of existing approaches to action research in value chains, although we did not review them in depth. With some important exceptions we found most of value chain 'manuals' to be analytical tools rather than action-oriented ones. We also found that most subscribe to a cooperative framework that underplay power relations to the benefit of win-win managerial solutions and 'partnerships'. In contrast, we emphasise the need to take seriously the highly asymmetrical power relations in agro-food value chains as well as the low 'supplier capabilities' of developing-country producers and agro-businesses. This may be done, *inter alia*, by the identification of strategic 'action points' within or outside the chain where positional change for the target group can be stimulated, combined with the mobilization of external political and economic resources. This does not preclude the use of collaborative approaches such as multi-stakeholder processes as an additional component or in the initial stage of the action research. Like a number of other value chain manuals, we also argue that interventions confined to the local (producer) level will not achieve much in the way of upgrading given the characteristics of agro-food chains just outlined. Finally, we want to reiterate that these lessons and the strategic framework they inform are not set in stone but need validation and enrichment through actual action research experiences. Future work will attempt to do this.

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