

Transferable case-based lessons from value chain development in Kenya

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The aim of this paper is to critique a poverty reduction programme in the highlands of Kenya involving value chain development with 250 small-scale farmers. The paper will address how the knowledge derived from this project might be utilized to ensure the enhanced long-term sustainability of similar schemes in isolated rural areas. Literature relating to the implementation of rural poverty reduction initiatives will be integrated with the narrative of the project, the objectives of which were to support social, economic, and ecologically sound modes of production leading to a reduction in local rural poverty. A final section will relate these themes to some project-specific and transferable recommendations about the delivery of value chain projects with a particular focus on the concepts of governance, gender, and trust which are seen as central to the management of rural development projects.

Keywords: value chain management, agriculture, empowerment, Kenya

THIS PAPER IS NOT INTENDED to revisit the extensive debate on the causes and effects of rural poverty or the factors that lead to the successes or failures of dispensing aid in developing countries. Rather its intention is to share some of the experiences and insights gained from a Kenyan value chain development project, and to explore some of the lessons learned, as signposts for similar projects elsewhere. The paper begins by introducing key value chain strategies as a key consideration of poverty reduction in rural areas. The design and implementation of the case

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study (Kudumisha) is then introduced and case-based lessons highlighted and the transferability of these considered.

Value chain strategies

Private investment is often seen as the key to helping the very poor while simultaneously increasing profits (Hammond and Prahalad, 2004; ICIPE, 2013). Business with the poor can be profitable and at the same time drive long-term growth through the development of markets, encouraging innovation and improving the value chain (Davies, 2008). The same author argues for inclusive business models that involve the poor in both the demand and supply sides of the value chain which can be described as a network created among different companies producing, handling, and/or distributing a specific product (Royal Tropical Institute et al., 2006). Kaplinsky and Morris (2000: 4) in turn define a value chain as:

the full range of activities required to bring a product or service from conception through the different phases of production (involving a combination of physical transformation and the input of various producer services), delivery to the final consumer, and final disposal after use.

It can be argued that the main difference between a supply chain and a value chain is the willingness of each of the actors in the latter to invest in the chain. This implies taking ownership of individual processes, associated risks, and the sharing of knowledge and information and in turn highlights the importance of trust among value chain actors (Webber and Lebaste, 2010). UNIDO (2011) goes further and refers to pro-poor value chain development as a tool for improving productive operations in order to generate social benefits such as poverty alleviation, gender equity, and other development goals. As such the process has been adopted as a key strategic undertaking by various development agencies, donors, and governments (Humphrey and Navas-Aleman, 2010; DFID and SDC, 2008) and 'is increasingly being recognized as a promising approach to address not only economic development, job creation and inclusive growth, but a wider range of social and environment development issues' (Stamm and von Drachenfels, 2011).

Poulton et al. (2006), however, recognize that value enhancement is often problematic with the rural poor due to a lack of supply chain coordination and high rent-seeking costs in the chain that can reduce the efficiency of resource allocation and economic return. They suggest stability in food prices, and the provision of pre- and post-harvest services, as being essential aspects of supply chain development and central to stimulating smallholder agricultural growth.

Four specific chain empowerment strategies can be identified in support of this:

- 'upgrading as a chain actor', 'farmers become crop specialists with a clear market orientation';
- 'adding value through vertical integration'; 'farmers move into joint processing and marketing in order to add value to the product';

- ‘developing chain partnerships with farmers and collectively building long-term alliances with buyers that are centered on shared interests and mutual growth’; and
- ‘developing ownership over the chain whereby farmers can build direct linkages with the consumers’ (Royal Tropical Institute et al., 2006).

Value chain development has coincided with the linking of political-legal, institutional, and regulatory frameworks to the macroeconomic environment based on a broader strategy targeting resource-constrained actors in the upstream segments of the value chain (Kula et al., 2006). This in turn led Neilson and Pritchard (2009) to recommend Global Value Chain (GVC) analysis as a robust conceptual toolkit for examining how actors in such a value chain are influenced by lead firms. Elsewhere Humphrey and Navis-Aleman (2010) point to a lack of market information and technology, the involvement of numerous intermediaries, and limited involvement in high value activities, usually concentrated in developed economies, as barriers to smallholder participation in GVCs. These constraints are added to by Trienekens (2011) who identifies a shortage of capital, dependency on family members for the labour pool, inadequate institutional and infrastructural support, and a lack of coordinated mobilization of dispersed producers as additional barriers to GVC participation. Changing the way that chains operate, through coordinated governance, upgrading of chain actors, and improving the quality of intermediaries can lead to improved returns for smallholders (Humphrey and Navis-Aleman, 2010) and Bolwig et al. (2008) point out that horizontal investments (for example in smallholder stakeholders through better training) are necessary for poverty alleviation. Chain interventions, however, need to be cognizant of who benefits from the added value (Humphrey and Navis-Aleman, 2010) and to have coordinated governance structures that support and protect smallholder participation in global markets (Zylberberg, 2013).

Stoian et al. (2012) advocate an ‘asset-based approach to the design, implementation and assessment of value chain development’ in order to manage the complexity of poverty reduction programmes. Such an approach is necessary to gain insights into the multiple dimensions of poverty and stakeholder vulnerability and importantly to identify which actors are ready for value chain development. The data requirements for effective planning are also identified to ensure that the information which flows between chain actors is current and relevant to the task at hand.

The next section will introduce the Kudumisha case and will align the previous insights from the literature about value chains with the specific lessons derived from the project. Where relevant, additional literature has been incorporated into the case study ‘story’ and subsequent analysis.

Background to the Kudumisha Project

The Kudumisha Project (name changed to protect the identity of the stakeholders) was located in the highlands of Kenya approximately 45 kilometres from Nairobi

and brought together four community-based groups consisting of 244 small-scale, predominantly horticultural, farmers to establish a business venture on the basis of value chain development. It ran between 2005 and 2009 with an early termination following the post-election violence in 2007 and the associated economic and social breakdown. However the learning from the project remains relevant today as development agencies and developing countries continue to struggle with the challenges associated with poverty alleviation and the development of value chains (IFAD, 2015; Campbell-Avenell, 2009).

The aim of the project was to work with a local exporter to connect small-scale producers to European supermarkets, generate satisfactory returns on investments and practise ecologically sound modes of production. Half of the total land available would be used for growing horticultural produce (French beans and baby corn) for supermarkets in the European Union while the other half was for home consumption and selling to weekly markets in local towns and other local outlets such as hotels. The management of the project was undertaken by an international not-for-profit organization specializing in supply chain development and poverty reduction.

Kudumisha was unique in that there was a responsibility on the farmers to pay back the initial loan. This funding of €125,000 was obtained through a low-interest loan from a corporate social responsibility (CSR) programme managed by a Dutch financial institution. The implementing NGO took responsibility for the management of the investment with the farmers being required to pay back the loan over a five-year period. A trading company owned by the farmers was formed to carry out the commercial aspects of the project; they also retained control through the creation of an association which carried out the social aspects of the project. The association was registered as a separate legal entity from the trading company. Farmers paid membership fees to join and made monthly contributions to the association. Managed solely by elected officials, these funds were used to support community initiatives of their choosing. The association had no say in the running of the limited company. A variety of support mechanisms were made available (e.g. training and infrastructure development such as grading sheds) to the farmers to sustain their business and comply with the international requirements set out in EurepGap, an independent certification system for good agricultural practice (GAP). This was established by retailers belonging to the Euro-Retailer Produce Working Group in 1996 to address the growing concerns of consumers about product safety, environmental impact, and the welfare of the producers and ecosystems. In 2013 EurepGap changed its name to GLOBALG.A.P., reflecting its global, rather than European, reach. Such certification can either act as a barrier to market entry for capital starved stakeholders or as a powerful driver to value chain participation through the assimilation of new skills, techniques, and product improvement (Bolwig et al., 2008). Other authors (Jaffee, 2007; Bacon, 2005; Blowfield and Dolan, 2010; Macdonald, 2007) have written about the impact of certifications and standards on value chains.

The interconnections between political, economic, social, ecological, and technological processes meant that Kudumisha was located within a continuously changing and complex landscape. An understanding of this required not

only the practical and technical knowledge to deal with specific disciplinary and practice-bounded problems but also the integrative skills necessary for making informed decisions as the basis for generating adaptive capability (Lemon, 1999). In this regard it was important to identify key stakeholders (both male and female farmers, project management team, financiers, and other supply chain actors) and obtain their opinions of a collective project vision that was underpinned by a common set of project aims and objectives. Various authors highlight the importance of stakeholder participation in decision-making (Freeman, 1984; Hoben et al., 1996; Royal Tropical Institute et al., 2006). The recognition of mutual interests between the firm (in this case the project management team) and its stakeholders, and the ability of the firm to establish and maintain a relationship with those stakeholders, is essential for the long-term viability of a company or organization (Post et al., 2002).

The project developed a series of operational strategies including the direct involvement of established companies specializing in seed research and supplies, irrigation equipment, pesticide and herbicides, and logistical support. Financial and other private learning institutions were brought in as partners to enhance the value chains and the organizational structure and implementation of these strategies are considered next. The wider network of stakeholders included:

- the smallholder farmers who were members of the four groups selected for the project;
- the international non-profit organization (NGO) that provided the project management and capacity building;
- a local horticultural exporter who became the preferred buyer and provided logistical support;
- the Ministry of Agriculture which provided technical advisers, local knowledge, and insight into good farming practices and similar projects and interventions.

Consultants, training, and financial organizations also provided professional services on water and soil management and knowledge development.

Design and implementation of the project

The completion of feasibility studies, project planning, business development, preparation of an investment plan, and project financing took two years. In this period the four participating groups were identified through a consultation process involving the local agriculture district officer and a previous member of parliament, both of whom were very familiar with the stakeholder farmers and the challenges faced by them. A number of criteria were used to identify the project stakeholders. These included:

- Farmers who were facing acute poverty (identified through the local District Officer).
- Farmers facing various natural resource challenges. The four groups were based on lands allocated to retiring staff from two major farming businesses. Both organizations had carried out intensive farming (coffee and pineapples)

practices with the overuse of fertilizers and pesticides resulting in substantial soil and water contamination. Land clearing practices had also failed to take account of human–wildlife conflicts which had resulted in animals being ‘pushed’ into allocated areas. As the project commenced, this proved to be a huge challenge alongside the depletion of water resources, possibly due to climate change.

- Farmers with a history of growing horticultural produce for the export market (e.g. French beans, carrots, baby corn).
- Farmers that belonged to community-based organizations (CBOs) registered by the Ministry of Social Services.
- Farmers with basic numeracy and literacy skills.
- Farmers with farm holdings served by good, all-weather roads.

Representation was sought from both female and male farmers of all ages; the characteristics of the four groups, their geographical location, and strengths and weaknesses are shown in Table 1.

Table 1 Strengths and weaknesses of the participating project groups

	<i>Strengths</i>	<i>Weaknesses</i>
Group A Located in Ithanga location within Thika District	Permanent rivers, farms are close to one another, soils are well drained, and feeder roads are in good all-weather conditions	There is river pollution, farm sizes are quite small (0.30 ha) and fragmented while the soils have poor drainage and are prone to flooding. Threat to produce from animal intrusion (e.g. hippos). Trust issues within the group and existing supply chains highlighted by the rural appraisal; these proved to be a contributing factor to project failure
Group B Located in Kakuzi Division within Thika District	There is low risk of water pollution; several water sources (permanent and seasonal and dams) are available for irrigation purposes and the locations are close to the main highway	The plot sizes are small (about 0.30 ha) and scattered, the soils are poorly drained and some isolated and dispersed farms have limited road access. Threat to produce from hippos. Trust issues within the group and existing supply chains
Group C Located in Mitubiri location within Thika District	Farms have good road access and are close to each other; most have well drained soils and there are several water sources (permanent and seasonal)	Some farms have poorly drained soils, farm size is small (about 0.30 ha) and a few farms are close to seasonal streams, susceptible to flooding and in need of more complicated irrigation strategies. Trust issues within the group and existing supply chains
Group D Also located in Mitubiri location within Thika District	Water sources (permanent and seasonal) are prevalent, the land sizes are larger (more than 1.1 ha) and the soils are moderately to well drained	Farms are scattered, there is poor road access while some streams are seasonal. Trust issues within the group and existing supply chains

The reference to trust issues in groups B, C, and D in Table 1 relate to an accepted local history of farmers renegeing on their promises with horticultural exporters who had advanced them inputs such as seeds and fertilizers; this is returned to below. Moreover the groups often had strong personalities in leadership roles making consensus and/or collective decision problematic.

The design and implementation of the project involved a Participatory Rural Appraisal (PRA) study, the creation of Farm Specific Action Plans (FSAP), the identification of key stakeholders, and the setting up of a value chain and ensuing organizational structure. These will now be considered in turn.

Participatory Rural Appraisal (PRA)

The acquisition and use of accurate contextual information was seen as key to the identification of appropriate interventions for poverty alleviation and resource efficient behaviour. Detailed information on the socio-economic and environmental aspects of the project's key beneficiaries was obtained through a PRA exercise (Chambers and Conway, 1992) with the pre-existing groups. This entailed a number of activities that are summarized in Table 2.

As preparation for the PRA exercise, several visits were made by a team of eight researchers to identify who to sample for the purpose of the study. During these initial visits they discussed sampling, locations, events, and time. In discussions on

Table 2 Information gathering stage of the PRA

<i>Activity</i>	<i>Activity summary</i>	<i>Expected output</i>
Geographical information systems (GIS)	Locate farm areas in each group, determine ecological, hydrological, topological characteristics and infrastructure	Establish individual farm sizes within each group location, produce soil maps, generate climatic data map of the areas; identify potential water sources, their reliability and the expected users of natural resources
Training	Carry out a survey of present training needs; identify gaps	Identify specific training needs and costs
Survey: Ownership of land and farm size in project area	Determine ownership and size of land parcels under Kudumisha Project	Report on bona fide ownership of project tenants and challenges (tenancy agreements etc.); develop map of individual farms under Kudumisha Project in relation to specific road and water features; assign identification tags to individual farmers and farms; identify location of grading sheds; identify and develop project indicators and monitors; determine current produce under cultivation
Ranking matrix	Identify priority areas for action and key challenges; identify other possible problems that could affect project	Present a ranking matrix (see below)

(Continued)

Table 2 Continued

<i>Activity</i>	<i>Activity summary</i>	<i>Expected output</i>
Irrigation survey	Identify main water sources for cultivation of horticultural produce; map these sources in relation to individual farms; identify key irrigation challenges	A land (foot) survey of each farm to supplement the GIS data and contribute to a report on possible irrigation strategies; identify potential irrigation problems that may affect the project and possible interventions; present a cost feasibility report on irrigation strategy implementation
Develop protocols	Identify the various processes in French bean production and distribution	Prepare handbook of protocols in straightforward language supported by illustrations on all aspects of production (cultivation to harvesting), chemical handling, obtaining inputs, distribution
Soil and water testing survey	Check current testing status; identify soil and water sample collection approaches	Identify strategies for collection, testing, and costs

sampling size, categories such as age, gender, education, roles, income-generation activities, health, shelter, family size, and other drivers and barriers to farming played an important part. To capture the resources within the project area, the team made a transect walk. The main features, the soils, vegetation, water sources, and environmental issues were observed.

A semi-structured questionnaire was administered to all members of the four groups (Group A, 70 members; Group B, 50 members; Group C, 55 members; Group D, 64 members). Triangulation using data from interview analysis, the transect walk, group discussions, and historical documentation was used to produce an understanding of key project challenges.

The findings from the PRA provided a clear indication of the environmental (e.g. topological and hydrological characteristics, rainfall patterns, soil characteristics, etc.), the social (e.g. gender and age distributions and roles), and the economic (income streams and sources, etc.) aspects of the project.

The findings also highlighted what needed to be prioritized for project management. Small farm holdings meant paying special attention to resource allocation especially relating to the use of technologies and the training of farmers to use them. The position of the farms in relation to each other had implications for the management of the supply chain and logistics. Polluted water meant extra investment was necessary to provide alternative sources of clean water for irrigation and the introduction of water harvesting and storage technologies. Poor drainage meant the construction of drainage channels while soil erosion and low water availability entailed the introduction of low-cost, resource-efficient technologies such as drip irrigation, the planting of indigenous bushes and grasses, and the construction of terraces to prevent soil erosion. Wildlife and human conflict meant special measures were also necessary such as the building of deep trenches around the farmed areas to prevent hippo invasions.

The social and income data generated by the PRA exercise provided additional information and action points for project management. One of the biggest problems faced by the management committee was the lack of effective control by the groups over their members. In the past some seeds and chemicals distributed by the exporters for planting had been sold by members. This had led to a breakdown of trust among group members and the other actors operating within the existing supply chain. Transparency and accountability were also critical issues because some members failed to observe regulations set out by the groups, especially on the marketing of their produce, much of which had been sold to unauthorized buyers.

Land ownership analysis was problematic due to a lack of documentation but surveys indicated that 20 per cent of the farmers had freehold and associated title deeds, 9 per cent had a lease agreement, 1.5 per cent was settlement land that had been provided by previous landowners, and the remaining 69.5 per cent of farmers had inherited the land through the subdivision between male offspring. This subdivision led to a reduction in the size of farms and a corresponding increase in the number of farmers. The PRA exercise also revealed that 45 per cent of the farmers' income was derived from casual employment and 40 per cent from donations by relatives; farming generated only 10 per cent of income.

Land ownership was dominated by men even though women were undertaking a considerable amount of the work on the farms. Although women had greater decision-making powers in low-budget household matters they invariably had little say over the long-term strategic decisions that affected the well-being of the family unit. In all four groups, the gender duties were clearly defined and this was instrumental in the subsequent design and implementation of the training programmes. Irrigation and pesticide spraying, for example, were the core responsibilities of men while planting, weeding, and picking were done by women.

In Kenya, nearly 80 per cent of the population is less than 35 years old (UNDP, 2013) and in the project young people aged between 18 and 34 years formed nearly 40 per cent of the participants. While the majority of these had not completed their primary or secondary education, a few had continued to acquire first degrees. The action points arising from this analysis were reflected in the Farm Specific Action Plans (FSAPs) which are discussed next.

Farm Specific Action Plans (FSAPs)

While the PRA provided information on key areas of the project such as farm size, ownership, water/soil tests, and social conditions, it was necessary to link these to specific challenges on individual farms; this led to the generation of FSAPs following visits to 250 separate farms.

Using information from the PRA, the plans were prepared over a two-month period by the project management team in conjunction with the participating farmers. A detailed survey of the individual farmer plots was carried out by the team that included an irrigation expert, the EurepGap manager, and an agronomist. Each farmer was scored (referred to as the 'readiness scale') out of a total of 100 points

the breakdown of which was: *irrigation* 50 points (quality of water 10; method of irrigation 10; availability of water 20; efficiency of irrigation 10); *EurepGap training* 20 points (level of training 5; general knowledge 10; condition of farm 5); and *production* 30 points (soil management 10 [soil erosion 5; fertilizer level 5]; site history 20 [risk assessment 10; crop rotation 10]).

The FSAP also included specific information on: 1) the design of the irrigation systems for each farm; 2) the identification of all resources required and costs thereof; 3) the identification of specific locations on farms for the building of storage tanks, ponds, etc.; 4) water management strategies; 5) timelines for the various activities and sub-activities for the implementation of the irrigation, training, and production strategies; and 6) training activities. These FSAPs were based on SMART (specific, measurable, achievable, realistic, and time bound) principles and included all aspects of EurepGap training. Indicators for monitoring the effect of the plans included classroom assessments, record keeping, revenue generation, attendance at demonstration events, adoption of new techniques and technologies, and official certification of farms for compliance with the EurepGap Code of Practice.

The outcome of the FSAP exercise was the classification of farmers in three groups: Group 1: ready to start planting; Group 2: ready to start with minimum resource allocation requirements (to help them acquire the minimum points to start production); and Group 3: requiring intensive resource allocations (to help them move towards obtaining minimum points to begin production). A minimum of 60 points was set as the minimum to start production. However, the question of land ownership provided the project management team with the biggest challenge. Some of the farmers who had qualified in Group 1 were not able to start planting due to a lack of proper documentation. In such cases farmers were moved to Group 3 until the relevant documentation was made available.

The scoring system was explained to the farmers, as was the purpose for having it; although Group 1 began the project as first starters they had to maintain and/or improve their performance (as measured by the readiness scale) in order to continue production. The readiness scale was used as a monitoring tool to ensure continuous improvement. Group 1 also provided a benchmark for the other groups to strive towards. Furthermore two farmers were chosen from Groups 2 and 3 in the first phase of production and given priority to move towards achieving the minimum points to start production. The idea of this was to motivate other farmers in these two groups to achieve the same result.

The paper will now briefly review the organization structure and business plan for the project and local farm businesses before considering the lessons that span across commercial and socio-cultural contexts.

Organizational structure and project implementation

The Kudumisha project was funded by a financial institution from Europe as part of its corporate social responsibility initiative. Matin et al. (2002) argue that the provision of financial services (microcredit, micro savings, and insurance) to the poor is of intrinsic value over and above its potential as a tool for poverty alleviation. It also

improves outreach depth and access to potential sources of funding. The challenge facing Kudumisha and similar projects was to design a financial system that the poor would find comprehensible, accessible, and effective. A lack of formal credit can trap the poor into poverty, especially those who cannot afford to sacrifice some of their consumption and save funds for investing (Carter and Barrett, 2007).

To help address this, local banks worked closely with the Kudumisha farmers who were required to have a bank account for the financial transactions of the project. The purpose of this was not only to manage payments but to encourage a savings culture. Within the association the farmers could decide, based on majority voting, to create funds for various social purposes such as health care, educational programmes, and sanitation projects. Some of the projects that were initiated included improving communal toilets and providing stationery and sports equipment for a local school that worked with children with AIDS.

The trading company and association were registered according to Kenya's corporate regulations and conducted their business through the banking system generating financial options for expansion and investment. The revenues accruing from the sales of the products were then transferred directly to the farmers.

The association undertook the training, for example in EurepGap (now GLOBALG.A.P.) protocols, and provided the four groups with a platform to discuss and develop any issues relating to the social aspects of the groups such as the construction of common water reservoirs. The trading company carried out the commercial aspects (marketing, accounts, human resources, etc.) of the project and was jointly owned by the farmers' association and the NGO implementing the project. During the early years of the project, both the farmers' association and the trading company were under the supervision of the implementing NGO in order to ensure good governance and professional, market-oriented management. Trust and credibility between the two bodies was generated through the establishment of transparent measures that included the provision of regular information updates relating to both the operational and financial management of the project. In addition to this any farmer could approach the farmers' association, the trading company, or the project manager for clarification or information pertaining to them as individuals or the project in general.

Professional managers were employed to run the trading company whose primary duties were to sell the project produce, to build up a stable market position, and to acquire the trust of financiers and other stakeholders. The company managed all the entrepreneurial aspects of the business through trained staff that had previous experience of working in a commercial environment. Stability was important and groups were discouraged from jostling for these positions; this had occurred in the past with unqualified persons (often relatives) acquiring positions of responsibility without possessing the necessary experience and qualifications. Training and other aspects of capacity building were carried out through the farmers' association.

A local organization was chosen as the preferred exporter for the project following a rigorous selection process. This organization was seen to place the welfare of farmers at the centre of its operations, to have extensive operational experience, clear quality management systems, and to have an excellent market reputation

and reliability of service. It was also important to identify an export partner who was keen to move towards an integrative approach that took account of the social, environmental, and economic aspects of the project. The selected exporter was well established and had been operating for 16 years with an extensive network including links to governmental and private bodies; it also exported a range of horticultural crops to the UK, France, Belgium, and Dubai, and guaranteed the purchase of all produce from the Kudumisha project at competitive market prices.

To ensure farmers complied with the EurepGap code of practice, a field management team consisting of a qualified team leader and a number of technical assistants was set up. Production plans were drawn up based on the requirements of the exporter. Grading sheds for processing the horticultural produce were then constructed for each group in accordance with EurepGap specifications. Separate chemical stores and cooling rooms were also established for each group and a traceability system that included identity tags, delivery books, and accounting stationery was introduced. Each group of farmers was equipped with approved pesticide spraying equipment, protective clothing, safety and irrigation equipment, and the necessary training to operate safely and effectively. To help with this, demonstration fields were set up in each of the four areas to train the farmers in good agricultural practices and in the use of simple technologies using locally available materials.

Prior to Kudumisha, farmers had sold their produce at the farm gate to middlemen who invariably offered low prices for their produce. Established exporters preferred to work through brokers because they felt that the farmers did not produce consistently high quality crops and could not be trusted to fulfil their production requirements. In addition to this, the brokers often, at a later date, rejected a lot of produce they had purchased and paid for, invariably blaming the final buyer for not being satisfied with the quality of produce received. The value of the 'rejected' produce was then recovered from the next purchase, making life even more difficult for the farmer. As there were no traceability processes or systems in place it was not possible to provide feedback to a specific farmer on how to improve the quality of their produce. Brokers and the final buyers often took further advantage of this situation to keep prices depressed.

In order to help address these issues (the need for consistent quality, traceability, and an effective value chain) production knowledge was transferred to the farmers by mobilizing them into groups who were then trained in good agricultural practices, collective bargaining, natural resource management techniques, and the evaluation of appropriate technologies that fitted their intended purpose.

Legally binding collaboration agreements were entered into between the farmers, the association, and the trading company spelling out in detail the responsibilities of each party. Feedback systems were also brought in for project monitoring; these were carried out by qualified agronomists, irrigation experts, and technical assistants. Finally a central accounting system was introduced to record all transactions and make payments to all creditors including individual farmers.

In order to obtain better prices from the exporters and to reduce any chance of produce being rejected a number of value addition activities were introduced in the project. These included the setting up of an on-site grading facility, managed by trained staff, to implement traceability procedures and provide on-the-spot advice

about why a particular batch of produce was rejected and what could be done to improve production next time around. Cooling facilities were also introduced on-site to store the graded produce and further reduce the likelihood of produce being rejected.

Project analysis and lessons learned

The impacts of the interventions were assessed using the base line surveys of the PRA; these are discussed in the following sections.

Project successes

The project recorded significant financial success resulting in revenue generation that exceeded pre-project earnings by between 25 and 50 times depending on land size and natural resource endowments. This reinforced the motivation of the farmers to continue with the project and to extend their commitment to it. It also led to a TV documentary highlighting the successes of the project, various NGOs and government officials visiting the project area to learn about the approach to project management, and to additional funding being offered for new technologies.

Measured against the base line survey it was notable that as the economic situation of the farmers improved, more disposable income became available for them to improve their homesteads, pay for clothes, purchase domestic animals, pay for better medical services and education, and start small businesses such as local food stalls and hotels. They were also able to incrementally place more land under cultivation and thereby further increase their income. Farmers also experienced social benefits at both individual and community levels. Collectively, through the association, they could plan for small-scale local projects such as water harvesting and sanitation projects.

Value-adding activities resulted in the additional 'incremental value' of the produce, not only through higher prices but through the creation of an expanded market. The resulting improved morale of the farmers and the increasing trust between the various value chain actors also brought about an air of confidence within the project. This was reflected, for example, in the exporter who reduced the number of competing suppliers, increased prices, and contributed to the further training of the field technicians. The farmers on the other hand showed a significant change in attitude towards financial matters; this was reflected in their willingness to open savings accounts; at the same time the buyers could rely on quality-assured produce and be confident of production targets being met. This in turn translated into higher orders and the introduction of new product lines that included baby carrots and peppers.

Project failures

Post-election violence triggered by the December 2007 Kenyan presidential and parliamentary elections was seen as a major factor in the subsequent failure of the

project; in large part this was due to the loss of key personnel back to their tribal districts. The supply chains were also adversely affected by the lack of security and the eventual breakdown of law and order, which in turn contributed to the sudden ending of business operations along Kudumisha's value chain. Nothing could be planted, harvested, transported, or exported from the project. Produce ready for collection rotted in the stores while harvesting schedules got disrupted and produce withered away in the fields. Furthermore, fields that needed preparation, weeding, pesticide spraying, and irrigation were totally abandoned.

As the political situation improved the project's trading arm could not meet its obligations to the exporters. Some farmers who had been provided with credit for inputs (seeds, pesticides, fertilizers, and technical services) took advantage of the situation to avoid paying their bills and whatever produce survived was sold to middlemen without regard to the obligations to the association and trading company. Legally binding contracts between the various parties, as described earlier, did not deter the farmers from this kind of disruptive behaviour because, based upon past experiences, they were confident that the legal system did not have the will to enforce the law. The supply chains were also further disrupted as overseas orders for horticultural products were either scaled down or cancelled.

Prior to the election violence, other factors had begun to affect the sustainability of the project. For instance, some members of the farm groups had started to behave in an opportunistic manner leading to a breakdown of trust with the other value chain members. These members felt that they had gained enough experience and confidence to break away from the project and operate independently.

Land tenure issues also came to the fore early on in the project. Some of the farmers had leased their farms and as the project recorded increased revenues, tenancy agreements were either revoked or rental prices hiked. This, on occasions, led to disagreements and occasionally fights, sometimes between family members, over land ownership, rent, and rights to cultivate.

Wild animals such as hippos, porcupines, antelopes, and other smaller animals became increasingly difficult to control. These had been displaced from their previous habitats and faced acute food shortage; the project however provided them with a good source of food which inevitably led to a considerable loss of produce. Putting up defensive structures to keep animals out was expensive and added considerably to production costs.

A further contributory factor to the failure of the project was that the farmers had not invested any of their own capital in the project. While this was not seen as an oversight on the part of the project management team, as it was felt that asking resource-stressed farmers to contribute would only put extra pressure on them, it may have reduced the farmers' commitment to the project and meant they had little at stake if it failed. The temptation of instant cash at the farm gate, a short-term view of the future, and a weak governance structure were key contributory factors to the mind-set that accompanied the demise of the project.

Table 3 summarizes the successes and failures of Kudumisha and presents them as lessons that are contextually specific and in some instances transferable to other projects.

Table 3 Specific and transferable issues and lessons

<i>Issue</i>	<i>Consequences</i>	<i>Intervention</i>
Nepotism	Sound decision-making becomes a real challenge as unqualified personnel are placed in key strategic areas. This also affects trust issues among the stakeholders.	Advertising for key strategic posts in local media with clear requirements. The interview panel should reflect the diverse interests of the stakeholders.
Mavericks	As revenues increase a few stakeholders want to 'go it alone'. They often have 'loud voices' and inadequate supporting skills.	Ensure there is shared vision of the project and have in place a community-based framework for identifying and addressing such behaviour.
Lack of proper 'fit' between value chain actors	There is a tendency for 'uncooperative' behaviour to creep back into the value chain mainly due to increasing value chain empowerment (e.g. farmers using their improved productivity and quality produce as a tool to get better prices regardless of contractual agreements).	Understanding power structures, especially at the group level is essential for anticipating future risks. It is also important to ensure that relevant and enforceable rules, especially at the group level, are in place and understood by all. This is particularly important for ensuring professional conduct is maintained in the commercial aspects of the project.
Deepening 'dependence'	There is potential for participants to rely on external expertise and a reluctance to 'take ownership' of the project.	The extent (time and resource) of assistance should be clear from the start as should a well-defined exit strategy.
Personal financial mismanagement	As revenues increase, some farmers have the tendency to spend all their earnings on other activities without considering how they obtain inputs for their next planting. Others tend to expand their operations to unmanageable scales that have detrimental effects on their bottom line.	This is a serious issue and gender can play an important role in improving financial management. The project experiences suggested that women were better at managing finances and training programmes should target them. This is a cultural issue but can be managed through facilitation and dialogue.
Dependency on family 'labour pool'	This poses challenges at different levels. For example when costing for inputs, family labour is not accounted for and can lead to discontent. At another level, depending on this labour pool can result in shortages of manpower, especially for planting and harvesting and at school times.	Clear responsibilities and remuneration should be outlined if family labour is to be used. This should be costed into the farmer's profit/loss accounts.
Tribalism	This can become a serious issue especially when political systems favour one group over another or when resources are overstretched.	This is a real challenge and risk management requires a programme that can mitigate issues as they occur. Group leadership should be strengthened through training and reconciliation processes that are formalized through policy documents.

(Continued)

Table 3 Continued

<i>Issue</i>	<i>Consequences</i>	<i>Intervention</i>
Conflicting agendas of NGOs	NGOs running similar programmes may cause conflicts of interests between themselves by interfering indirectly in programmes. For example an NGO running advocacy programmes may claim human rights offences against other NGOs when farmers refuse to meet contractual obligations.	It is important that all NGOs working in the project area are involved in an advisory capacity at an early stage to ensure clarity of purpose.
Lack of resilience	A major cause of project failure can be a lack of farmer resilience usually caused by unreasonable expectations and a culture of instant returns.	Project management should include clear indicators of what is to be expected at various milestones including the work involved and commitment required. This should be revisited regularly on an individual and group basis.
Interference from brokers (middlemen) and opportunistic behaviour	Brokers wait until harvest time and take advantage of farmers by offering instant cash (usually at lower than market prices). Cash strapped farmers may break their contractual obligations that pay two weeks after delivery minus input (seeds, fertilizer) supplied.	Groups should take responsibility for this and have in place recovery procedures when this happens. The offending individual can be penalized and even removed from the project if this type of behaviour continues.
Excessive ambition	Once farmers start turning a profit, they can get over-ambitious and expand their operations to unmanageable levels.	The group committees and the project managers should assess expansion requests on an ongoing basis.
No regard to enforcement of the law	In some cases there can be an unwillingness to enforce the letter of the law. Even with legally binding contractual agreements project beneficiaries ignore the consequences of breaking them because they: 1) have in the past seen that enforcements agencies are lax; 2) can turn to other NGOs who run advocacy programmes; and 3) can go to local politicians and cause disruption.	Groups should have their own rules and regulations to deal with this type of behaviour.
Weak leadership at group level	Weak leadership can lead to poor group dynamics and bad decision-making.	Project management should include training in leadership including putting in place fair election protocols, time frames for holding office and procedures for dealing with misconduct.

<i>Issue</i>	<i>Consequences</i>	<i>Intervention</i>
Ambition in young	Young people, usually educated to high-school level, are ambitious and have certain expectations about their future that may not necessarily fit in with those offered by the project. Some may be unwilling participants in the project due to lack of preferred work or family pressures.	Project scoping should take these factors into consideration when planning. Groups have the responsibility to ensure that all project participants are willing and eager to participate. Realistic expectations should be clearly outlined and explained. Ensure that there are 'receptive' and effective communication channels for the 'new' expertise of the young to benefit the project.
Land ownership and continued land division	Land ownership, especially when dealing with a diverse group of stakeholders can become a concern as the project progresses. This can manifest in a number of ways: 1) no title deeds for inherited land or donated land; 2) unexpected rent increases; 3) inherited land that requires survey, sub-division, and the issue of title deeds; and 4) disputed land inheritance. Farm sizes are getting smaller through division by inheritance. This can remove the critical mass for the successful participation of a farm business.	Groups can play a lead role in deciding how these stakeholders participate in the project. The experience of Kudumisha is that legal agreements are often ignored. Realistic assessments of land size returns should be carried out as part of FSAPs before deciding whether project participation is recommended.
Political interference	Local MPs, chiefs and District Officers can cause project disruption especially where corruption is prevalent.	Pre-project preparation should involve these local 'leaders' as observers, participants, and advisers.
Failure to recognize women as strategic partners	Women carry out the majority of the farm activities from land preparation, planting/care, and harvesting. Men act as the overseers and receivers of the receipts.	This should be an important and crucial consideration of the project and tackled in a number of ways while considering cultural sensitivities: <ol style="list-style-type: none">1. Training programmes should include women as participants and attendance made compulsory.2. Ensure that women are elected at the group level (as a requirement) to management positions.3. Capacity building should use learning conversations that involve women and men from other successfully run organizations and examples of best practice.4. Ensure the inclusion of women who hold the land title rights as partners in the project.

(Continued)

Table 3 Continued

<i>Issue</i>	<i>Consequences</i>	<i>Intervention</i>
Supply chain actors	Choosing the right supply chain actors that share the project's aims and objectives.	For example, seed suppliers should be actively involved in the selection and provision of seeds suited to each production area; they could also provide training on quality; irrigation equipment suppliers should have policies on environmental protection; and the exporting partner have quality management processes in place for the protection of the environment.

The consequences of project failure resulted in a gradual reduction of incomes for over 80 per cent of the farmers who had not built up strong relationships with the exporter. Those that had established these relationships continued to benefit from additional services and assistance from the exporter. These included the supply of quality inputs, technical advice, guaranteed pricing structures, and an ensured market for their produce.

Summary

The Kudumisha project was obviously vulnerable to the externalities of the political unrest within Kenya in 2007; however prior to this, and to some extent afterwards, a number of specific lessons could be drawn, some of which were transferable and could be considered for other value chain projects. These are summarized in Table 3 but there are a number of over-riding themes that emerge from this analysis.

A central theme was the need to recognize the importance of cultural context. For example, the embedded culture of mistrust between the producers and the buyers led to a breakdown in the value chain as external pressures (e.g. political discontent) mounted. The confidence of the farmers did not grow sufficiently to support them as proactive market players; indeed it left them feeling somewhat marginalized. Conflict and confusion over land tenure issues were also highlighted as major reasons for project failure. Addressing the issue of property rights is key to the economic growth in developing countries; the absence of formal title deeds often prevents land being used as collateral to obtain bank loans (IFAD, 2015). This, along with unsecured property rights and a lack of political will to enforce the law when in default, was a significant cause of failure. People without property rights lack the incentive to make investments that might lead to higher returns on the land where they live or farm (Meinzen-Dick and Di Gregorio, 2004). Land ownership can increase investment in the development of children and property rights are essential to 'perpetuate or break intergenerational transmission of poverty' (Deere and Doss, 2006; Doss 2006). The combination of these generic themes introduces a third consideration, the engagement of young people. In its Youth Participation in Poverty Reduction Strategies and National

Development Plans, UNICEF (2009) point out that although poverty reduction strategies mention the needs of young people, there has been limited analysis of their situation and different realities. This demographic focus highlights the importance of a final 'descriptive' theme, the role of women as strategic partners. Increasingly women are recognized as being central to the delivery of development projects and this is reflected in the Millennium Development Goals. Land ownership provides women with greater bargaining power (Von Braun and Meinzen-Dick, 2009; Panda and Agarwal, 2005) which in turn can lead to control over resources and stronger decision-making in the household as well as the potential for reduced domestic violence and better investment in food and the education of children with long-term benefits for poverty reduction (Deere and Doss, 2006; Doss, 2006).

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