



# Participatory value chain analysis for improved farmer incomes, employment opportunities and food security

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The Food and Agriculture Organization of the United Nations is a leading agency in the development of the value chain approach and in making it more applicable to the small-farmer agriculture context. If agribusiness development is to play a key role in reducing rural poverty, then governments will need to understand and have the capacity to create enabling conditions for agribusiness while also monitoring and taking necessary steps to protect and enhance the livelihoods of small scale farmers and others members of rural and urban communities likely to be affected by agribusiness and agro-industry development.

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In 1996, in an FAO-sponsored workshop in Suva, Peggy Fairbairn-Dunlop highlighted the importance of agribusiness and farm enterprise development for support work in the Pacific island region. She quoted the International Commission on Peace

[f]or any rural development to be successful it must give central importance to self-employment and entrepreneurship, with emphasis on agriculture, agro-industry and small firms in the informal sector (Fairbairn-Dunlop 1996:51).

The issue at that time was to define promising approaches in support of rural development,

which by definition included poverty alleviation, and contributed to improved food security.

Since 1996, there have been many new experiences with the implementation of agricultural development projects and programs and new approaches have been tested. The value chain concept has proven particularly useful for the identification and formulation of projects as well as in the development of strategies for improved agricultural and rural development. A value chain is the full range of activities required to bring a product or service from conception, through the different phases



of production, transformation and delivery to final consumers and to final disposal after use. A value chain is made up of a series of actors (or stakeholders)—from input suppliers, producers and processors, to exporters and buyers—engaged in the activities required to bring a product from its conception to its end use (Kaplinsky and Morris 2001).

Analysis goes beyond the farm and the farm family and looks into common business relationships and interactions between and among farm enterprises and agribusinesses along the pathway from planning for production to the consumption of the final product. The aim is to improve the performance of the value chain by reducing losses, reducing marketing and/or other transaction costs, improving the quality and delivery of the product (or range of products), and placing all the chain actors in an improved position.

This article describes how such an approach can help in formulating agricultural

development strategies and programs and implementing related activities in support of employment and income generation. The most common methods and tools used are explained and examples of situations where the value chain approach has been applied are presented. Some conclusions and recommendations for its future application in the Pacific islands context are provided.

### **Small-farmers, marketing, farm enterprise and agribusiness development in the Pacific**

In the past, agricultural development programs were too often government-led and focused too much on the promotion of export-oriented, risky, high-value crops with uncertain market opportunities. Policymakers gave too little attention to the experience of these programs. Institutional memory tends to be short and mistakes are often repeated. As a result, scarce public funds are often

#### Box 1

#### **How does the value chain concept help?**

The value chain concept

- traces product flows, shows value additions at different stages, identifies key actors and their relationships in the chain.
- identifies enterprises that contribute to production, services and required institutional support.
- identifies bottlenecks preventing progress.
- provides a framework for sector-specific action.
- identifies strategies to help local enterprises to compete and to improve earning opportunities.
- identifies relevant stakeholders for program planning (also in distant markets).

For good policies and programs, we need to understand how local enterprises fit into the global economy.

**Source:** Baker, D., 2006. Agriculture value chains: overview of concepts and value chain approach, presentation prepared for the FAO LDED Regional Workshop for Asia, Bangkok.



wasted and agricultural development is constrained. The economic contribution of traditional food production also tends to be insufficiently recognised by agricultural and national planners, and is underestimated in national accounts (McGregor 1999).

Despite the mixed results of agricultural development projects, most Pacific island countries retain strong traditional agricultural production systems and farmers grow an impressive quantity and range of traditional foods. Traditional food production has been identified as a hidden strength of these economies. For Papua New Guinea, the volume of subsistence and marketed food produced in 2003 was estimated to be around 4.5 million tonnes (compared with about 400,000 tonnes of imported food—mainly rice, wheat, feedstuffs, mutton flaps and beef) (ADB 2004:9). The ability to grow traditional food crops, together with consumer preferences and the non-availability or high cost of imported substitutes, provides a long-term competitive advantage in their production. Furthermore, if these food crops are grown in a traditional manner—without chemicals and in rotation—the production systems are sustainable. Samoa's response to the devastating taro leaf blight, which hit the country in 1993, provides the most striking example of the resiliency of these small island economies to external economic shocks and natural disasters.

Throughout the Pacific island region, governments as well as some of the leading donor and development organisations have come to the understanding that the population's welfare and the national economy can be improved only if rural areas are included in development plans. In most countries, this means that the focus has shifted to improving the performance and efficiency of agriculture. The agricultural sector consists almost entirely of semi-subsistence producers who

face significant difficulties in accessing agricultural services, but who do have opportunities to add value to primary products, to access credit and markets for selling their products, and to access the information needed to make rational choices about technology and what to produce for the market.

Products grown and marketed by semi-subsistence farmers include husked coconuts, bananas, roots and tubers, breadfruit, vegetables, betel nuts and edible nuts. Much is sold in domestic markets as fresh and raw produce, which is perishable, bulky, has a high volume for weight, and is seasonally available. Small producers therefore face a demand that is limited by timing and relative price stability. A noticeable recent trend in the Pacific has been for urban and peri-urban families to operate small roadside market stalls in the suburbs selling basic greens and fruit—although prices tend to be higher than in the main capital markets. This development is expected to continue, given that consumers in the suburbs presently have to travel by bus (minivan) to the centre of the town if they want to buy fresh fruit and vegetables.

In the past ten years, new rural markets have been established on outer islands in the Pacific and an increasing range of fresh produce is grown and available to consumers. The markets in the urban centres have grown even more rapidly: the Port Vila market house is already too small and plans are in place to construct market-places on the outskirts of the city. Further improvements in market infrastructure will be funded under the Millennium Challenge Facility (MCF). Port Moresby's new Koki Market, the ageing Gordons Market, and roadside markets in Boroko and other suburbs supply food to urban residents. In the Solomon Islands capital, Honiara, the upgraded Central Market caters to some 60,000 residents. The smaller markets in



provincial centres such as Gizo, Noro, Auki and Tualagi are being upgraded or plans for upgrading are in place. In Nuku'alofa in Tonga, the Talamahu Market has been closed since riots on 16 November 2006; business has shifted to the Queen Salote Hall and to roadside stalls on the main streets on the outskirts of Nuku'alofa.

The above developments imply that trade in domestically marketed food is an increasingly important source of cash income in the rural economy. The produce reaches the markets through different channels. Farmers have a preference to sell directly to consumers at (urban) markets or at roadside stalls. If they cannot easily reach those markets, they consign produce to relatives, who will take it to the market for them. This is a unique 'Pacific way' of marketing and is different from the situation in Asian or African countries, where traders buy at the farm or farmers meet with traders at assembly or wholesale markets. A 'Pacific paradox' is that hotels and supermarkets generally prefer to import fresh produce at considerably inflated prices and only rarely buy produce from local farmers. This behaviour has been observed in the fast-growing tourism sectors of the Cook Islands and Vanuatu, and was a finding of a recently completed commodity chain study in Fiji (Young and Vinning 2006). The same behaviour is noted in the Solomon Islands and is observed in Papua New Guinea, where produce can be shipped to Port Moresby from Queensland more easily than from the Papua New Guinea Highlands. Common arguments for this behaviour given by purchasing managers include the erratic supply, quality, quantity, high transaction costs and unreliable shipping and transport logistics for domestically grown fresh produce.

For Melanesian farmers, there is little evidence that they will base a decision to go to the market on their knowledge of the

existing price. Often, produce is taken to the market with certain price expectations and farmers are reluctant to lower prices if the market is oversupplied. At the end of the market day, they might lower prices for highly perishable produce, but non-perishable produce is either taken home or given to relatives in the town. Prices of staples change slowly because of the lack of price responsiveness to supply and demand.

Post-harvest treatment of fresh produce is usually limited to the wetting of green vegetables to preserve freshness while they are displayed at the market. In almost all cases, packaging is fairly basic and tends to expose the produce to considerable damage. Traditional materials, such as baskets woven from coconut fronds, are increasingly being replaced with plastic bags.

Items marketed have undergone very little, if any, value adding. While there is enormous scope to increase the value of products that can be preserved beyond seasonal availability, rural food processing is hindered by underdeveloped and unreliable infrastructure and transport. This imposes numerous challenges on an emerging group of agro-processors who want to develop and market food products. To overcome this barrier, there have been attempts to establish and promote a system of partial processing in rural areas. These products are then transhipped to the urban centres for further processing into Codex-compliant export products under controlled conditions. Food legislation and regulations are being formulated in most member countries of the FAO's Sub-Regional Office for the Pacific (SAPA). Training in and awareness of safe processing and marketing of foods will become one of the most important issues for food processors in Pacific island countries in order to maintain income opportunities for the mainly female street food vendors in the informal sector.



Although traditional marketing practices remain in many areas, the market is dynamic. There is increasing evidence that farmers are growing produce specifically to sell at the market rather than just sending crops that are surplus to subsistence requirements (Shepherd 1999). There are many examples of farmers who have developed new ideas to overcome logistical barriers in the value chains to successfully identify and develop markets for their produce (FAO SAPA 2005).

Farmers and governments have often identified the lack of markets for agricultural products as a key problem in agricultural development. However, the ability to supply existing markets on a continuing basis, and to understand market forces and business principles, is likely to be a crucial issue requiring further investigation. A significant barrier to an efficient marketing system and any prospective agribusiness development is the lack of trust, understanding and community engagement between members of the value chain. The list of examples from Pacific countries where farmers are unable to meet domestic demand is extensive, and includes Vanuatu (beef, nangae nut), Fiji (fresh vegetables), Samoa (*xantosoma* taro for processing purposes, beef, and chicken) and the Solomon Islands (poultry and eggs). The challenge is to identify profitable enterprises that will help transform rural farming operations from the common perception of agriculture as a subsistence provider to that of a sustainable, profitable business entity. The participatory value chain analysis can be a powerful tool for identifying strategies and assist in the implementation of these strategies with the aim of establishing viable farm enterprises and agribusinesses.

## The value chain concept

The FAO has been implementing activities in support of improved agricultural marketing, small farmers' incomes, and employment opportunities in the Pacific for some years. In that time, the emphasis has shifted from analytical studies prepared by consultants—such as country market profiles in 1998–99 and studies of small-farmer involvement in export market production in 2000–01 (see FAO SAPA 1999; Shepherd 1999; McGregor 1999, 2002)—to more participatory types of approaches that have attempted to put into practice the lessons and recommendations of earlier studies. These include the application of the value chain concept, including participatory value chain analysis. In this section of the paper, the difference between the traditional analytical approach and the participatory value chain approach is explained. An attempt is made to justify why a more participatory type of approach has a high likelihood of having positive sustainable impacts given the situation in Pacific island countries.

In the classical approach, consultants spend several weeks interviewing key informants, reviewing statistics, and so on, and use the information collected as a design tool for a strategy or program. This approach has the advantage that the design is based on good background information and analysis regarding the particular crop or product and on the constraints and opportunities identified during the structured surveys and interviews. Some literature suggests this approach is particularly appropriate for the development of new markets or products. The disadvantages are that it can be time consuming and expensive; the analysis tends to become excessive and chain participants—that is, the farmers—are often not considered when it comes to program or strategy design. In general, this approach is seen as too agency centred and/or too



rigid. In the past, many such initiatives failed, partly because they focused only on a single commodity or product. In a small island context, the focus should be on the farming system and on the diversity of the product range.

An alternative approach is the value chain concept, which is based on five typical action areas that are implemented in sequence, namely

- selection of sector and value chains
- value chain mapping
- consultations with lead firms and other chain participants
- participatory value chain analysis
- stakeholder validation and planning workshops.

In the centre of the action is the participatory value chain analysis. While doing the analysis, participatory research replaces the expert-driven, quantitative approaches of conventional research. Information assembly and analysis are carried out largely by chain stakeholders with the support team acting as facilitators. Value chain analysis was used initially to understand why many of the potential benefits of globalisation

failed to reach the poor and why particular countries and types of enterprises found it difficult to enter markets.

It is important to conduct a final stakeholder validation workshop to discuss findings and decisions with value chain participants. The tools and methods used need not be sequential, as there are activities that will probably be done in parallel (for example, maps and interviews to refine them), or will be revisited continuously as knowledge is being gained during the appraisal. Participatory analysis is one of the main rapid appraisal methods used in value chain analysis. There are also other methods that can be employed (such as structured interviews, participatory observation, and focus groups), either as a substitute or as a complementary approach for information gathering.

Tools used during a participatory value chain analysis may include key informant interviews, focus groups, analysis of strengths, weaknesses, opportunities and threats (SWOT analysis), radar charts, scoring, checklists, questionnaires, participant observation and use of appropriately skilled local community members as researchers.

#### Box 2

##### Why work on value chains is important

- The competitiveness of the agro-food business depends on the competitiveness of the value chain it belongs to—that is, systemic competitiveness.
- Production efficiency is necessary, but the quality of linkages and support systems plays a critical role in creating competitiveness.
- Entry into higher value markets (also global markets) requires an understanding of the requirements and dynamic forces within the value chain.
- Changes in global food systems towards chain-oriented production are dictated by the consumer: market pull, no longer production push!
- Business relations are changing.

**Source:** Baker, D., 2006. Agriculture value chains: overview of concepts and value chain approach, presentation prepared for the FAO LDED Regional Workshop for Asia, Bangkok.



(For guidance on how to apply these tools in the Pacific island small-farmer context, consult FAO SAPA 2004b.) The outcome of the exercise may be a project, a strategy to implement a policy or program, or policy recommendations. A good example of how participatory tools were used can be found in the assessment report on the food security and livelihood potential of the Weather Coast in Makira (Jackson et al. 2007:64), which identified food processing and marketing of local staples and forest fruits as potential income sources for people in this part of the Solomon Islands.

Value chain analysis can be used as part of a participatory assessment process; it can contribute to strategic learning for enterprise development; and can be an empowering process for all participants. Using maps and diagrams enables even poor and disadvantaged stakeholders—such as farmers in remote island locations—to be involved in the collection and analysis of information. This involvement promotes dialogue and accountability between value chain participants as they analyse and negotiate their common interests in improving the functioning of the chain and identifying the most useful interventions.

Gender is an important aspect of value chain analysis, since gender relations affect and are affected by the ways in which value chains function. Enterprise interventions can affect gender relations positively or negatively; therefore, assessment of the impact of such interventions must include gender analysis (Mayoux 2003). Some of the negative socioeconomic impacts from the vanilla boom in Papua New Guinea from 2001 to 2004 could have been avoided had a participatory value chain analysis been conducted before the crop was promoted as an income-earning opportunity for farmers (McGregor 2004).

Participatory value chain analysis and/or 'dive in' (that is, learn as you go)

methodologies have their advantages and disadvantages when it comes to project or strategy design and implementation. One particular advantage of these methods is their applicability for small countries.

The key to value chain development (and also market development) is to reinforce linkages and partnerships along the chain. This involves analysis of the relationships between the various actors involved. The emphasis here is to build on consensus for the strategies among the actors involved in fresh produce production, marketing and buying (Shepherd 2007). The objective analysis of outsiders means nothing if the chain participants do not believe in the strategies and are prepared to act. The main disadvantages are that the analysis can become subjective and highly dependent on the information provided by workshops or focus group discussions; and communities can become involved in products that do not have promising market prospects.

If time and funds permit, a combination of structured surveys and participatory exercises—plus discussions of issues—can be undertaken, and then triangulation can be used for validation. Unfortunately, this often happens only in one-off, donor-funded exercises and stops when the donor and project support finishes. Governments often cannot afford to continue the support programs on their own. Examples of governments struggling to sustain activities are the Producer Organization Project in Vanuatu; the Fiji Sector Development Program funded by the Asian Development Bank in the mid 1990s; the marketing component of the United Nations Development Program (UNDP)/FAO Fruit Tree Development project in Samoa; and the UNDP private sector and agriculture marketing development program in Niue.

The decision about which methodology to choose depends on the individual



country's circumstances, the type of chain participants and/or beneficiaries of an intervention, and the expected results. It has to be based on the indicated requirements of the country. If decision makers require only background data and a description of a situation to make a decision on a strategy, the study approach could be sufficient. This is assuming that the policymakers will then have the determination, power, funding and vision to translate the recommendations into action to reach the beneficiaries (that is, farmers, traders, processors, marketers, consumers/buyers) and have the funds to implement the strategy. In the Pacific islands, this has often not been the case.

### **Experiences with the value chain approach in the Pacific**

It is evident that not all approaches are suitable for all purposes. There is, however, a general need to be efficient and have a sustainable impact. Governments in the Pacific Islands face the challenge of servicing dispersed and isolated communities with usually limited funding. Government extension agents often lack the funds for sufficient outreach (McGregor 2002:28). It becomes increasingly important to engage the private sector or partners from non-governmental agencies as service providers for small farmers in rural as well as peri-urban and urban areas.

Following the steps provided by the value chain concept, the analysis and strategy design could be undertaken by decentralised service providers who live in the target areas. There is a need to train these service providers in the application of the value chain concept and assist farmers in developing agribusinesses. Ideally, this requires an organisation in each country to promote and coordinate the training. In the Pacific, different actors have taken

the lead—in Papua New Guinea, Fresh Produce Development (a statutory body under the Department of Agriculture and Livestock) has conducted participatory value chain analysis for fresh produce. Other groups that have used the concept or parts of it include the small business and enterprise development centres in the Cook Islands and Samoa, non-governmental organisations such as the Kastom Gaden Association (KGA) in the Solomon Islands and Women in Business Development Inc. (WIBDI) in Samoa.

Farm enterprises and agribusinesses benefiting from such support could eventually become profitable entities and be in a position to pay for the services provided. In the Pacific islands—where there are scattered islands and a relatively small number of producers growing small volumes of produce—some form of support to sustain production is required, as normal market rules often do not apply. For any work in remote locations, successful introduction of new farm enterprises and agribusinesses cannot be expected to develop within a short period. There are, however, good chances of success if the support is designed to last for several years, if training and advice is provided in the local language and in the location where the farmers live, and if attempts are made to establish an enterprise (Bammann et al. 2005:6).

Two cases from the Pacific region where the value chain concept has been applied to development work with support from the FAO are activities led by women's groups. The Rural Women Development Initiative (RWDI) in the Western Highlands of Papua New Guinea has been planning to improve the supply of fresh produce to the formal market in Mt Hagen. The other group is the Samoa-based WIBDI, which currently implements a participatory research project to establish organic vegetable production and processing in Samoa. Both initiatives have



received support through the Livelihoods Diversification and Enterprise Development (LDED) sub-program funded by the British Department for International Development and implemented by the FAO's Livelihood Support Program (LSP). Both women's groups applied participatory value chain analysis (making use of a number of tools from the participatory tool-kit) to the core of the activities, supported by stakeholder workshops and market research activities.

Organisational structures and business set-ups were defined to improve the linkages within the value chains. Relevant training (including in production, cash-flow management, savings and credit, record keeping and marketing techniques), inputs and supplies, and information needs were identified and built into business development strategies. Nutritional education and practical training in horticultural production were identified in both cases as the components most important for the success of marketed vegetable production. The PNG group agreed on a farmer field school type of extension approach as the most appropriate way to share experiences and learn together. Training is facilitated in the local language by leading farmers from the area.

The ADB-funded Smallholder Support Services Pilot Project (SSSPP) in the Eastern Highlands and Morobe Provinces of Papua New Guinea also uses the value chain concept. The purpose of the project is to test and develop the concept of a publicly funded, private sector-delivered extension system for smallholders in Papua New Guinea. The conceptual model revolves around identification of farmers' needs for support services and the awarding of extension contracts to local service providers to meet those needs. The provincial division of the Department of Agriculture and Livestock manages the extension delivery system. Agro-processing value chains (such

as for spices, honey and yams) have been identified, created, and receive continuing support through local service providers.

The privately owned company SWIFT is based in a town near Bangkok, Thailand. Initially supported by the government agricultural extension service, the company led the analysis of the value chain for fresh vegetables supplied to the Bangkok market. One of the key findings was that excessive numbers of middlemen and traders in the value chain contributed to delays in transporting the produce to the market and reduced the profits of the value chain participants. A strategy to overcome this problem was developed jointly with farmers from the main growing areas. The value chain was redesigned under the leadership of SWIFT (the 'chain leader'). Part of the agreed strategy was to build decentralised cleaning and grading houses in the main production areas and thereby reduce the number of middlemen. Furthermore, it was agreed to pursue contract farming. This required the company to invest in physical facilities and to provide extension advice.

Through the reduction in waste, profit margins were improved. Over time, a business and contractual relationship based on trust was established, which benefited the firm and the farmers. It became possible to expand production to more sophisticated fresh vegetables such as green asparagus and baby corn for export markets. The firm provides extension and credit for inputs. Farmers are paid after harvest and receive additional benefits such as a crop insurance scheme, education support for their children, and other social services. The firm collects the produce from the farm and transports it directly to the packing houses. On the evening of the same day, the produce is exported via Bangkok International Airport to supermarkets in Europe and Japan. The company's aim is to get more of its contract growers organically certified;



which ensures that international standards are met and that the quality of the produce supplied to the overseas markets remains high (FAO 2006:40; SWIFT 2005).

## Recommendations

There is growing recognition of the relevance of participatory value chain concepts and their application in Pacific island agriculture. During the formulation of the expansion phase of the FAO's Regional Program for Food Security, a wide range of stakeholders in Melanesian countries identified priority areas for action in which the value chain approach was applicable. Considerable expertise is available in the Pacific in the application of the value chain concept, and participatory appraisal and learning tools. Collaboration between government agencies, non-governmental agencies, and private agribusinesses offers the greatest potential for applying the value chain concept, with the aim of increasing income and employment through improved farming.

The approach can be applied to a wide range of situations and for different beneficiary groups, including youth and women's groups. It can be used for the identification of relevant sub-sectors, commodities or groups of products and in the implementation of a rural development or food production strategy.

With a view to future research priorities, public-private partnerships in research and dissemination can improve the technologies available to small-scale producers and processors, while capacity building can help farmers meet new quality and safety requirements, as well as learning how to manage cash. Value chain programs also facilitate and support producer organisations, which allow economies of scale in buying inputs and selling products.

Improved business services to small farmers and processors—whose transaction costs are large relative to the size of their output—help them improve quality and efficiency, reduce costs, and expand operations. It is important that governments anticipate future vulnerabilities and build the capacities of chain participants to innovate, diversify or exit as markets change: support for value chains can increase vulnerability if incentives favour products and services susceptible to large shifts in demand and price. The potential of value chain programs to increase vulnerability underscores the importance of appraising comparative advantage and investment requirements in the exploratory and diagnostic phases before intervention begins (FAO 2007).

Another advantage of the value chain concept is that it is applicable across a range of products produced in the primary sector, including non-timber forest products, handicrafts, processed agricultural and fish products, livestock and livestock products and, of course, agricultural fresh produce.

For the future, there is ample justification to consider the value chain concept—with its participatory value chain analysis—as a key concept for defining and formulating agricultural development interventions in Pacific island countries. More specifically, it is suggested that donors, regional organisations, researchers, and decision makers in government agencies consider the following.

- For the Pacific island region, processed food products based on readily available staple food crops (roots and tubers, bananas, breadfruit, sago, panda nut, peanuts, and virgin coconut oil) are seen widely as the most promising products for agribusiness ventures—including in remote areas. They have the potential to substitute for food imports and improve national food security.



- Higher emphasis must be placed on the establishment of agribusinesses and farm enterprises in rural areas in order to mitigate the pressures of migration to major urban areas by stimulating the growth of employment and income opportunities elsewhere, and by providing fresh, locally grown food for growing urban populations.
- In the livestock sector, there could be support for domestically available feed resources and the construction of clean and safe slaughter facilities near major consumption areas. This is an important sub-sector with considerable potential for growth, substituting for unhealthy and nutritionally poor imported products as well as to create employment along the entire livestock value chain, from domestically grown feed to marketing, veterinary health, and distribution of the final livestock products.
- Development efforts in agribusiness and enterprise development should be linked closely with improvements in food safety and development of national food standards and regulations in order to enable food vendors in the informal sector to continue earning a living from marketing processed food based on local agricultural products.
- A key area for government support is improvement of infrastructure, especially transportation and communication. Improved communication technology can have an immediate positive impact since it provides farmers with better access to market and production information and enables them to optimise production and realise new income opportunities.
- Governments are encouraged to seek collaboration with the private sector

and non-governmental organisations for improved research and advisory services. Regional and international organisations could be asked to assist in in-country capacity building activities in support of the value chain concept.

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