

Socioeconomic Change in the PNG Fresh Produce Supply Chain[‡]
by
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(Slide 1: Title and authors)

This study is concerned with socio-economic change through community-based decision-making. The community of interest involves all the stakeholders in the marketing system for fresh produce grown in the Highlands of Papua New Guinea (PNG). The stakeholders include the various players in the fresh produce supply chain (farmer, collectors, wholesalers, transporters and retailers) as well as businesses that support this supply chain (e.g. the banks) and the government. The methodology is critical action research in which any change that takes place is owned and directed by the stakeholders of this marketing system. The critical perspective taken in this research derives from new institutional economics in the genre of North (1990) and Brennan and Buchanan (2000). In this genre institutions are viewed as “the rules of the game” in a society and they are socially constructed to modify human behaviour, hopefully, but not necessarily for the social good. Brennan and Buchanan discuss at length the concept of socially just institutions and how these may be achieved.

Background

PNG has been struggling in recent years – both socially and economically – and most would agree that the average inhabitant is not as well off today as they were a few years ago. The International Monetary Fund (2003) blamed this decline on:

- growing governance and law and order problems,
- lack of new mineral exploration activities,
- deteriorating physical infrastructure in the rural areas (that inhibited agricultural production, and
- the Asian crisis (that reduced export demand).

The PNG Highlands is home to more than half the total population of PNG. It is also a region in which rural poverty is widespread. Cash income is required by these rural families to provide for such things as education and health care. The production and sale of fresh produce of the PNG Highlands represents one of the few sources of cash income for a very large number of rural families. Moreover, the production and marketing of fresh produce is very much an activity in which rural women can and do play a significant role. This is significant because cash income in the hands of rural women is much more

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likely to be used on family needs than is the case of cash income in the hands of rural men.

(Slide 2: Map of PNG)

The fresh produce grown in the PNG Highlands is dominated by the traditional foods like sweet potato and taro. But increasingly, farmers are turning to European-style vegetables like potatoes, cabbage, broccoli, cauliflower, capsicum, spring onions, zucchini, carrots, tomatoes, and lettuce. The PNG Highlands is unique in that it is one of the few places in the south Pacific that has a temperate climate and where high quality European-style vegetables can be grown organically all year round. The region has the potential to meet the needs, not only of consumers in the Highlands region but also of the coastal cities of PNG as well as to supply offshore markets. According to preliminary interviews with stakeholders in the fresh produce industry (both buyers and sellers), the main drawback in fulfilling this potential is the marketing system. Many farmers say they know how to grow fresh produce but they don't have the markets. On the other hand, supermarket managers in Port Moresby say they would love to buy more fresh produce from the Highlands but complain they are unable to get a consistent supply of good quality produce. A fairly general comment is that the marketing system is fragmented with poor coordination and communication between the different players in the marketing system. When examining the marketing system, we distinguished the *hard* and *soft* aspects. The *hard* aspect includes the physical infrastructure and the activities associated with handling, storage and transportation. The *soft* aspect includes the vertical and horizontal relationships among the various players in the production/marketing system (farmers, collectors, wholesalers, retailers, transporters and government).

Methodology

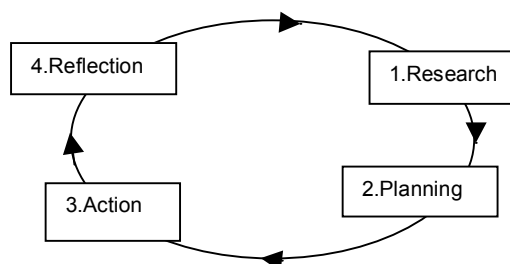
This is not the first project to examine the marketing system for fresh produce in the PNG Highlands. There have been a number of such studies, which have provided a number of good recommendations for change.¹ However, none of them actually engage the change process per se. Hence, we would argue, their capacity to make a difference is limited. Methodologically, they are examples of positivistic science in which hypotheses are tested and conclusions drawn in a linear research process. Positivistic science is a powerful approach when dealing with natural phenomena such as plants and animals, but not when dealing with human social phenomena and human social decision-making.

By contrast, our project attempts to achieve a transdisciplinary methodology grounded in new institutional economics and social research processes. In many ways, this fits with emergent theory such as complexity theory (Snowden, 2002, 2003) where the world as is for participants, including its 'changefulness' in a global setting, is respectfully mirrored and used as a basis for strategic and systemic change.

¹ Scott, K.J. and G. Atkinson (1989); Fresh Produce Development Company (1997); Burden, J.N. (1998); T. Scarlet Epstein (2000).

The present project is very much about human social decision-making and hence the chosen methodology is **critical action research** (Elliott, 1991; Grundy, 1995; Kemmis and McTaggart, 1988). Action research involves an iterative process, usually diagrammatically viewed as a continuous circle or spiral, of research (or experience in conventional models), planning, action and reflection.

(Slide 3: Critical Action Research Cycle)



In this approach, the research team generates understandings of the marketing system (research and reflection) and, working with stakeholders in this system, facilitates change (planning and action). In their facilitative role, the research team is cognizant that the process itself and any changes to emerge from the process are owned and directed by the stakeholders. Realistically, if we were to accurately capture what each participant goes through, there are probably several cycles occurring at one and the same time, at different rates and stages, depending on the extent of a participant's involvement in the change process.

Action research has been widely used in the fields of social change and education, including agricultural “extension” (Dunn et al, 1997). However, the use of *critical* action research in exploring and improving marketing systems, and where the researcher is not merely a passive participant, is relatively new (Elliott, 1991).

Project Work to Date

We are now about half way through this 3-year project. In terms of the action research process, we have now gone through one complete (mega-) cycle. In this section, we will briefly discuss the elements of the process carried out for this first action research cycle. Then we will take two cross-sectional slices through this action research process to explore how it has dealt with two different aspects of socioeconomic change. These two aspects are:

- (1) The physical infrastructure; and
- (2) The empowerment of women.

The first of these aspects represents the **hard side** of the marketing system, which involves physical infrastructure (roads, cool stores, refrigerated containers, trucks, processing equipment, communications equipment) as well as activities such as storage, handling, transportation, processing and financial control. The second of these aspects represents the **soft side**, which involves the human and social infrastructure (formation of groups, associations, cooperatives, alliances, farmer field schools) as well as activities such as learning new skills, social decision-making, and building relationships.

Elements of the Critical Action Research Process

(Slide 4: CAR Process)

We have so far gone through one complete mega-action research cycle.

Details of the mega-cycle are as follow:

- (a) Research – we carried out a comprehensive situation analysis (mapping) of the marketing system as it currently exists and examined potential areas for improvement. There were a number of different research activities carried out here including:
 - (i) Secondary data analysis – this includes a review of the literature to date, a study of
 - (ii) Process mapping
 - (iii) Profitability analysis
 - (iv) Semi-structured interviews
 - (v) Consumer survey
- (b) Planning – we facilitated a workshop comprising all the stakeholders in the marketing system for fresh produce. This workshop is carefully constructed to encourage collaborative discussion of problems and strategies, ending with an action plan for change.
- (c) Action – we developed and worked with a steering committee of stakeholders to ensure the action plans determined by the workshop participants are carried out.
- (d) Reflection – we held a meeting of the research team with the steering committee to reflect on our experiences, including the actions taken and to develop the next phase of research.

The Physical Infrastructure

The current situation is that about half of the produce that is shipped from the Highlands to Port Moresby moves by commercial carrier and about half is shipped by farmers who are self-marketers. The self-marketers referred to here are farmers who market their own produce (and, in some cases, that of their neighbours) to Port Moresby by hiring a truck to transport the produce from the Highlands to Lae and then loading their produce into a refrigerated container which is then transported by container ship to Port Moresby.

(Slide 5: weighing tomatoes)

(Slide 6: John with group)

(Slide 7: truck)

(Slide 8: two guys on truck)

(Slide 9: ship)

For the self-marketers, there are few facilities for them at the port in Lae. They may have to sit with their produce exposed to the weather for 2 or 3 days waiting for the next container ship to arrive to take their produce to Port Moresby. Because the produce is perishable, it is susceptible to damage. Hence, the government put together plans to build a depot in Lae to provide protection for the self-marketers' produce. Actually, the government was proposing to refit an existing rundown and disused depot.

However, the research carried out in the present project has contributed to changing these plans. The process mapping exercise proved very instructive in showing that self-marketed produce may not only be suffering damage while sitting in Lae, but also while en route from the Highlands.

(Slide 10:tomato temperature gradient)

Furthermore, the semi-structured interviews also showed there was a lot of friction between farmers and the ship owner over claims for compensation. It was not uncommon for produce to arrive in Port Moresby in poor condition and for self-marketers to then claim compensation from the ship owner.

Following presentation of these research results to the workshop, it was generally agreed that rather than consolidate produce at Lae, the produce should be consolidated in the Highlands at a so-called **consolidation depot** which would be located in a large centre and would be fed by district (satellite) depots located in the growing areas. Furthermore, it was agreed that the consolidation depot should be operated by wholesalers working in competition with each other. Farmer stakeholders were concerned to ensure that if they were to deliver produce to a consolidation depot rather than self-marketing to Port Moresby, that they have a choice of buyer. According to the farmer representatives at the workshop, it was a lack of choice, in the first place, that drove many farmers to self-market.

Action taken on this since the workshop has been:

- (a) To obtain agreement from the National Government to provide some funding for a consolidation depot in Goroka
- (b) To obtain agreement from the Provincial Government (EHP) to provide land for the consolidation depot and for the district depots
- (c) To develop a proposal for additional funding of the necessary physical infrastructure from Donor Agencies.

The process of socioeconomic change with respect to physical infrastructure is well in hand and is being owned and directed by the stakeholders concerned.

As a postscript to this section, the question was raised at the last steering committee meeting of whether a deconsolidation depot was needed at Port Moresby. It was decided that a feasibility study was needed and our research team has agreed to look into this – exemplifying that we are now moving into a second action research mega-cycle.

The Empowerment of Women

(Slide 11: Women's Issues)

Women in the Highlands of PNG are largely responsible for the sowing, nurturance and harvesting of fresh produce in village gardens. Men are largely responsible for the marketing/transportation and selling of the produce, although women sell surplus produce at the local market for cash. It became clear in the first year of the project that women had most of the responsibility for fresh produce but little of the power to improve it. A combination of traditional roles, hazardous transportation to large markets – including the strong possibility of physical violence – and the muted political voice of women, means that women are often frustrated in their attempts to gain control of production in ways that would benefit their families and villages.

Prior to holding the first workshop of stakeholders in the supply chain, in November 2003, it emerged through interviews, village site visits and focus groups that women would be reluctant to speak out about their issues in a workshop largely dominated by men. It was decided therefore that the two women researchers on the team - Barbara Chambers and Carole Kayrooz – would hold a separate workshop for women growers and village extension workers prior to the main workshop. Lilly Besoer, a village extension leader with FPDC facilitated contact with relevant women in the Highlands.

The issues that emerged were revealing and shocking. Women had little control of cash derived from selling fresh produce and therefore buying seed was problematic. Men, who often follow village produce to Lae or Port Moresby, tended to spend most of the profit on gambling, return airfares or other activities. When women did market excess produce in the local market, they often had to carry it to the main highway, transport it on overcrowded buses, pay an entry fee to the local market, withstand roaming pigs trying to eat their vegetables, with no adequate protection from the weather or access to safe toilet facilities, and then return home to their normal domestic duties of child-care and cooking. Hinted at was domestic violence if women asserted their need to have control over some of the profit from their enterprise. Stated very clearly was the fear of robbery or gang rape from rascals if they did attempt to become involved in the formal markets.

During the large workshop, women growers were apparently more confident to express their views with men, who represented growers, village extension workers, government officials, transporters, shippers and supermarket managers. The outcome was that the issues of women were listed as priority one on the Action Plan – a consensus outcome not envisaged by the researchers or the male participants prior to the event. The issue of women farmers in the Highlands has now emerged as a sub-project². Interviews with a cross-section of women in or associated with the Highlands are continuing.

² Taree Brearley, a Master of Community and Health Development student, has been appointed as a Research Assistant on this sub-project. We acknowledge her contribution to the women's section of this paper.

The World Bank report (2001,p.82) suggests that increasing the autonomy of women has a positive impact on households/families. In one study, where the autonomy of women was defined as “their ability to control their lives, to have a voice in matters concerning themselves and their families and to make and implement decisions”, greater autonomy among women was found to be associated with lower infant mortality. Another study by the World Bank (2001,p.80) showed that an increase in household income in the hands of women was associated with up to twenty times greater child survival and growth than increased income in the hands of men, because it enlarged the share spent on education, health and nutrition. Greater access to credit for women is also associated with increased access to resources for livelihood and a positive effect on the well-being of children in terms of nutrition, health and access to education (World Bank 2001, p.75). For the good of families, as well as for the longer-term goal of improving local and national economies, women need to be recognized as having a key role to play in improving the marketing system of fresh produce. Women in the Highlands have now become active participants in exploring women-only credit facilities, initiating village extension courses on changing roles in agriculture and lobbying local, provincial and national government on improving road and transport safety.

Conclusions

(Slide 12)

This study is concerned with socio-economic change in the marketing of fresh produce from the PNG Highlands. We wanted to encourage change that most enhances the well being of the various stakeholders with particular emphasis on poor rural households that depend on the sale of fresh produce for cash income. We use a transdisciplinary methodology that partners critical action research with new institutional economics. This has allowed us to respond to emergent issues, such as the choice of marketing infrastructure and the muted voices of women in the fresh produce marketing system.

The challenging task of working through ways to achieve a transdisciplinary perspective on a complex set of problems is both satisfying and, we hope, respectful of the holistic nature of people’s lives in the agricultural sector of the Highlands of PNG.

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