CROP POST HARVEST PROGRAMME

Overcoming informational constraints: improving horticultural marketing and technical information flows to smallholders

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LITERATURE REVIEW

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R7151 Crop Post Harvest Research Programme

1 Introduction

This Literature Review was prepared for a study on horticultural market information constraints in Sub-Saharan Africa conducted by Wye College, University of London together with other UK and overseas collaborators. The project covers research in Ghana, Tanzania and Zimbabwe. Other project reports[1] include a Summary Report and Country Reports for Ghana, Tanzania[2] and Zimbabwe[3].

In recent years major changes have taken place in mainstream development thinking. They centre around the reduction of the role of the state in economic management, and liberalising markets in order 'to unleash the creative forces of entrepreneurship, in particular within smallholder agriculture and indigenous trading systems' (Poulton, Dorward, Kydd, Poole and Smith, 1998: 2). However, policies of economic liberalisation have not brought the sought-after improvements in the economies of many developing countries. The objective of structural adjustment in Africa - to establish a market-friendly set of incentives that can encourage the accumulation of capital and the more efficient use of resources - has not been realised so far. Concern is evident in the international arena that 'reforms undertaken to date are fragile and that they are merely returning Africa to the slow growth path of the 1960s and 1970s' (World Bank, 1994: 2). On the one hand reforms may not have been adequately implemented or sufficiently far-reaching; on the other hand, the entrepreneurial response may have been overestimated (Dorward, Kydd and Poulton, 1998).

Market liberalisation has had a considerable effect on those agricultural marketing sectors in Sub-Saharan Africa (SSA) which formerly were characterised by state intervention and control. These sectors were primarily those for staple commodities, such as maize, and export commodities. Domestic marketing of other non-staple food crops and the marketing of non-traditional exports has not generally been the subject of state control. Liberalisation has not had a direct effect on such unregulated sectors.

However, the shift in macro policy towards the achievement of economic growth and distributional objectives through market-oriented policies has had an indirect but profound effect on attitudes towards the activities of private traders. Increasingly, a competitive and efficient private trading sector is recognised as being a necessary condition for the integration of more remote and marginal rural communities into the processes of national development.

1.1 Market growth and development

Evidently, smoothly functioning economic markets do not evolve unaided, and cannot be ordained by policy makers. The New Institutional Economics perspective on problems of development focuses attention on the problems of market and state failure and the incentives for economic agents to devise institutional responses to these problems. North's thesis (1990) is that historic development has proceeded most effectively where economic activity has been supported by an institutional framework of incentives and both formal and informal constraints.

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North's contention is that institutions (that is the formal and informal rules and norms of behaviour, or 'rules of the game') and organisations (the political, economic and social bodies, or 'players') reduce uncertainty and affect the performance of markets by reducing the costs of economic transactions. In productive economies, institutions and organisations evolve to reduce uncertainty, minimise transaction costs and increase exchange. A large literature is growing in the application of these concepts, and in the economics of transition and adjustment, institutional analysis is approaching orthodoxy. North's propositions have been formative in the World Bank's recent World Development Reports. The 1997 Report (World Bank, 1997: 29ff) argues that economic outcomes are influenced by both the formal institutional capability of the state and by the informal cultural institutions, through the effect of institutions on the cost of transacting and on the incentives to engage in economic exchange.

Lazonick's interpretation is more radical than North's. He argues that planned coordination has a more important role in economic exchange than market coordination as a generator of economic growth: 'History shows that the driving force of successful capitalist development is not the perfection of the market mechanism but the building of organizational capabilities' (1991: 8). In short, closer market coordination creates efficient exchange. This presupposes not planning by the state, but planning by individual economic agents within an enabling environment conditioned by the state.

1.2 Increasing quasi-integration

The current multiplication of 'hybrid' forms of interfirm organisation in advanced economies - arrangements intermediate between spot exchange and vertical integration - poses important challenges for economists. The importance of researching the vertical coordination of economic exchange becomes increasingly evident as the choice of organisational relations in many markets, including the agricultural and food industries, shifts away from reliance on spot exchange within free markets[4]. That is to say, analysis of vertical coordination becomes increasingly important as the proportion of products traded through auctions and other forms of spot exchange declines, and there is increasing dependence on exchange through contractual arrangements - quasi-integration.

Lessons learnt from supply chain management may have important applications in developing economies. Developing economies are becoming closely linked to advanced food systems through dynamic export sectors, particularly for non-traditional horticultural products (Islam, 1990; Jaffee and Morton, 1995a). Moreover, improvements in urban-based domestic marketing systems in developing economies result from increasing sophistication in supply chain management that reflects patterns of development in advanced economies. Increasing awareness of food quality and safety issues in Ghana, for example, has led to the development of a new Pesticide Law.

Apart from 'systems transfer', there is also evidence of spontaneous development of contractual arrangements through which producers make direct sales to traders that avoid the traditional lengthy market chains (Ashitey, Baker, Suglo and Warburton, 1994). These

[4] This has been well documented (Shaw and Carter, 1993; Hughes, 1994; Westgren, 1994; Barkema and Drabenstott, 1995; Hobbs, 1995; Boehlje and Schrader, 1996; Lawrence, Rhodes, Grimes and Hayenga, 1997; Poole, 1997).

developments could be seen to parallel the closer vertical coordination evident in advanced economies through supply chain management and efficient consumer response.

On the other hand, features of advanced economy quasi-integration that apparently are new phenomena, such as personalised repeat dealing (clientisation), exclusivity, trust and reputation are gaining prominence. These were documented trading characteristics in some developing economies decades - even centuries - before transaction cost economics and supply chain management emerged in advanced economies. The current significance of personalised relations in developing economies is receiving new research interest[5]. The literature on trust and its importance to trading relationships is growing fast, but according to one researcher lacks conceptual clarity (Moore, 1999).

In developing countries, sociocultural characteristics of markets and market participants define a political, social and economic context that resembles even less distinctly the standard neoclassical casebook. Analysis of market coordination in developing economies, and the solutions proposed to the problems and imperfections identified, must take account of these fundamental behavioural features (Magrath, 1992).

1.3 Under-research of information needs

The development of rural economies depends in part on better marketing. Increasing marketable surpluses in times of shortage and avoiding seasonal gluts depend on better flows of market information. However, most of the analysis of farmer behaviour under conditions of uncertainty concern on-farm activities. Little attention has been paid to post-harvest strategies and the way producers engage in marketing, and 'business strategies' of smallholder producers and rural traders have been little researched.

Most references to marketing problems treat informational needs at best in parenthetical fashion. Although few farmers enjoy full and timely information about prices, trends and consumer preferences, the tendency is for studies, such as that of Jaber (1995), to acknowledge informational imperfections, and then briskly move on to other issues. Reviews of policy and assessment of experience with risk-management interventions have tended to ignore market information strategies (Anderson and Hazell, 1997; Hardaker, Huirne and Anderson, 1997).

Market information is usually regarded as *data on prices and quantities exchanged, duly processed and made available to market participants*. The primary function in the provision of market information services are to collect, process, analyse such market data systematically and continuously, and to ensure delivery of information on a timely basis to all market participants (Poon, 1994).

Assumptions normally made about information services are, firstly, that market information is a public good (whose consumption is non-rivalrous and non-excludable) - or at least has some of the characteristics of a public good - and which will be underprovided by private economic agents acting alone; and secondly that the public sector or state is responsible for the provision of market information.

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[5] For example, Clark (1994) has documented between traders in Kumasi, Ghana, and between traders and producers. See also Lyon (Lyon, 1997; Lyon, 1998).

The relevance of transaction costs to the informational problems affecting smallholders and traders is central. Transaction costs are those (sometimes unquantifiable) costs incurred by buyers and sellers in gaining information: to whom to sell? from whom to buy? at what price? how to ensure payment and delivery?

The costs incurred by market participants in gaining answers to these questions are a reformulation of the need for producers and traders to be aware of market prices, product characteristics, and alternative market outlets, in order to make decisions about exchange.

The range of solutions to informational problems might include:

1. state provision of information;
2. state intervention and coordination of markets;
3. private and voluntary responses.

1.3.1 Information needs in Sub-Saharan Africa

Smallholder farmers in SSA face a range of marketing problems, among which informational constraints are widely acknowledged but little researched. Smallholders often do not have timely access to salient and accurate information on prices, locations of effective demand, preferred quality characteristics of horticultural produce, nor on alternative marketing channels. Producers often experience a weak bargaining position vis-à-vis traders. Information that is available to rural communities may not be equally distributed, and smaller scale producers and those distanced further from the market are more disadvantaged.

Geographical constraints constitute barriers to information flows just as much as to physical flows of produce. Therefore remoteness from markets exacerbates informational problems. There is a range of other factors which affect market efficiency and may constitute barriers to market access and information flows of a horizontal nature. Among these are gender, family, educational levels, other social factors, and ethnicity; specialisation of production and the effect of reputation, and the existence of trust and repeat dealing (clientisation).

The results of informational barriers are unexploited market opportunities, seasonal gluts and produce with inadequate quality specification and control, inequitable returns to producers, peri-harvest (in field pre-, and post-harvest) losses and fundamentally poor returns to the production and marketing system as a whole.

The need to address the weak existing market information system in Zimbabwe has been the subject of internal discussions and recommendations within the Department of Agritex. Whereas the information needs of large-scale Zimbabwean farmers are met, at least in part, through the Commercial Farmers' Union, smallholders' access to information is limited. The Zimbabwe Farmers' Union and the Department of Agritex collect domestic price data, but are constrained by resource shortages.

The Crop Post-Harvest Programme has been conducting PRAs and Needs Assessment in rural areas and identified marketing information as an important source of imperfection affecting smallholders. The report by Boyd et al (1997) following the needs assessment of post-harvest constraints in Zimbabwe (ODA/DFID umbrella project A0579) highlighted

the lack of significant and accessible marketing outlets, lack of readily available marketing information, and a lack of marketing strategy as specific post-harvest constraints affecting the horticultural sector.

Elsewhere in SSA, informational issues have been highlighted in work conducted by Lynch and others. In Tanzania, horticultural marketing is less developed than in Zimbabwe, and is constrained by geographical dispersion of supply, poor infrastructure and limited resources. Above all, weak information systems have been cited as a fundamental source of market imperfections. There is a strong awareness of the problem of accuracy, relevance and timeliness of market information which is made available to producers. Reporting on the results of empirical work in the Arusha area, Wien (1997) commented: 'Major constraints to production included a lack of access to information on disease and pest identification and control, to timely knowledge of commodity prices, and to alternative market outlets for production' (p. 40). It has been suggested, but is undocumented, that there are increasing demands for market information and improved marketing mechanisms from within the Tanzanian private commercial sector as the economy undergoes progressive liberalisation (Ashimogo, 1998). Discussion about the weakness of the fruit marketing system in the Dodoma region, and recent initiatives to address post-harvest problems, have been raised in the public domain (Business Times, 1998).

Informational imperfections have been cited in other SSA countries. An unpublished report (Lyon and IFCSP Team, 1997) on rural markets in the Region of Brong Ahafo, Ghana, is another case that illustrates the need to address problems of market information among smallholder farmers. Seasonal supply and demand imbalances, imperfect, inaccurate, untimely information, the functioning of traders' associations were cited as a sources of weakness in market performance and inequitable trading relationships.

1.4 Hypothesis

This project concerns the organisation of market exchange in Ghana, Tanzania and Zimbabwe. It aims to find an appropriate balance between the coordinating role of the state and spontaneous private sector initiatives to overcome a common but little researched weakness in commercial rural food markets, informational imperfections.

It is from within the context of closer vertical coordination of food systems that the research hypothesis is derived. Solutions to certain problems and inefficiencies in developing country food markets - informational problems - conventionally are sought through state provision. NIE theory suggests that market institutions will evolve to overcome both the problems of uncertainty, and also the failures in the state provision of public goods. The research hypothesis is that reducing informational problems will be brought about through two mechanisms:

- private and voluntary responses to informational requirements: the development of longer term contractual relationships is a way of aligning the incentives faced by different market participants for the private provision of information, and
- coordination functions of local government (rather than national institutions).

The activities to be undertaken in this project are based on the assumption that relationships based on voluntary, private trade are an important mechanism for achieving

the project purpose, and that there is a limited but important role for local government. This involves explicit recognition of:

- the importance of relational exchange (over and above spot exchange);
- the possibilities for improved coordination, for example concerning market times and places.

The research will investigate market information systems in the three countries in order to develop mechanisms that will improve market access and marketing strategies of smallholders and traders, and identify a possible role for local government intervention and coordination.

1.5 This report

This Report is a review of concepts and experiences and the literature relevant to this hypothesis. Seven sections follow this introduction, expanding on some of the ideas already aired and introducing others. The next section (**two**) deals with fundamental theoretical concepts and explains the rationale behind the New Institutionalist perspective that is being adopted. The following section (**three**) discusses the concepts of information being used, and probes the private and public good characteristics of information. Section **four** comprises a discussion of issues relating to the poverty focus and likely beneficiaries of the research. Section **five** contains a review of the practical responses of individuals, collective organisations, commercial interests and the state to questions of information acquisition and delivery. The current policies of political decentralisation, and their implications for service delivery are discussed in section **six**. Section **seven** considers important characteristics of the horticultural sector that differentiate it from other product markets such as those for staple cereals. Section **eight** contains country-specific reviews of the horticultural economies being analysed, and section **nine** outlines the fieldwork.

Other project documents have been produced[6]:

- an abbreviated version of this report is included in the separate project Summary Report;
- there are also separate extended Country Reports for Ghana, Tanzania[7] and Zimbabwe[8].

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2 A review of concepts and experience

2.1 *Transaction costs, uncertainty and institutional analysis*

The costs that closer market coordination aim to save are analogous in part to Coase's 'marketing costs' (1937) which have been popularised since as transaction costs (Williamson, 1975; Williamson, 1985), and are an important topic within Institutional Economics. New Institutional Economics (NIE) is concerned fundamentally with problems of market coordination, and the incentives for economic agents to devise institutional responses to these problems (Dorward et al., 1998). Key concepts are uncertainty and the transaction costs of contracting through market exchange, and their influence on the organisation and development of economic activity. 'At the heart of institutional economics is the making, monitoring and enforcing of contracts' (Hubbard, 1997: 240).

Although Williamson traced its origins to the 1930s (1975) NIE derives its concern with transactions costs from the Old Institutional Economics of Commons *et al*[9]. The remarkable growth in institutional analysis since the 1970s occurred 'not via a re-emergence of traditional institutionalism, but mainly through developments in the heart of modern orthodox theory itself' (Hodgson, 1989: 249). Among the differentiating characteristics of institutional economics are the nonformal methodology, the appeal to a broader set of explanatory variables than maximising utility within a given opportunity set, and the interface with complementary social science disciplines (such as sociology, psychology, anthropology, political science) in explaining market phenomena (Cécora, 1993).

In NIE, following Commons, it is the transaction rather than the commodity that is the unit of analysis. Williamson's definition of the transaction serves as a first approximation: 'a transaction occurs when a good or service is transferred across a technologically separable interface. One stage of activity terminates and another begins.' (1985: 1). Marion identified four elements of transactions (1986):

1. making the deal;
2. transfer of ownership;
3. establishing a price;
4. physical delivery of the product to the buyer.

2.1.1 Transaction costs

There is broad acceptance that transaction costs are of both an *ex ante* and *ex post* kind:

1. *ex ante* costs:
- searching for potential exchange agents (buyers or sellers);
- screening potential agents for characteristics such as honesty, creditworthiness;

[9] Commons (1934) and Coase (1937) were responsible for the initial economic insights while others have made seminal contributions from the fields of the economics of information (Stigler, 1961; Alchian and Demsetz, 1972), property rights (Demsetz, 1967), market organization (Arrow, 1970), economic history and development (Davis and North, 1971; Wallis and North, 1986; North, 1990), and law and organization (Williamson, 1989). Rutherford casts the net wider still, including Austrian approaches to economic analysis (1989).

- bargaining over terms of exchange and price determination;

2. *ex post* costs:
- transferring property rights;
- monitoring compliance with contractual terms;
- enforcing sanctions in the event of non-compliance.

The true costs of exchange therefore comprise a) the orthodox neoclassical transformation costs associated with the production and distribution of goods and services, and b) the transaction costs of searching, measuring, mediating and monitoring during the exchange process incurred in order to bring together buyers and sellers and complete the exchange of ownership. The total costs of economic activity are then made up as follows:

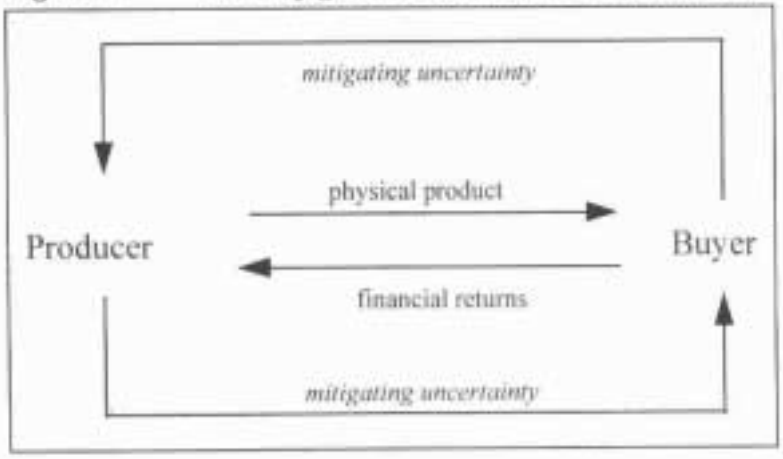
$$\text{costs}_{\text{total}} = \text{costs}_{\text{transformation}} + \text{costs}_{\text{transaction}}$$

2.1.2 Role of institutions

Uncertainty, the consequent increase in the cost of exchange, and the role of institutions in reducing costs are fundamental concepts within institutional economics. Uncertainty exists because real markets are characterised by less than perfect information and because economic actors are limited in their access to and ability to use that information. To overcome incomplete information, market participants engage in activities that incur costs - transaction costs. Moreover, institutions such as laws, contracts and social norms develop to reduce uncertainty (North, 1990). 'The ease or difficulty of contracting, and the types of contract made, are determined by the level and nature of transaction costs, underlying which is the extent of imperfect information involved in making a transaction' (Hubbard, 1997:240).

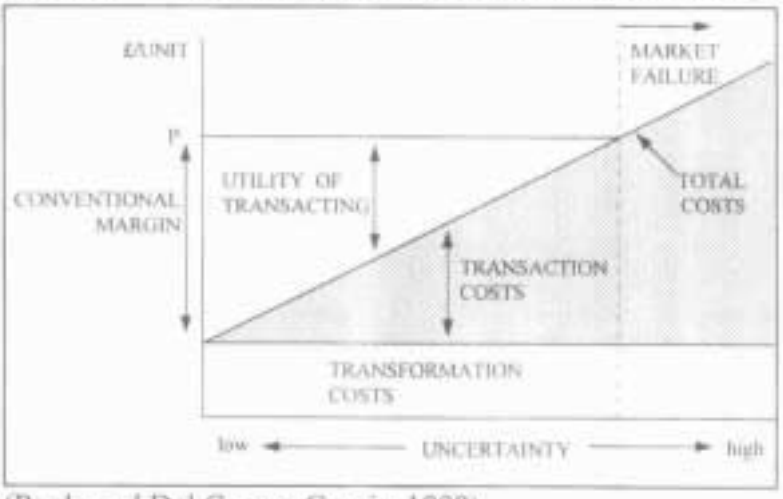
The definition of transaction costs adopted here is '***the costs of transacting activities*** (search, screening, negotiation, monitoring, enforcement) ***undertaken to mitigate uncertainty***' (Poole and Del Campo Gomis, 1998: 201). Generation of information and information flows are fundamental transaction coordinating activities to reducing uncertainty and consummate efficient exchange between buyers and sellers:

Figure 1 Flows of goods, resources and information between buyers and sellers



The impact of transaction costs as a wedge between market prices and the benefits or utility of exchange are illustrated in the diagram below:

Figure 2 ***Uncertainty and the transaction costs wedge***



(Poole and Del Campo Gomis, 1998).

Uncertainty arises in exchange for a number of reasons (Jaffee, 1995):

1. information is asymmetric, that is, usually held unequally between contracting parties. The quality of the relevant information may range from straightforward to complex, it may not be easily available, its collection will incur costs, opportunism and uncertainty;
2. in most explicit contracts, and in all implicit contracts, property rights are unlikely to be completely specified, and are therefore subject to non-excludability and non-transferability;
3. there are agency problems which arise from potential conflicts of interests between transactors. The tendency to engage in either cooperative or competitive behaviour creates uncertainty and requires monitoring and enforcement.

Development of formal and informal institutions to reduce the costs of exchange can be viewed as complementary mechanisms. According to Fafchamps and Minten (1999), relationships play a wide variety of roles in agricultural trading businesses such as:

- business training and start-up support;
- information sharing;
- regularity of supply and demand;
- credit;
- prevention of contractual breach;
- risk sharing.

'The value of relationships, not legal institutions, appears to be what motivates Malagasy grain traders to honor contracts and seek the resolution of conflicts through negotiation' (p.31). Relationships are important because they provide safeguards where business practices are unsophisticated. However, without supporting institutions, 'the free market remains nothing but a flea market' (p. 31). Therefore, relationships alone are insufficient to develop an efficient trading system, and the authors suggest two approaches to institutional development to support and enhance producer/trader relationships:

- facilitating interaction and trust between traders through intraindustry bodies such as Chambers of Commerce;
- setting up institutions which specifically reduce the transaction costs of information acquisition, quality control, effecting payment, and enforcement.

This latter point concerning institutional development is in sympathy with the proposal by Galtier and Egg who advocate standard contracts as a mechanism to reduce high transaction costs in the cereal trade in Mali - even for relatively homogeneous staple cereals (1998), and similar proposals for smallholders in Spanish citrus production (Poole, Del Campo Gomis, Juliá Igual and Vidal Giménez, 1998).

2.2 *Uncertainty v risk?*

Conventionally, a distinction is made between risk and uncertainty according to Knight's proposition made in 1921: 'uncertainty' refers to the situation in which the likelihood of different outcomes is unknown; 'risk' is characterised by awareness of objective probabilities. For many authors, such as Hardaker, Huirne and Anderson (1997) and Anderson and Hazell (1997), and for different reasons (Cancian, 1980) this distinction is considered not helpful. Firstly because, at least in the world of the smallholder farmer, if not more widely, objective probabilities are rarely known; and secondly, relevant probabilities are not objective, but subjective, perceived by the economic agent such as the smallholder farmer.

Therefore, a different distinction is drawn here: uncertainty is imperfect knowledge about an event, whereas risk refers to consequences about that event which influence the decision making process.

2.2.1 Risk

There are two elements to the analysis of a risk event or occurrence that affect the outcome of actions:

- the likelihood (or chance or probability) of a given outcome;
- the impact or the scale of consequences, or value of the risk event if it occurs;

The expected value of the outcome is the product of the value of the outcomes (usually the downside loss) and the probability of the events occurring.

Risk aversion is the common assumption in economic behaviour, and mitigating risk is a key activity. Risks can be reduced, for example by changing the range of outputs through product diversification, or by internalising a process that otherwise would be contracted out. On the other hand, risk can be transferred to a contractor or insurance company (not generally in smallholder agriculture). Risk can be avoided, as in the case of smallholders who choose to revert to subsistence production rather than engage in commercial marketing of products. Risk can also be absorbed or pooled, for example through cooperation with other economic agents.

2.2.2 Uncertainty

Uncertainty concerns the lack of information: incomplete knowledge of the likelihood and the impact of a given outcome, and even about the risk to which one may be exposed:

unknown risks. Lacking information, there is a high degree of uncertainty, and both the risks themselves and the expected outcomes are unknown.

Mitigating uncertainty is, therefore, a different activity from mitigating risk. Mitigating uncertainty is mainly done through increasing information. Reducing uncertainty does not reduce risk, but increases the level of information about risk. A different set of management or strategic actions is required to reduce risk through reducing the impact (scale of consequences) or the likelihood of a given occurrence.

2.3 *Strategic behaviour*

Risk aversion as a behavioural response to uncertainty is particularly relevant in small scale agricultural production (Roumasset, Boussard and Singh, 1979; Ellis, 1988). Research among small scale horticultural producers in Spain (Poole et al., 1998) highlighted the importance of uncertainty concerning prices and payment. Specifically, the relationships, on the one hand between security and uncertainty, and on the other, between trustworthiness and lack of confidence, were more important than the negotiated price in influencing citrus farmers' marketing decisions.

Uncertainty typifies agriculture because farmers are subject to the incidence of natural and market problems. In agriculture, there are different types and sources of risk (Hardaker et al., 1997):

- production risk, such as the potential losses due to the weather, and the incidence of pests and diseases;
- market risk, due to changes in supply and demand, prices and consumer preferences;
- institutional risk, which results from changes in the 'rules of the game' such as the withdrawal of subsidies, the imposition of taxes, and an increase in phytosanitary standards;
- human risk, resulting from illness and death, also agency problems between producer (principal) and agent (either labourer, or output buyer);
- financial risk related to leverage and credit.

The level of uncertainty is increased where production is particularly sensitive to disease problems, meteorological risks such as frost and hail, and poor marketing services such as incomplete harvesting and poor information. Intense competition in the product market may increase instability as firms enter and exit. Small scale farming is more exposed to such risks than large scale, diversified agricultural enterprises. There is every likelihood that farmers' production decisions and marketing decisions will be influenced by risk aversion.

Hardaker et al. (1997) list a range of possible on-farm risk-management strategies:

- collecting information about technological alternatives, marketing opportunities and trends;
- avoiding or reducing exposure to risks;
- selecting less risky technologies;
- diversification;

- flexibility of assets, product, markets, costs and time to respond to changing circumstances.

2.4 *Analysing producer behaviour*

2.4.1 Risk management

In a multi-attribute production and business environment, there are many forces, choices, preferences and events which influence behaviour and performance, and make it increasingly difficult to model farmer behaviour. Empirical work in analysing risk has used questionnaire and survey data and multivariate analytical techniques, mostly in advanced agricultural economies. The sources of risk include the particular resource set facing each farmer, the external set of opportunities and constraints, personal aptitude and attitudes of individual farmers, and changes thereof:

Resource set

- quality and quantity of factors of production: land and labour resources;
- quality, quantity and choice of inputs: water, agrochemicals, mechanisation, credit;
- climatic conditions, such as the variability and extremes of temperature and rainfall;
- knowledge - indigenous and applied;
- the decision context, for example the rapidity with which decisions must be taken.

External opportunity/constraint set

- product and production characteristics: seasonality and cyclicity, term nature of production, potential for differentiation;
- physical infrastructure: roads, telecommunications;
- policy incentives and constraints: taxes and subsidies;
- sociocultural constraints;
- level of information;
- market conditions.

Personal attitudes, aptitudes, attributes

- risk aversion;
- estimates of risk event likelihood and impact;
- management skills;
- experiential learning;
- wealth.

Evidence concerning a relationship between farmers' responses and their socioeconomic characteristics is inconclusive. Risk responses, that is to say, management responses to risk, vary and may not neatly match the perceived sources. While much of this research has been conducted in the context of agricultural production, the same considerations are likely to apply to marketing decisions of producers, which have been less studied.

2.4.2 Information strategies

In the world of perfectly competitive markets, it is assumed that information is perfect: that is to say, economic actors are fully aware of prices, supply and demand conditions, consumer preferences, current states and future trends. The uncertainty prevalent in real agricultural markets invites market analysis from a transaction cost perspective in which

institutions evolve to reduce uncertainty and create information (North, 1990). Information strategies are, therefore, a key component of the management of agricultural production and marketing whose purpose is to reduce uncertainty.

Information failure in the economy is particularly acute in countries in which exchange has developed beyond traditional, local networks but has not yet attained the characteristics of a modernised economy. The World Bank (1998) has proposed a simple two part taxonomy of information failure, applicable particularly to such developing economies, that corresponds closely to transaction cost concepts:

1. the difficulty of *verifying quality* and the need to gather as much information about quality as is feasible, or to find ways to reduce the need for information;
2. the difficulty of *enforcing performance* and the need to find mechanisms to monitor transactions (emphases in the original).

The need to overcome information failure in developing economies may be acute, and the inability to do so is an important source of market failure. Information problems are not confined to developing economies, however, and economic agents everywhere need information strategies. According to Martin (1996), acquisition of market information was one of the risk management strategies employed by New Zealand farmers to reduce price uncertainty. Gaining information was preferred by most farmers ahead of other strategies such as more integrated marketing through closer contractual relationships. In the study by McLeay, Martin and Zwart (1996), which focused on marketing behaviour and strategic management in order to identify strategic groups of New Zealand producers, one of the strategic dimensions identified was 'market knowledge'. This was described as:

- understanding market requirements and distribution channels;
- awareness of new crops and crop varieties;
- monitoring market signals;
- simultaneously planning production and sales activities.

The acquisition of such 'market knowledge' is possible through a range of formal and informal sources, the relative importance of which is likely to vary between producers and production and marketing systems, for a multiplicity of reasons[10]: economic, social, cultural, political, and infrastructural.

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[10] In the study by McLeay (1996), information gathering activities showed significant intercluster differences between the perceived importance of different published media, people, organisations and events. Of the five different strategies identified by Martin (1998) that different groups of farmers employed, all but one required the business to be intricately involved with interpreting market information.

Foltz (1996) suggested that Idaho farmers' preferences for external sourcing of information needs from industry consultants rather than from public agencies was part of a trend for specialised, targeted information.

Among Spanish citrus producers, informal sources of information such as friends, the local bar, and even intermediaries, were cited as more important than formal sources of information about price information and consumer preferences (Poole et al., 1998).

2.4.3 Reputation and trust

Linked to information strategies in mitigating uncertainty are questions of trust and reputation. Creating and sustaining reputation and trust between buyers and sellers is an important strategy for attenuating transaction costs (Compés López and Poole, 1998). In order to reduce or eliminate problems of quality default, a supplier of the goods or services can send signals to the client about the characteristics of the service or the performance of the agent. Depending on the circumstances, the signal of product quality may be price, reputation, guarantees, or the promotional costs. Certification by a third party or the acceptance of minimum quality constraints or licensing standards are other possibilities.

Marketing services are 'experience goods' (Nelson, 1974), inasmuch as their quality can only be determined after 'delivery' to the final customer. In developed markets, quality is usually assured by means of explicit written contracts. This is uncommon in the food industry generally, and unheard of in the agri-food systems of developing countries. Implicit contracts between buyers and sellers are the almost universal form of agreement, that give rise to varying levels of uncertainty and transaction costs. Pervasive mistrust in some African agricultural markets arises because of the prevalence of opportunism at all stages of the chains. Mistrust is partly due to the lack of standardisation of product quality and quantity in exchange, but also because adulteration is common. Buyers and sellers prefer to deal with those who have proved reliable in the past. As a result, reputation is important and transactions are frequently personalised (Holtzman, Martin and Abbott, 1988).

2.5 Information, uncertainty and strategy in developing economies

The consequences of risk-prone agricultural production and marketing are particularly burdensome for smallholders in less developed countries. Risk aversion compels farmers to pursue risk avoidance, risk management and institutional risk sharing strategies. The last includes formal mechanisms such as insurance and futures markets, which as noted are unavailable in developing countries, where informal risk-sharing arrangements, such as share tenancy contracts, traditional money lending and risk sharing with extended family networks have evolved (Anderson and Hazell, 1997). Weak or missing markets and other imperfections are particularly likely.

Where transaction costs exceed the benefits of exchange, withdrawal from commercial farming into subsistence mode is a way of avoiding exposure to risk and may lead to market failure. This situation was identified in the staple foods market in Ethiopia towards the end of the socialist regime (Dadi, Negassa and Franzel, 1992). In Ghana the 1979 coup was followed by state attempts to control prices for basic commodities and led to attacks on the markets and traders and the trading institutions. Market places were physically demolished and traders were intimidated and physically abused by police and soldiers. Another series of attacks on urban markets began in 1982 and continued for some months. Commercial activity in rural areas was depressed and farmers reverted to barter exchange, and diversified their cropping patterns out of commercial crops (Clark, 1994).

3 What information?

Section 1.3 noted that, all too frequently, marketing studies have paid little attention to the precise information needs of farmers and traders, even though the importance of 'market information' is widely acknowledged. Exactly what is meant by market information is often not made explicit. However, the assumption is often made that market information comprises data on prices and quantities exchanged, duly processed and made available to market participants. Similarly, it is often assumed that it is the responsibility of a public market information service to collect, process and analyse such data systematically and continuously, so as to ensure delivery on a timely basis to all market participants (Poon, 1994). These assumptions deserve critical examination.

This section begins with a typology of market-related information, then proceeds to look at the characteristics of such information that have led to the general assumption that the principal responsibility for gathering and disseminating it should rest with the state.

3.1 Types of market information

This section draws upon the theoretical review of market information contained in Shepherd (1997b). FAO distinguish *market* information, which consists of data on prices and quantities, from *marketing* information - 'a much wider concept, which is likely to include details on potential market channels, payment requirements, packaging, quality and a whole host of information required by a producer to make a successful sale, including market information' (Shepherd, 1997b:5) (emphasis in original). Shepherd then disaggregates market information into *current* and *historical* market information.

Current market information is data on current prices prevailing, and quantities traded[11], in markets of various types (retail, wholesale, farm-level). In theory, this should be useful for informing farmers' and traders' selling decisions and for improving the efficiency of spatial arbitrage.

Historical market information is data on market prices and quantities traded, compiled over a period of time and analysed. In theory, this should be useful for informing:

- planting decisions by farmers (which crops, and when);
- strategic sales decisions (which markets to aim for, given past performance and the difficulty of getting really accurate current information);
- storage decisions by both farmers and traders (whether and how long to store)[12];
- government planning and early warning[13].

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[11] Larger producers or traders looking to sell to, or buy from, a particular market will want to know whether the quantities that they wish to buy (sell) will be available (likely to be purchased) and, if so, what influence their intervention in the market is likely to have on prices on the day in question.

[12] This will be of less relevance to perishable crops, such as many horticultural products, than to, say, grains.

[13] In this report we shall largely ignore the role of market information in government planning and early warning, as these fall outside the scope of our project. However, it is worth noting that many public marketing information services (MISs) have, in practice, collected market information primarily for these purposes. Given the problems with dissemination of information to non-government market participants (farmers and traders) that we shall detail in this section and in section 5, provision of information to planners may be one of the most useful roles that some public MISs can perform. Actual practice may, therefore, not have been as irrational or inefficient as is widely assumed!

However, historical market information is probably only of limited usefulness and reliability if not supplemented by other information, for example:

- quality requirements and terms of contract of different marketing channels (for planting and strategic sales decisions);
- expectations of key market informants as to immediate future prospects for different crops (for planting and strategic sales decisions);
- estimated harvest, stocks in the system, imports and exports of the crop concerned, planned government/donor/NGO interventions (storage decisions).

Much of this falls under FAO's definition of *marketing* information.

Harris (1988) is particularly concerned with the market information requirements of traders in the Caribbean, serving both domestic and export markets. Harris does not follow FAO's distinction between market and marketing information, but nevertheless takes a broad view of information requirements, suggesting that these could include:

- size and location of supplies;
- consumer demand;
- changes in consumer preference and taste;
- seasonal variations in supply and demand;
- historical, current and anticipated prices;
- selection, grading and packaging requirements;
- transport availability and charges;
- trade contracts;
- export/import policies;
- phytosanitary regulations;
- tariff barriers;
- production information for competing countries.

According to Harris (1988) reliable information should allow market participants to balance supply and demand, and to avoid gluts and deficits. It should enable wholesalers to develop consumer demands and producer supplies, reducing their risks and enabling them to operate more profitably on lower margins. This reduces overall market transaction costs, which benefits both producers and consumers. Reliable information should also enable farmers to make strategic decisions about the timing of planting and harvesting and the optimum location of sale.

3.2 *Informational imperfections*

According to theory, one of the prerequisites for the existence of truly efficient (so-called perfectly competitive) markets is that economic actors have costless access to perfect information. In reality, information is not perfect and decisions have to be made in the light of the information that is available. On any given topic or issue, some people have more information than others. The information that people hold may have been acquired through experience and personal observation, study, deliberate investigation, exposure to various information 'media' or personal conversation. Harris (1988) asserts that in local markets most farmers have quite good knowledge about the market, but it is usually

unconsciously acquired - simply gained from general experience. Plattner reported that market traders can find difficulty articulating their decision-making: 'I can't tell you how I do it, I just do it. It's all supply, demand things. I can't tell you anything more than I've told you and, quality and price' (respondent quoted in Plattner (1984)).

Therefore, it is evident that the theoretical conditions are not reflected in real markets. The information that some people hold on some issues may be wrong. Also, information is rarely costless to acquire. At the least, it requires time and effort to obtain most types of really useful information. There are generally financial costs involved in acquiring information, too - including, sometimes, having to pay another person to supply the required information. Part of the cost of information simply derives from the unavoidable costs of communication.

Moreover, those who are well-informed may not be willing to divulge to others the information that they possess. This is because they see it as being in their personal (private or commercial) interest either to prevent certain (usually damaging or unpleasant) information from becoming common knowledge or to exploit their information advantage over people whom they view as competitors or rivals. This is the problem of *asymmetric* information.

Reluctance to pass information on may be an obstacle to the general availability of information. However, the opposite case also constitutes a problem for the supply of information by profit-oriented private individuals or firms. Given that information is generally costly to acquire, it might be expected that astute entrepreneurs would set themselves up in business to supply other people with market information. However, once the business has supplied information to one client, it is extremely difficult for the business to stop that client passing the information on to others (possibly even for a fee). Given that people will hope to obtain the information second-hand, either free or at a reduced price, few consumers will be willing to pay the original firm for it, so effective demand will be weak.

In terms of economic theory, most information (including market information) is neither *excludable* nor *subtractable*[14]. It is a so-called *public good*. Table 1 classifies goods and services according to their characteristics of excludability and subtractability:

Table 1 ***Economic classification of goods and services***

Type of Good	Excludability	Subtractability
Private Good	√	√
Public Good	X	X
Toll Good	√	X
Common Pool Good	X	√

(Carney, 1995: 11)

Private suppliers are only likely to supply desirable quantities of goods or services that are both excludable and subtractable (so-called private goods). By contrast, the public good nature of market information means that private markets in information are likely to

[14] A good or service is excludable if those who have not paid for it can be excluded from consuming it. A good or service is subtractable if one person's consumption of it reduces its availability to others.

remain, at best, poorly developed - contributing to the general scarcity of information surrounding markets. In addition, from a public policy perspective, where a good or service is either not excludable or/and not subtractable, the marginal social cost of adding a new user is zero. Therefore, considerations of economic efficiency discourage the setting of prices that will exclude anyone. For this reason it is generally assumed that the public sector will be responsible for the provision of market information. As the World Bank have argued: 'Public action is required to provide information to verify quality, monitor performance, and regulate transactions to provide the foundation for successful market-based development' (World Bank, 1998: 7).

However, the strengths and limits of government capabilities relative to those of the market need to be taken into account. As the 1998/99 World Development Report comments, this echoes one of the key findings of previous work: 'when deciding the scope and nature of public action, policy makers must balance the market failure they seek to address against the government's capability to address it' (World Bank, 1998: 149). Public sector experience in the provision of marketing information is reviewed in Section 5.

Governments may adopt a light-handed or an intensive approach to developing institutions to overcome problems of development - including information failure. The choice depends on two factors: the central administrative capacity of the state, and the feasibility of delegating public provision to local public agencies (World Bank, 1998). The issue of decentralisation will be discussed in Section 6.

It should be noted, however, that, where a government wishes to see increased provision of a non-private good or service, it is not necessary for the government to produce that good or service itself. Rather, it may choose between direct supply or contracting an alternative supplier to provide the desired good or service.

Finally, although commercial supply of market information is problematic, it does occur under certain circumstances. For example, Thompson (1998) presents four 'key success factors' which explain the success of a Greek agricultural information service developed using advanced information and communication technology. Although the context is Europe[15] and the technology used is expensive, there may be general principles that could apply to any information system:

- one-stop shopping for agricultural information - easy access to a range of information;
- simply channelling information is not enough - the service must add value to the data collected in ways which the clients require;
- establishing and maintaining a critical mass - the more information sources, the more attractive the service is to users. However, this results in a 'chicken and egg' problem, which makes starting difficult;

[15] There are very few private market information services in Sub-Saharan Africa. One exception is a service that caters to the needs of large-scale, commercial farmers in South Africa. The Kenya Agricultural Commodity Exchange is one example, a private sector firm established in July 1997 to provide market information and services for major agricultural commodities by electronic means to subscribing members in Kenya, East Africa and elsewhere (KACE, 1998).

- keeping focus on the target market - it is very tempting to add new information to the service, but maintaining a well-targeted focus on users and be deepening the value of its service, will ensure a high level of usefulness.

As data are analysed and information is tailored to the needs of individual clients, market information becomes less of a public good and more of a differentiated product. It is worth noting at this point that both historical market information and marketing information have more of the characteristics of a product than does current market information - the focus of most of the attention in the agricultural marketing literature.

The comments of Tschirley, Diskin, Molla and Clay summarise this section (1995), arguing that, if left to the private market, information is likely to be 'under-produced'. The reason is that the social benefits of such provision exceed the returns to the private operator. This they illustrate with a number of examples:

- traders who gather market information have strong incentives to keep the information to themselves to prevent competitors taking advantage of opportunities they have discovered;
- in theory, private entrepreneurs could specialise in providing market information. In practice, however, it is very difficult to recover the costs because there are high exclusion costs;
- such specialisation in market information is unlikely as successful examples of such companies in high-income countries are highly specialised and operate in markets that have a high enough value to sustain such activities.

The result of this is that all market participants must either duplicate their investment in information gathering or operate in uncertain markets with the risks involved.

3.3 Public market information systems (MISs)

Observed imperfections in market information lead readily to calls for governments to establish public market information systems or services (MISs). MISs are expected to make markets more 'transparent' (Schubert, 1993) by making more information more widely available. It is envisaged that information collected and disseminated by these systems will:

- assist traders in their sourcing, storage and arbitrage activities;
- overcome informational barriers to entry facing potential traders, thus making markets more competitive, to the benefits of both producers and consumers;
- assist farmers in their selling and storage decisions;
- strengthen the bargaining position of farmers relative to traders, and overcome the problem of asymmetric information.

Unfortunately, recommendations that governments should establish MISs often seem to make the mistake of assuming that such systems readily operate in a smooth and efficient (if not costless) manner. Section 5 reviews the experience of a number of MISs in practice. Some of the limitations commonly experienced with publicly supplied market information, even where there exists a well-run and well-resourced MIS, are that:

- 'prices move too rapidly for available information to serve as more than a guide to likely returns' (Shepherd, 1997b:8). This is particularly the case where crops are highly perishable, such as the horticultural produce that is the focus of this project;
- farmers may be unable to translate wholesale market price data into corresponding farm-gate prices, as they have little information about traders' costs;
- there may be problems specifying prices and grades in information disseminated by MIS.

These problems all relate to current market price information. In practice, few MISs in developing countries have been able to provide either reliable quantity data or historical market information to market participants. Some, however, have conducted analysis at the aggregate level for the purposes of government planning and early warning. Arguably, if resources are available for the development of MIS, provision of historical market information (and other aspects of *marketing* information) is likely to be at least as useful as provision of current market price information. Given that historical market information requires a certain degree of analysis, it is likely that it will have to be assembled by a central (national) MIS with the resources to undertake analysis. By contrast, if current price information is to be collected and disseminated, there might be merit in the idea of decentralising this work (depending on the geographical coverage of the commodity systems in question). Decentralisation is considered further in section 6.

It should be noted, however, that, even where information is effectively supplied, not all market participants may be able to take advantage of their improved knowledge. For example, farmers may be unable to benefit from better information where they only have access to a limited range of marketing channels, where traders have considerable market power or where farmers are committed to a particular buyer as a result of interlocked credit provision. Traders may become aware of arbitrage opportunities, but not have access to the capital, transport or market contacts necessary to exploit them. In other words, information may be a problem, but it is not necessarily the only (or binding) constraint facing market participants.

The above list of problems for even a well-functioning MIS engenders scepticism about the benefits of public provision of current market information. Where markets tend to the monopolistic, farmers will not be able to act upon current market information provided by an MIS, unless they can organise themselves in competition with the dominant. On the other hand, where markets are strongly competitive, competition between traders for produce will probably be a better source of information than any MIS. If there is a role for an MIS (at least as far as farmers are concerned), it is in the 'middle ground' of weakly competitive markets.

As far as traders are concerned: 'traders often already have accurate and widespread information networks and the introduction of an official MIS may add little to arbitrage possibilities' (Shepherd, 1997b). For this reason, according to Shepherd, MISs are more likely to benefit small traders, with more limited private information, than large traders in well-established networks. Another potential benefit of official MISs is their contribution to the development of cross-border trade (Shepherd, 1997a). Agencies such as FAO and USAID are now convinced of the benefits that could accrue to both rural incomes and national food security from increased cross-border trade in Sub-Saharan Africa, particularly in cereals. There may also be more limited scope for such trade in some

horticultural products. However, traders from a neighbouring country are unlikely to have the range and depth of contacts with market informants that domestic traders enjoy. Their participation in cross-border markets is, therefore, likely to be greatly assisted by the existence of well-functioning, domestic MISs.

3.4 Trader networks

A point that is increasingly being recognised in studies of liberalised cereals markets in Sub-Saharan Africa (Bryceson, 1993; Badiane, 1998; Galtier and Egg, 1998), but which also applies to horticultural marketing systems (van Donge, 1992b), is that traders do not act atomistically and independently. Rather, they function within networks that extend both horizontally and vertically. It seems that researchers' awareness of the existence of these networks has advanced beyond detailed understanding of their functions and modes of operations. However, they appear to be a response to imperfections in local capital markets and to the generally unfavourable operating environment, in which few contracts enjoy effective legal protection and where information flows are problematic.

Bryceson (1993), reporting on cereals trade in Tanzania, found that traders always tried to deal with other traders whom they knew and trusted, as they handed goods over upon part payment, only receiving the balance once the buyer had sold the goods on. This arrangement was attributed to the lack of working capital in the system. Seppala (1998), discussing similar systems, found that market information also flowed through these informal networks and talks of 'extensive networks of low-resource part-time traders working in collaboration with resource-rich professional traders.' Clark (1994) has also documented the importance of traders' networking functions, particularly in relation to the provision and sharing of information, in Kumasi, Ghana.

Flows of information within informal trading networks are, from a public policy perspective, second best to free and open flows of information in the 'public domain'. At best, information flows within networks of relatively small traders are likely to fragment markets, with differential access to information, creating situations of monopolistic competition. At worst, networks controlled by dominant, large traders can tend towards oligopoly. However, as Shepherd noted (above), the transmission of relevant market and marketing information through these networks is often more effective (for network members) than dissemination through official MISs.

The discussion of private trade networks raises two questions for the purposes of this study:

- under what conditions will traders provide full and frank information to each other?
- is there any scope for involving smallholder farmers in such networks?

In response to the first, it is clear that these networks work on the principle of mutual trust, which is built up through engagement in a variety of market transactions (and probably many non-market ones, too[16]). Finance and inputs pass around the networks, as well as information. One aspect of this trust, it is hypothesised, is that traders do not supply commercially valuable, sensitive or strategic information to those outside the network -

[16] Traders and farmers build trust through social relationships (in Ghana, for example, by attendance at funerals). It is likely that traders will do the same thing with others in their networks.

thereby overcoming the problem of excludability. Trading networks thus provide an excellent example of a Northian institution that has developed to overcome problems of market failure (in this case in the markets for both information and capital)[17].

In addition, it is hypothesised that traders only share information when:

- the recipient is not a direct competitor (he or she may be, for example a supplier in another town); or
- the two traders together are still only a small part of the whole market in question; or
- the provider of information (the principal) has enough power over the recipient (the agent) for example through credit ties, to control the outcome of their transactions; or
- the principal has enough power in the market as a whole to maintain control over the outcome of transactions; or
- the principal wants to build a longer-term trading relationship with the agent and shares information as a way of signalling his competence, trustworthiness and value as a potential trading partner.

A tentative answer to the second question can then be given by referring to the list of conditions above. Farmers are not generally direct competitors to traders. Their value as suppliers depends largely on the size and reliability of their marketed surplus. Traders might share information with larger farmers (or possibly farmers' groups) as a way of winning their trust, if it is thought that this will lead to future benefits in terms of improved access to supplies of a scarce commodity. This would exclude the producer of small or irregular surpluses, or of products that are not particularly scarce. Where small farmers become dependent on traders through credit linkages, traders have less incentive to share market price information, and even if the trader did share information, it is unlikely that the farmer would be able to use it to his advantage.

Whether it is a buyers' or sellers' market - structural features, in the theoretical sense - and the size and regularity of the farmer's marketed surplus emerge as critical variables in determining the likelihood of a farmer being able to gain access to full and frank market information through an extension of trading networks to the farmer level.

[17] Note that Northian institutions are not necessarily efficient in the neoclassical sense of the word, as the problem of market fragmentation and reduced competition demonstrates.

4 Poverty focus

This section will present some insights from the anthropological literature and discuss their implications for the study. A short review suggests it will be relevant to identify the interaction between the socio-economic characteristics of smallholders and

- the constraints on access to market(ing) information;
- the effects of improved access to market(ing) information; and
- the relative importance of market(ing) information access compared to other livelihood constraints.

By taking into account socioeconomic variation amongst small producers (at inter- and intra-household levels), both the effectiveness (poverty impact) and equity of solutions proposed by the study will be maximised.

4.1 Socio-economic variation and transaction costs

Section 1 noted that economic agents (smallholders and traders) are not motivated merely by the desire to maximise utility within a given opportunity set, as neoclassical economics suggests. They operate within a social, economic and political environment which is both constraining and enabling as regards economic choices.

Furthermore, it is often assumed that smallholders constitute a homogeneous group, experiencing similar problems to roughly the same degree, and standing to benefit in equal amounts from any given intervention. In reality, smallholders are differentiated according to a number of socioeconomic variables which combine to shape their opportunities and constraints, priorities and motives. Such variables include access to and control over productive resources, patterns of entitlements (Sen, 1981), degree of decision-making power at household and higher levels, opportunity costs, intra-household division of labour, cultural norms and the policy environment.

Section 2 discussed the notion of transaction costs as a key component of the overall costs of exchange. We hypothesise that certain categories of smallholder - namely female producers and vulnerable households - experience inflated transaction costs in relation to accessing valuable market and marketing information. Factors inflating transaction costs are thought to include:

- a higher subjective valuation of the opportunity costs of their time;
- their relatively restricted access to information (a function of opportunity cost of their time and/or cultural restrictions and limited sphere of social relationships, in the case of women);
- reduced access to productive assets of vulnerable households and many female producers which, by limiting their risk-bearing ability, may push up the opportunity cost of their time.

These are discussed in more detail below. Further detail on individual countries is given in Section 8.

4.1.1 Gender and opportunity costs

It is important to recognise here that in discussing opportunity costs we are considering first the subjective valuation of these costs, and second marginal rather than average costs.

Women in Africa have multiple roles - they are mothers, wives and the main producers of food crops. In addition to this significant 'productive' role, women also play a 'reproductive' role (Moser, 1993). As a result, the working day of women is reported to be much longer than men's: women work more than 16 hours per day on average (Stoas Agriprojects Foundation, 1996).

Cultural constraints on women's allocation of time with their multiple roles and responsibilities means that it may have higher opportunity costs than men's time (Ellis, 1993: 187ff) and hence they may incur higher transaction (as well as transformation) costs as compared with men, in terms of labour costs when engaging in the marketing of horticultural produce. This may be true even if their income-earning opportunities and returns to their labour are more limited compared to men's (a common situation) as we need to take account of the subjective valuation of their time.

4.1.2 Vulnerability and opportunity costs

Vulnerability is concerned with the exposure of individuals to risk or stress, and the resources that individuals can access in times of stress or to secure against long-term risk to their livelihoods. To take an example, a person may be poor in terms of income yet secure against economic shocks by virtue of having various fallback options which Sen has called entitlements (1981).

A person's entitlements depend on both what (s)he or she owns and what can be acquired through exchange - thus what resources (s)he has access to and in some cases control of. Sen identifies various types of entitlement. These include being able to sell something owned (trade-based entitlements), being able to produce something from raw materials owned (production based entitlements), being able to exchange one's own labour for cash or kind (own-labour entitlements), inheritance or freely given transfers (inheritance or transfer entitlement), social security entitlements, and public works schemes (employment entitlements).

Thus for a person subject to stress, vulnerability depends firstly on his or her assets, called 'endowments' or 'ownership bundles' and secondly on what the endowment is exchangeable against. The relationship between each ownership bundle and what can be obtained by exchanging it is referred to as 'E-mapping'. This in turn is determined by the person's ability to control the outcome and income from those assets.

These concepts are very relevant in considering both the constraints on access to market(ing) information by vulnerable households and the differential effects of increased access to market(ing) information. An individual's ownership bundle is shaped by their gender, class, status, ethnic identity and age. Furthermore, a different E-mapping may also exist for men and women, or for different ethnic groups: for instance, where cultural taboos prevent women from hiring out their labour on other farms, their labour is not as readily convertible into income as men's, even though the labour market may be well developed. This has direct implications for intra-household differentiation, as even within a household different individuals may be more vulnerable than others.

Intra-household differentiation in vulnerability

Household income in sub-Saharan Africa is not generally pooled (with the exception of household food, sometimes women's responsibility in any case), and the household does not function as a joint production or consumption unit. Men and women often operate with separate budgets and different investment strategies, with responsibility for different areas of household expenditure. Improvements in men's cash income are frequently not felt by women in the household, although male cash income may more commonly benefit children if men are contributing to the costs of education and health care. However, the stability of women's economic situation is directly linked to that of men's as although male and female agricultural enterprises remain separate, land and labour are effectively controlled by men - either the household or compound head (Koopman, 1992).

In patrilineal societies, daughters cannot inherit land, married women gain access to land via their husbands, and widows and divorced women often lose control of such land. In matrilineal societies, men hold effective control of land although it is inherited by women from their mothers. Widows and divorcees are better able to retain control of land than in patrilineal societies. In either system, men can appropriate land in time of stress, hence women are more vulnerable than men and their access to land is directly related to men's economic situation (Koopman, 1992). Women have often lost customary access to land through privatisation programmes which have registered land under the name of the household head (Platteau, 1996).

Similarly, in time of stress or increased opportunity, women's labour can be appropriated by men for male agricultural enterprises but the reverse is rarely possible. In northern Ghana the household head (almost invariably male) is responsible for producing the staple for household consumption. He may appropriate women's labour to work on production of household maize crops, and although women may grow their own cash maize crop they may have to retain it till it becomes clear that the household fields have produced enough to last the season. Women have the responsibility of producing soup or relish ingredients. If a cash crop is introduced, it is often appropriated by men. Women's labour may be drawn away from her crops to the staple to fill the labour gap on men's fields but not vice versa. This situation, in which women have more difficulty mobilising household labour for their agricultural enterprises and men can appropriate women's labour (for low returns) for their economic activities is widespread in Africa.

Men also tend to have more opportunity to supplement their income from export and cash crops by non-agricultural sources and casual farm work. Such opportunities are far less widely available to women, who are limited by social requirements to spend 40-50 hours per week on domestic chores and household food production activities before they can invest time in income generating activities. This limits women's accumulation and investment opportunities and increases their vulnerability relative to men's (Koopman, 1992).

As a result of women's having limited access to men's cash incomes, more limited income opportunities, little control over male labour (and limited control over their own incomes, labour and land), and access to land, information and inputs generally mediated by men, women are generally significantly more vulnerable than men, with their incomes more subject to risk, with incomes often closer to minimum acceptable levels, and with less

access to buffering resources. Greater vulnerability is likely to make their subjective valuation of the costs of taking risks higher than is the case with men.

The importance of disaggregating the African rural household to take into account intrahousehold differences and gender roles has been acknowledged widely, therefore, even if not always heeded in research. Warner *et al* (1997) have gone further to expose the complexity of role heterogeneity within gender. Based on research among the Dagomba peoples of Northern Ghana, they stressed the significance of hierarchies based on age, marital status and seniority. In respect of time allocation, access to resources and motivation, among other things, *intragender* differences may be just as important as, or even more important than, *intrahousehold* differences based on gender roles alone.

Inter-household differentiation in vulnerability

Just as more vulnerable individuals within households will tend to have higher subjective valuation of the opportunity cost of time and of risk, so will more vulnerable households tend to have higher subjective valuation of the opportunity cost of time and of risk, with multiple activities and long working days. This is particularly the case at seasonal periods, such as harvest, when agricultural labour demands are highest. The ultra-poor may also be constrained by nutritional and energy constraints (Lipton and Longhurst, 1986). We may therefore predict that vulnerable households face higher transaction, as well as transformation, costs.

The degree of vulnerability experienced by a given household is partly a function of its position in the rural class structure. A household which owns assets (land, labour, capital) is less vulnerable than one which is assetless, since these assets can be sold to stave off destitution. Other factors play a part too, such as the degree to which land, labour and capital markets are present, and ethnic identity is also intertwined with class, as it shapes access to and control over resources, determining both the institutions that determine the general structure of resource control and access in an area and for any specific household, with particular ethnic and social characteristics (such as gender of the household head), its institutional relationships.

Omari (1989) notes that there is a growing number of female headed households in areas of Tanzania. Such households may be more vulnerable than male households. In Malawi, female headed households constitute a disproportionate number of poor households. Female headed households' access to land and labour varies between matrilineal (and matrilocal) and patrilineal ethnic groups in different parts of the country, although in some areas land pressure is leading to a breakdown in matrilineal customs.

Corbett has summarised rural household's responses to stresses into three stages constituting a scale of vulnerability (1988). Depending on their ownership bundle and E-mapping, certain households within a community may be able to deal with economic shocks by relying on:

- insurance mechanisms (e.g. reduced consumption). Under prolonged duress, they may be forced to pass to stage;
- the disposal of productive assets; eventually leading to
- destitution and starvation.

More vulnerable households (those with a smaller ownership bundle and/or less favourable E-mapping) may find insurance mechanisms are only a limited option and so have to pass more or less directly to stage (ii). In extreme cases they may not even have any assets to sell in which case they are at high risk of destitution. Households' ability to follow these different 'coping strategies' will interact with their current access to market information, their desire and ability to improve access to market information in response to new mechanisms and the impact of more general improvements in improved information access on their welfare.

4.1.3 Cultural restrictions to information

A report by Stoas Agriprojects Foundation (1996) observes that agricultural information is generally mediated by men (although this may not apply so much to marketing information). This has important implications as women make many decisions regarding their own crops, for instance how much fertiliser will be put on what plants and when (Fortmann, 1979). Yet it is evident that husbands are often ineffective in transmitting the knowledge they have to their wives.

4.2 When information is not enough

From the above, we surmise that female producers and vulnerable households are likely to face specially high transaction costs when trying to obtain market and marketing information; and that these constraints may mean that such groups are unable to benefit fully from interventions proposed by the study for improving access to market(ing) information.

Furthermore, we suggest that the same categories of farmer (female producers and vulnerable households) will find it harder to convert such information, even if it were made available, into higher incomes or reduced vulnerability due to the presence of other, related, constraints (eg access to credit, storage, labour). It is doubtful therefore that any direct poverty impact will be felt amongst such groups unless such constraints are simultaneously addressed.

In short, these groups may find themselves unable to benefit from improvements proposed for the mainstream of smallholders, either because information remains inaccessible or because socio-economic constraints prevent them from converting the new knowledge available to them into higher incomes. The latter constraints lie outside the scope of this study but they are worth noting for the purposes of intervention.

It should be noted that improved access to market information, even if it does not reach all smallholders, may have an 'indirect' or 'enabling' impact on those categories who do not benefit directly.

4.2.1 Is market information a binding constraint?

Access to market information may not be the most salient difficulty experienced by all producers. For some, production problems may outweigh marketing problems. Improved access in market information resulting from the project is unlikely to benefit such farmers in the short term, at least directly.

The village study by Stoas Agriprojects Foundation (1996) in Morogoro, Tanzania on gender differences in smallholders' response to structural adjustment provides valuable

insights into how great a problem marketing represents relative to supply, and gender-differentiated constraints in production and marketing.

For both men and women, the key constraints to engaging with structural adjustment interventions concerned supply - in particular, lack of access to credit for purchasing inputs (chemical fertilisers and pesticides) and hiring labour and tractors. Lack of agricultural implements, which limited the cultivated farm size, was ranked second by both sexes. Other supply side constraints included lack of chemical fertilisers and pesticides.

Extension services were ranked equally by both men and women. In earlier years before SAP, villagers used to have a *bwana shamba* (village extension officer) visit their farms and households to give extension advice, but since then they know that there is still a village *bwana shamba* but he is never seen and does not offer extension services because he is too busy with his own cash crop farming. Although women were not the direct recipients of agricultural information even before SAP, they at least used to see him visit the household and sometimes received the information from their husbands.

The little information that was given was usually to men because it was the men who attended village meetings where usually such agricultural information was given. Visits at household premises for the purposes of delivering information were very rare, and when made it was usually the male farmers who were the recipients. This was partly because in this village the extension staff was male, and men did not prefer their wives to communicate directly with male extension staff.

Poor market was ranked below supply side problems and almost the same by men and women. It was revealed that men did not see poor market as a severe problem because they almost always found a market for their products. Women mentioned poor market as a constraint because of their inability to sell the food surpluses themselves, if possible at the household or farm points. Instead men had to carry their food surpluses to markets away from the households/ farms.

The women said that if traders were able to come to their households or even to their farms they would be able to sell their surpluses at the same time and deal with other domestic activities in the household. As there was virtually no marketing done at households/ farm point they were forced to let the men go out with the surpluses to sell away from the household/ farm point. This reduces women's supply response to food production: since they do not control the income from sales made by men, they do not benefit from surplus food production.

The study reports that accessing product markets was a problem for women because they usually lacked information on markets due to social factors and time constraints.

4.3 Summary

It is hypothesised that female producers and vulnerable households experience especially difficult access to market(ing) information due to inflated transaction costs. Factors pushing up transaction costs include

- high opportunity costs of acquiring information, leading to inflated transaction costs (affects women and vulnerable households)

- low ability to bear risk, leading to inflated transaction costs (affects women and vulnerable households)
- cultural restrictions on access to information (affects women)

These socio-economic factors give rise to differences amongst farmers and households as regards:

- degree of access to market(ing) information,
- key constraints to market(ing) information,
- ability to take advantage of improved information and convert it into productivity increases, higher margins, reduced vulnerability, etc,
- extent to which market(ing) information is a binding constraint.

In consequence, different solutions may be appropriate for different groups of households or individuals.

Furthermore, related constraints such as access to labour or credit may impede the ability of female producers and vulnerable households to benefit from improvements in market information access by converting them into higher margins. Such constraints lie outside the study but are nevertheless relevant to interventions.

It is worth noting however that for the poorest individuals or households, information may not be the most salient livelihood constraint. It may be that supply side (production) constraints are a priority for this group, although this would not invalidate interventions to improve market access for other groups of smallholders.

5 The response - information delivery and acquisition

5.1 Introduction

5.1.1 A positive approach to marketing

Markets are often described as the driving force behind economic development, but their analysis and improvement have been neglected by most economists in favour of primary and then secondary economic activities (Kaynak, 1986; Meissner, 1989; World Bank, 1990). Lado (1988) also sees markets as fulfilling an important positive development function, connecting rural areas with the rest of the nation and in particular with the urban areas. According to Meissner (1989) 'Among the major causes of hunger are poverty and ineffective marketing systems'. Food markets therefore play a key role in rural livelihoods, in rural and urban food supply, in promoting more general economic and social development. This paper reviews the literature on food markets, focusing on the issue of market information in particular.

Lado (1988) sees the role of rural markets as important to the linking of rural economies to the broader regional and national economy. In respect of the role of traders he is more emphatic:

> '...the willingness of the traders and transport operators to take risks, and their maintenance of contact with farmers in the study area in spite of the inaccessibility of most roads during the rainy season (April-October), has been instrumental in the integration of isolated study areas into a wider regional and national economy.' (p. 370).

5.1.2 A negative approach to marketing

Notwithstanding the positive contribution that marketing makes to development, the recent history of official attitudes to traders and private trading has been negative. Paucity of information on the organisation of food crop marketing has not prevented politicians and administrators from advocating state intervention on the basis of preconceived ideas. Common prejudices about market imperfections concerned: a) a basic lack of organisation of physical market places, and of grading and standards; b) 'imperfections' rooted in African society, notably the exercise of kinship relationships that acted as a disincentive to commercial activity; c) inadequate demand, because of the importance of the subsistence economy; and e) inadequate infrastructure - poor market places, storage facilities, and transport.

Exploitation of the 'uncommercial producers' by a marketing élite through restrictive practices was held to be commonplace. This view has been widespread and influential in policy terms (Holtzman, 1989). Other areas where it was felt that governmental services could improve the functioning of the market system were the regulation of contracts, grading and standards and market conduct, the provision of financing, and the collection and dissemination of market information.

Adherence to this negative image of marketing is still evident. The desultory implementation of liberalisation policies in Zimbabwe illustrates that there is still fear of

the private sector. Bryceson (1993) reports that in Tanzania traders have been considered as 'pariahs' by many. Lado argues that traders operate highly inefficiently and that there was considerable scope for cutting trading costs and therefore increasing rural incomes and reducing urban food costs.

5.1.3 Inefficiencies and information

There are economic explanations of apparent marketing inefficiencies. Kawagoe and Hayami (1989) suggest that the high market margins found between rural buying prices and urban wholesale prices in Indonesia are merely a reflection of the high risks and transaction costs experienced by the traders working in areas associated with long distances and poor infrastructure. Jayne et al. (1995) argue that there is evidence that market liberalisation in Sub-Saharan Africa can bring about a reduced market margins. However, Jayne and Jones (1996) argue that the previous, state-owned food marketing institutions which were high-cost, but unreliable, while the liberalised private food markets are 'efficient but poor'.

The Indonesian evidence does not consider market information as one of its transaction costs, but clearly where these costs are high this may well influence market margins. There is little evidence available in the literature on the role of market information in the transaction costs of farmers and traders. The current study intends to shed some light on this issue, which a growing number of observers believe requires urgent and details attention. The 'trader: bad - farmer: good' assumption fits intuitively with the theory of urban bias (Lipton, 1976). However, Lipton did not consider open commodity markets. He focused his theory mainly on input provision, policy and the political outcome of urban élites protecting their own interests. Later studies in this vein, such as Ellis (1983), suggest that the transfer of resources out of the rural peasant sector came about as a result of state-run marketing rather than a free market mechanism, in other words as a result of policy rather than the actions of market actors.

The low level of consideration given to food market systems in Sub-Saharan Africa, and to the role of market information in particular, may account for the lack of agreement over whether traders are 'saints or sinners'. This lack of consideration is in spite of attention being drawn to the problem of market information as early as 1970 (Slater, 1970). More attention is needed on the so-called tertiary activities of marketing and exchange, which Kaynak (1984) argues are fundamental to bringing about advances in developing economies.

5.1.4 Market periodicity

A key aspect of the trading channel observed in many African countries in respect of horticultural commodities in particular is the rural periodic market. This is a phenomenon which was a feature of geographic research on Third World marketing in the 1960s and 1970s on market hierarchy (Skinner, 1964b; Skinner, 1964a) and on location and the origins of markets (Hodder, 1965), and on traditional market authority and periodic markets (Hill, 1966). Much was made of the location of the markets in relation to the population and its density and an analysis based on central place theory. However, later reviews of Skinner's work and work which followed has suggested that there are alternatives to the geographic explanation which suggests that periodic marketing is a strategy which overcomes the problems of low spatial demand, low incomes and high

transport costs. There are, therefore, more pressing issues to be examined, such as the role of markets in wider economic and social transformations.

The periodicity of rural markets suits the purposes of four basic categories of periodic market user identified by Hollier (1992) as:

- local consumers
- producer-sellers - local farmers offering their produce for sale
- bulk-buying commodity traders - who will sell wholesale or retail in urban markets
- traders of manufactured items - some may be locally based store-keepers who follow potential customers to such markets.

These categories are not mutually exclusive and must not rule out those who attend periodic markets for social reasons as well as commercial. However, periodicity clearly simplifies the market information required as it brings together buyers and sellers and is known by itinerant traders:

Whereas daily marketing activities at crossroads or on the edge of the market-place can develop into sizeable gatherings from little more than a handful of individuals waiting in casual consumer sales, the selling of large quantities of local produce depends on the knowledge of its regular availability being shared with potential buyers (Hollier, 1992:60).

Hollier goes on to argue that periodic markets are a feature of rural life in his research case study in Cameroon and that attempts to change rural periodicity in a variety of Sub-Saharan African countries based on central place theory have largely unsuccessful. The implied reason appears to relate to the suitability to the market users and the clear knowledge that there will always be a market for goods and a supply of commodities at a known time in a known location. This reduces the risks involved in travelling round a rural area to seek producers at their farms and avoids the increased cost of buying from several producers at their 'farm-gate' in a variety of locations (Hollier, 1986; Hollier, 1992). The periodic market then brings a pool of traders and a pool of farmers together, thus reducing transaction costs for both. There are a number of occasions where the reduced transaction costs cannot outdo the savings to be had from shopping around at the 'farm gate'. This is only usually possible where a locality has a large abundance of a commodity which is relatively short supply in the destination market. This was found in periods of peak harvest in areas specialising in crops such as tomatoes, citrus and other fruits in Tanzania (Lynch, 1992).

Much is made in the literature of the increases in productivity which can come about if market mechanism is made more efficient. Von Oppen, Njehia and Ijaimi (1998) examined the case of improving market access in three countries and concluded that aggregate productivity increases, but that this varies across time, space and society. They found that the responses of intensification and specialisation varied according to context and that large farmers benefited more in the African cases, while in the third case, India, the small farmers benefited. They suggest that more attention is required on the institutional and infrastructural issues, including the role of market information.

Documentary evidence suggests that there is some interest in the marketing systems for horticultural crops. The ATSAF produced a directory of research and development

activities in Europe in tropical and subtropical vegetables (ATSAF, 1994). The majority are concerned with agricultural science issues, such as cultivation, physiology, genetics etc. In this some 15 projects out of 281 are recorded which relate to horticultural marketing issues.

5.1.5 Marketing interventions

Apart from the focus on the improvement of the efficiency of markets through improved market information, a second strand of theory which appears to underpin research in market information issues is that outlined by Delgado (1995). He identifies two pillars to the focus of sustainable development of African agriculture. The first is concern for the degradation of the agricultural resource base; the second is the focus on the 'new' institutions which will have to develop as the State withdraws from organising rural economic life. The Structural Adjustment Programmes instituted in the 1980s and continuing in the 1990s have meant that the State has withdrawn from direct intervention in food marketing, a sector which had previously been seen as strategically important and therefore justifying the State's involvement through food marketing boards.

This withdrawal from direct state involvement has meant that the private sector has had to take on the responsibility of post-harvest handling and management. This has left a degree of uncertainty in the market places. For example, farmers previously have not been involved in significant storage as part of the marketing chain - in fact this has been actively discourage in some circumstances. It may now be necessary for farmers to consider storage as well as private traders. Whereas previously pricing policies meant that there was one price which the state marketing board paid for certain commodities, now a more complex and unpredictable pricing mechanism - the market place - is in place and there is a need for accurate and reliable information about the price and the demand characteristics of the market (FAO, 1996). However, as governments roll back their interventions in the food markets, questions arise about of appropriate interventions on market information. A section of this review will consider this literature.

This chapter is divided into three main sections which relate to differing levels of response to a demand for marketing information. The first section reviews the literature on public market information systems (MIS). The second reviews the literature collective action in agriculture with particular reference to marketing and the role of market information. The third section reviews the private sector initiatives to market problems ranging from small scale to supply chain strategy.

5.2 Public market information systems

The potential importance of market information is illustrated by the increasing level of investment in the use of food marketing information in European economies. The technologies of computing have attracted considerable investment in order to facilitate the collection, analysis and use of market information. In particular the combination of consumer behaviour data collected by electronic Point of Sale (POS) technology and Geographical Information Systems (GIS) which can use this data to refine marketing strategies (Kinsey and Senauer, 1994; Openshaw and Turton, 1998).

5.2.1 MISs in practice

The experience of MISs, based on an FAO survey of 53 functioning systems (the only ones found in a sample of 120 countries), is well summed up in the following paragraph:

> 'Unfortunately, the track record of such services around the world has not, on the whole, been very satisfactory. ... the vast majority of services cannot be considered to provide commercially useful information for farmers and traders. A large percentage of MIS are primarily data-gathering exercises, and even this is done inadequately. MIS suffer because they are frequently operated by government officials who lack a commercial approach. More importantly, the majority face significant resource constraints. Often set up by donors, they have proven to be unsustainable once donor support has been withdrawn. MIS planners have tended to 'overdesign' services, paying little attention to the capacity of the organisation providing the service to continue to do so on a reliable basis.' (Shepherd, 1997b:4).

Shepherd calls for a re-evaluation of MIS, because there can be 'little dispute of the need for market information' (p.1). His discussion goes on to consider only national MIS schemes, but he does identify *potential* benefits of market information availability as:

- they can facilitate efficient allocation of productive resources;
- the bargaining position of farmers in relation to traders can be improved;
- available information can reduce transaction costs;
- they can facilitate both production and trading;
- they can facilitate the transition from state-controlled to free market for farmers and traders, allowing them to find out about market opportunities;
- by making information available to traders and producers about market opportunities, this can in turn improve supply for consumers.

Staatz, Dembèlè and Aldridge (1992) also suggest that MIS data can be used effectively as a component in any food security monitoring system. They go on to highlight a key aspect of any MIS as analysing the data they collect and not simply to monitor the data. For example, analysis of prices across markets can give an indication of the degree of market integration, it may be possible to tell how the release of food aid affects prices where this is relevant and it may be possible to compare prices against production data as a cross-check.

In Tanzania, the Ministry of Agriculture, Livestock and Cooperatives is in the process of developing a national agricultural statistical information service clearly reflecting the importance given to the role of information in the production of agricultural commodities and implying an acceptance that it is the role of the public sector is to provide such information. The priority is reflected in the annual production of the National Agricultural Census but the coverage of specifically horticultural production is very limited indeed. The nature of the information suggests that it is more intended for use by policy makers and economists than the agricultural producers themselves. There is however, an apparent urgent need for market information for the producers and traders in the fruit and vegetable sector.

Lynch (1992) reported that the Tanzanian Marketing Development Bureau, which provides a MIS, only collected and published price data for horticultural crops. The Bureau was insufficiently resourced to carry out regular analysis of this data. At the time of reporting the most recent comprehensive study of the sector, analysing the MDB's data was in

published in 1983 (United Republic of Tanzania, 1983). In this report it is explained that the MDB were operating with restricted resources which prevented them carrying out the level of data collection and analysis they would prefer. Ashimogo (1995) reports in a study on the maize sector, that the availability of the MDB's data at village level is limited. When Ashimogo examined the MDB data for maize in his case study area he found only forty per cent of the expected data to be available. Ashimogo's results showed that 80 per cent of producing households obtained their market information from the middlemen to whom they sell. This parallels results in the fruit and vegetable sector which showed that just over 60 per cent obtained their market information from the traders (Lynch, 1992).

Shepherd catalogues a range of problems with the practical data gathering exercise that is fundamental to the value of any MIS. In addition to the general (and pervasive) problems of resources and motivation noted above, these include:

- prices may be collected in office hours or at the enumerators convenience, whereas peak trading and, therefore, the most representative prices are often encountered first thing in the morning. (Interestingly, Shepherd (1997b) distinguishes two types of markets: those that receive supplies throughout the day, so do not experience regular price fluctuations within the day, and those where produce arrives at the start and is then gradually sold, in which case prices normally start high but decline significantly by the end of the market day);
- a variant on the above is that prices in a time series or 'panel' of data are collected at different times of day;
- traders are suspicious of government officers, so are reluctant to divulge prices or other trade information;
- 'true' prices are ascertained through bargaining, but enumerators write down the first price that they are told;
- wholesale and retail prices are confused;
- price adjustment is often by varying the weight of traditional measures (the 'dash' system that Lyon describes in Brong Ahafo), which cannot be picked up reliably by MIS unless measures are weighed and prices converted to a per kilo basis (awkward logistically and prohibitively costly).

However, the bulk of the literature on market information in developing countries operates from the assumption that there is a role for a public MIS on the basis that market information is a public good. There have been some experiments in bringing the private sector into public market information systems, for example through sponsorship of radio broadcasts or bulletins (FAO, 1996). There is the suggestion that the private sector could eventually take over national MIS, though it is as yet unclear how this might be financed. There are, however, examples of community level market information services in the forestry sector which will be considered briefly in the next section.

With regard to the issue of critical mass of users and providers of market information, Harris (1988) demonstrates that in the Eastern Caribbean, at least there is a considerable range of participants in the horticultural marketing sector who could benefit from such a market information system. The literature on Sub-Saharan Africa suggests that the situation there is no different. The difficulty may be to provide a commercially useful system, without losing focus on the target users. In other words to provide a system which

is of direct benefit to the target information users and which is economically viable and self-sustaining.

Recent attention has focused on the transition to make public MIS more relevant to farmers and extension workers as well as policy makers. This is reflected in the FAO's concern to ensure that market information services are commercially relevant. One of the shortcomings of the current support for most farmers was highlighted in a World Food Summit Technical report which explained that, while most extension staff have good training in production methods, they are frequently unprepared to advise on market information and post-harvest matters (FAO, 1996).

However the introduction of farmer-controlled market information, is not without consequences. Wien and Turner (undated) report that, in her PhD thesis, Gakonyo proposes a market intelligence and reporting system for Zimbabwe's smallholding producers. However, she expects that 'a system which increases farmers' stock of information would affect negatively some who presently benefit from market disorganization' (p. 21) Gakonyo suggests that such a system would result in a more equitable distribution of information stocks and ultimately a more efficient market benefiting a wider range of people. It is not clear how a system may obtain cooperation from traders. Clearly there is an issue here which needs further consideration, while there is limited relevant literature on precisely this issue, the next section considers work which may offer useful perspectives.

Once data are collected they have to be disseminated. Any delay reduces the value of the information to recipients, yet only 13 of the 53 MISs identified by FAO managed daily price dissemination. Shepherd:

> '... where markets are held daily for horticultural produce there is very little relevance for the farmer in prices of three days earlier. Staples, on the other hand, are generally far less perishable and thus prices change more slowly. In these circumstances, a weekly service would appear adequate' (Shepherd, 1997b:17).

5.2.2 Technology and alternative information delivery systems?

Technology and resources are the main constraints to timely dissemination. Telecommunications are essential. E-mail technology should help further, once the relevant offices (and recipients) acquire it. In the meantime, radio broadcasts are generally held to be the best way to communicate price information. However, in liberalised markets, many radio stations regard price data as commercial advertising and charge MIS offices a high rate for air time. As a result, many services are unable to broadcast regularly, if at all. (Commercial sponsorship of price broadcasts is one avenue that should be explored). Meanwhile, prices may be disseminated via bulletin boards in public places (including markets). Information disseminated this way, however, takes much longer to reach farmers and the costs for farmers in remote areas of accessing the information may exceed the benefits.

In the longer term, rural areas in developing countries are likely to enjoy 'technology leapfrog': communications and information technology (C&IT) for rural areas are unlikely to be based on fixed land lines. Newer C&IT alternatives are more appropriate, and are likely to extend far into developing countries. At the time of writing, internet access by

mobile phone through technology such as wireless application protocol (WAP) is slowly advancing in northern Europe, and is likely to follow the same global dissemination and adoption trajectory as other C&IT.

At an UNCTAD meeting in September 1999, it was argued that developing countries are likely to benefit increasingly from specific improvements in C&IT. Benefits will arise from reductions in the costs of telecommunications technologies, the increasing availability of local infrastructure, and the development of information systems (hardware and software) specifically for smallholder farmers (Roche, 1999).

These assertions should be weighed carefully and factored into expectations of future information services. But however fast new technology spreads, vulnerable and marginalised sectors will remain disadvantaged. New C&IT may enhance the level of information first among traders, and secondly among more innovative and entrepreneurial producers. Increasing informational asymmetries may result, with adverse consequences for the balance of market power. Arguably, some form of public sector information systems may become more important to redress information disadvantages arising from differential access to new C&IT.

5.2.3 Conditions for a successful MIS

Shepherd (1997b) contains an instructive example of a successful MIS in Indonesia. This was set up in 1978 with technical assistance from the German government. Initial participatory planning showed that farmers wanted farm-gate price data and that the priority should be price data on horticultural produce, especially vegetables. All-year-round growing conditions mean that seasonal price fluctuations are relatively minor, so the priority was further identified as current price data for negotiation with traders, rather than historical market information for strategic planning purposes. The service now collects prices from both production areas and wholesale markets, and disseminates these daily on the radio (national and local) as well as through a variety of other channels. Quarterly and annual summaries are also produced. It appears that the service is valued by farmers, although it 'does not appear to be widely used by traders. They have their own information networks ...' (p. 18).

The Indonesian service obviously requires considerable resources and depends on well trained and motivated staff. If anything, this case study lends support to the earlier observations of (Schubert, 1993:271):

> 'Previous experiences indicate that the improvement of agricultural market information services in developing countries presupposes the determined and continuous support of the development administration; it is associated with considerable expenditure of time and resources and requires a very systematic approach. ... their establishment requires a certain stage of development of infrastructure, educational level and administration.'

In addition, it would be interesting to know more about the political economy dimensions of successful MISs - who was pushing for them? - and whether growth in the size of the marketed surplus of a crop is correlated with the likelihood of a successful MIS being established.

These considerations mean that we have to be cautious in embracing examples of success from Asia as potential models for Africa. However, it is worth noting the interesting example of marketing extension workers (MEWs) cited by Lee (1993). Here, MISs are combined with extension activity to provide *marketing* information to farmers:

- 'The Marketing Extension Worker (MEW) should be able to advise farmers on what crop and variety to grow in the coming season and at what time.'
- advice should include new crops and market opportunities, including off-season production (vegetables);
- 'Small farmers need two types of market information: forecasts of market trends and current prices and market arrival information.' Forecasts of market trends and expected price movements are for production planning purposes;
- information must relate to relevant markets - not necessarily the capital city, which may be too distant;
- MEWs can also assist coordination between farmers/groups and traders/processors, e.g. to make arrangements for regular and continuous shipment from the farmers (especially valuable for fruits and vegetables);
- MEWs working with groups can coordinate staggered (planting and) marketing, so as to avoid glutting local markets.

Lee's examples of marketing extension services were taken from South Korea, China, and Papua New Guinea (a livestock scheme only). Lee suggests that extension services can train new personnel to provide marketing extension services or retrain a portion of their existing production staff in marketing skills. He envisages that MEWs should not necessarily operate at village level, but possibly at a higher – district – level, together with a marketing officer at provincial level.

5.2.4 MIS sceptics (or MISgivings about MISinformation)

There is considerable evidence from a wide variety of sources that informal information networks are more important to smallholders that formal systems. Moreover, Shepherd (1997b) claims that there are 'few dissenting voices' raised against the consensus that public MISs are potentially beneficial and, therefore, desirable. He notes one exception, namely Bowbrick (1988).

More recently, Galtier and Egg (1998) have taken the side of Bowbrick, whose scepticism concerning the basic value of price-based MISs they quote: 'it is the very relevance of the 'price' information which is put to question' (Bowbrick, 1988). Galtier and Egg (1998) also cite Shepherd and expand on many of the criticisms of MISs that have already been outlined above. They note the tendency for MISs to become 'bulky' as they try to collect information on enough products and markets to facilitate arbitrage. This impedes the timely dissemination of information, yet they still rarely provide information on the local markets that are of most direct interest to producers and, of course, do not cover prices of the consumer goods that producers often want to buy at local markets with the money they receive from produce sales. Thus, even if producers receive good prices for their crops, their overall terms of trade could still be poor.

Another interesting observation concerns the usefulness of uninterpreted price information:

> 'A market participant having a suitable knowledge of markets will be well aware that an increase in price on such and such market is an indication of export towards neighbouring countries, whereas on such and such other market it may indicate the arrival of a variety of better quality or the beginning of a shortage period.' (p. 13).

They argue that MIS price data, therefore, does not necessarily make markets more contestable to outsiders.

To test the usefulness of MISs, Galtier and Egg surveyed participants in the grain marketing system in Mali, where the MIS (technically supported by MSU) is held to work well. They found that:

- the price information supplied was not very useful to producers. Even cereal prices can be volatile; prices in the most local markets are known, and producers have few opportunities to sell outside these markets. Their freedom of manoeuvre is further limited by interlocked credit contracts.
- peasants' associations obtain price information from other sources. They need information on availability of credit, storage techniques and forecasts of prices during the lean season - yet these are not provided by the MIS.
- assemblers know their local markets very well, but have little room for price manoeuvre vis-à-vis wholesalers.
- wholesalers are well informed about market prices. They really need information on planned state and NGO interventions in grain markets (for example, food aid distributions) - information which again is not provided by the MIS.

Galtier and Egg (1998) observe that private information networks are much more efficient at delivering desired price information to marketing system participants than is the MIS. Traders' networks are centred on particular wholesalers and supply finance backwards and forwards between members as well as information. The disadvantage of such networks is that they tend to fragment markets and reduce the degree of competition in them. It should also be noted that the accuracy of the information transmitted through informal means is not a *sine qua non*, an empirical question worthy of further research.

Similarly they (1998)suggest that an MIS in the form of a price reporting system is most likely to provide a useful service to marketing system participants where exchange is undertaken through sophisticated markets (such as futures markets in DCs) and 'where transactions are anonymous and standardised (quality, delivery and payment conditions etc.)' (p. 15). In other situations, such as the one surveyed in Mali, they argue instead for a 'variable geometry' system tailored to the specific needs of the market. What they conceive of, in fact, is less an MIS than a range of possible interventions to overcome specific information-related problems in the functioning of markets, for example:

- the establishment of fairs and local markets (see contribution on rural periodic markets);
- 'small ads broadcasts' of offers of goods for sale or purchase, that would enable players to specify quality, terms of payment and delivery conditions as well as quantity and price;

- standardisation of contracts and contract bidding;
- random monitoring of scales to reduce trader opportunism;
- the collection and publication of production and price *forecasts* for the coming season and year;
- development of forward markets;
- greater transparency on the part of the state regarding its proposed interventions in food and agricultural markets.

5.2.5 Towards local market knowledge networks?

Amin (1994) researching the transition of local economies discusses the theory of Marshallian economic districts. While he is concerned with industrial activities, there may be some parallels in the districts specialising in agricultural production and marketing. Amin elaborates on the Marshallian theory indicating four key characteristics which contribute to the establishment of an 'industrial atmosphere', referring to area-wide systemic features which ensure a process of self-sustaining economic development:

1. product specialisation. The district is seen as being like a large dispersed corporation with specialist producers and traders who maintain cost-savings from task based rather than product based specialisation;
2. local containment in the division of labour, leading to specialisation and inter-firm - or trader - dependence along the value added chain;
3. collective knowledge creation and diffusion, based on socialisation, trust and cooperation;
4. 'institutional thickness' - in other words an elaborate network of institutions which represent, mediate conflicts and collaborate with each other.

Amin argues that these form the basis for economic success, by providing the input services and external economies of agglomeration necessary to promote individual entrepreneurship. If parallels can be seen to be present, agricultural policy makers have to seek ways of making 'informal' local agricultural economies into agricultural equivalents of Marshallian industrial districts. In the research on industrial districts, an embedded knowledge base and market arrangements, kinship and family links and strong identification area are key components of facilitating this transition. While this discussion suggests a positive direction for policy development, there is a reservation in Amin's analysis of his case studies. He is unsure about whether it is in reality possible for public policy to achieve a Marshallian status. The particular problem is the inability of states to produce an 'industrial atmosphere' or 'institutional thickness' - particularly where the districts are low income or where state intervention is treated with suspicion.

FAO (undated) reported the success of the FAO's 'small group' approaching overcoming rural poverty. This requires farmer initiative and trained small group promoters to help set groups up to be sustainable. Over half of the groups formed in the FAO's People's Participation Programme were still functioning more than two years after the project. This suggests that there is a methodology available with a reasonable success rate which could be utilised to facilitate producers and traders provide themselves with a market information infrastructure. For example Jayne and Jones (1996) report that group lending by USAID have shown that enforcement and monitoring can be successfully shifted from the lender to

the farm group. There may be lessons here on the advantages of reducing transaction costs for the traders and integrating exchange arrangements between traders and farm groups.

Austria (1996) outlines a community-based MIS for social forestry products in the Philippines. The basis is simple - the more one knows about the market, the more visible is the range of options and possibilities to maximise profit' (p. 1). The systems involve data collectors, a record keeper and strategically located bulletin boards. Data are collected initially on prices, but each community MIS has evolved to include other data such as demand, information on buyers, product specifications, volumes, delivery requirements and seeds. Costs after the initial start up are minimised, as participants provide information found from their regular trips to the markets. Similar projects are being started based on the Philippines experience in Peru and Uganda.

Austria highlights three factors which are believed to be the key to the success of such efforts. These are:

- the importance of a facilitator who assists the community to design and set up the system, providing training in marketing.
- as the MIS evolves, more complex needs may become apparent. A careful balance is required between increasing the complexity and sophistication, while maintaining a self-sufficient and robust community-based MIS system. On the one hand the development of the system may require outside inputs in the form of grants, advice and further training, while, on the other, such outside reliance can increase dependency and vulnerability.
- ideally a proportion of the increased returns as a result of the MIS should be re-invested in the expansion and development of the system to meet changing needs over time. (Austria, 1996:2-3).

As almost all economies are moving towards an increasingly liberalised market economy the FAO are shifting their attention to supporting government actions in support of private sector initiatives. The FAO considers the government's role today to be that of an informed partner in constructive dialogue with the private. In effect this will involve government departments in dialogue and cooperation with the market sector participants, on-going market systems research and effective market information services.

5.3 Models of collective action

5.3.1 Introduction

Much recent literature concerning market failures in developing countries is concerned with the role of institutions in the reduction of transaction costs (North, 1990; North, 1994; Williamson, 1995; Hubbard, 1997; Dorward et al., 1998). Institutionalists highlight the value of new or existing institutions in enabling communication, information flows, negotiation between members and the monitoring of member's behaviour. This is closely intertwined with theories of collective action, which look at how individuals cooperate to manage resources in particular institutional arrangements.

It may be assumed that potential benefits are available to smallholders and traders who cooperate to reduce costs of transport, storage, and information. Boxall and Bickersteth (1991) suggest that cooperatives can reduce credit constraints faced by smallholders in

Ghana by pooling risk and making them more attractive borrowers to banks. They can also increase liquidity at peak expenditure periods - which coincide with harvest when prices are half the annual average - and allow farmers to store grain till prices rise again. 40% of rural savings lie in the value of stored produce showing the potential of using storage as a means of raising capital (a comparatively liquid asset). Cooperatives may also solve problem of limited storage capacity and improve collective bargaining power.

Of interest to the social analyst are the mechanisms to foster effective cooperative action both between and within different occupational groups (eg traders, smallholders), different income groups, men and women, different ethnic groups, age groups, people from different villages, etc. This may take the form of informal networks based on kin, ethnicity, occupation; or more formal (visible) institutions based on the recognised benefits of cooperation, such as cooperatives or community associations.

5.3.2 The problem of collective action

Opinion is divided over whether individuals will cooperate spontaneously, given their inability to exclude others from the benefits of cooperation; or whether inducements are required in the form of market incentives, regulations/ laws, or privatisation.

Given the presence of positive externalities, certain writers have predicted that individuals will never cooperate or at least only in the presence of 'selective inducements' (Olson, 1965). At the heart of this argument is the free rider problem. If individuals know they cannot exclude others from enjoying the benefits of the common good, they have little incentive to take part in the provision of that common good. An exogenous solution is required to encourage socially optimal resource use - privatisation of the good, regulation, market incentives.

Others are more optimistic (Wade, 1988; Ostrom, 1990). They claim that individuals are observed to cooperate in the presence of certain facilitating conditions. This hypothesis is supported by an increasing weight of empirical evidence (Blomquist and Ostrom, 1985; Ostrom, 1990) which indicates that individuals do, in certain circumstances, choose to cooperate in the interests of the group. If this proposition is true, it has far-reaching policy implications, since it implies that intervention is not always needed to resolve the problem of cooperation over transport, storage and information.

Wade (1988) argues that the prisoner's dilemma is a poor reflection of reality. It assumes individuals are engaged in a single game, that they cannot negotiate, have no pre-existing ties, no cultural codes of conduct, no knowledge of previous actions by others. In practice, individuals are often engaged in recurring game where they have the opportunity to learn the pattern of other people's choices. They can usually negotiate with them and also have time to change their minds before the effects of a decision set in. Once those assumptions are relaxed, cooperation becomes a possible outcome of the prisoner's dilemma. Free riding in relation to open access resources is not inevitable: under certain circumstances, voluntary cooperation (carrying the highest social score) is a feasible and rational outcome.

Ostrom (1990) supports this view. In situations where resource users come into regular contact and are able to communicate, negotiate, observe and learn to predict the actions of others, cooperation in the face of temptation to free-ride may be possible. She suggests that

such conditions are found in smaller groups, since they have a better opportunity to develop trust, negotiate cooperative rules and monitor each others' behaviour.

5.3.3 Opportunities and constraints for collective action

Various attempt have been made to identify conditions which facilitate spontaneous cooperation. By inference we can suggest following ways in which voluntary cooperation could be strengthened to benefit smallholders.

Conditions identified by Wade (1988) include:

- the higher the costs of exclusion technology as compared to a social method, such as voluntary cooperation;
- the more vital the strategy for survival;
- the smaller and more clearly defined the group of users;
- the more involved in village decision making are those who would gain from cooperating; the more village discussion about common problems taking place;
- extent to which users of the public good are bound by mutual obligation;
- the clearer the penalties for non-compliance with the principle of cooperation;
- the greater the ease of detection of rule-breaking by free riders;
- the less penetration by the state in local decisions.

Blomquist and Ostrom (1985) highlight the importance of institutions (in the NIE sense) in fulfilling various conditions essential to cooperation. These conditions are:

- the need for reliable information about other users and patterns of use to calculate the effects of cooperation and non-cooperation;
- a credible commitment to cooperation;
- communication about rules and penalties which is reliable cheap and rapidly available;
- a cost sharing rule for allocating the costs of cooperating;
- a cheap and reliable method of monitoring others' use.

By discovering to what extent institutions are present which allow these conditions to be met, it is possible to predict the likelihood of cooperation.

Coulter, Stringfellow and Asante (1995) in their study of the provision of agricultural services by different types of farmer-controlled enterprises (FCEs) in Ghana found that such self-help groups can successfully provide marketing services. Success appeared to be related to the intrinsic qualities of the group rather than outside support from other organisations. A number of factors were correlated with success: a clear member-driven agenda; a purely financial objective as opposed to a broad social objective; the existence of a cooperative tradition/ other types of organisation in that area; a high degree of self-financing; financial transparency and accountability; member homogeneity; individual leadership and participatory decision making financial sector reform; a dynamic commercial banking sector. Success was undermined by political patronage, subsided credit, donor largesse and lack of coordination. The study discovered that most organisation are single sex and the authors tentatively suggest this is an effective division.

Dennis and Peprah (1996) in their study of prospects and constraints for women's organisations in two districts of Brong Ahafo, Ghana, mention that resources are crucial to establish and lubricate social networks which form the basis of community organisations.

A GDI study (1998) suggests that the potential for cooperative action at village level in Zimbabwe is good where existing villages, cooperatives and projects are well integrated into the new villages and wards established between 1985-88. Except where integration is poor, the new structures have acquired a high degree of legitimacy and enjoy the support of traditional leaders.

Van Donge (1992a) in his study of the Waluguru traders in Tanzania, argues that entrepreneurial behaviour is 'not shaped merely by an impersonal logic embodied either in market situations or in capitalist development seen as leading to particular patterns of accumulation on a world scale' (van Donge, 1992b:182). In this study he identifies a hierarchy of traders in among the Waluguru. Progression up the stages in the hierarchy reflects an increased independence and security in the trader, with increased prestige attributed and increased capital required as one progresses upwards, but movement can be in both directions and there is risk involved in making the transition. The picture painted by van Donge's account is of traders who are operating in a highly insecure business, making security a major concern and therefore a key motivation in decision-making. Bankruptcy is normal and collective action is one option in response to insecurity, but individualism is equally likely.

An example of the importance of unexpected cooperation is cited by (Andersson, 1996) in his paper on potato cultivation in Uporoto. The reasons for the success of the potato producers and traders in Uporoto include factors outside Uporoto and outside the potato sector. Andersson explains that during the 1970s the prices for potatoes in Nairobi and Mombassa attracted much of the production from the north of Tanzania (this appears to have continued illegally after the break-up of the East Africa Community), leaving the Uporoto producers with much less competition in the Dar es Salaam market. The second factor Andersson reports is that during the 1980s the transportation of potatoes to the Dar es Salaam market was increasingly carried out by the lorries returning from delivering goods to Malawi. The number of these lorries increased during the civil war in Mozambique - Malawi's more obvious route to the sea. He argues that 'current potato trade practices are thus not simply structured by infrastructural factors or market forces' (p. 98).

Spalding (1996) while arguing that Nyerere's basis for his philosophy of Ujamaa was a fundamental misunderstanding of Tanzanian history and culture, argues that traditional culture in Tanzania shows widespread individualist qualities. It is vital that any new approaches to rural development does not make the same mistakes. Spalding's argument about the resilience of Tanzanian rural ways of life has some resonance in Hyden's (1980) 'un-captured peasantry'. Both suggest that the Tanzanian peasants have highly complex life systems and are highly adaptive and innovative in responding to changed circumstances and ensuring their household needs are met. Previous development interventions appear to have challenged the rural society and this may partially explain their lack of success.

How can voluntary cooperation between smallholders and/or traders be stimulated? One suggestion is to strengthen the conditions identified by these studies. Another is to follow the implications of Blomquist and Ostrom' s hypothesis and concentrate efforts on

strengthening the necessary institutions to permit cooperation (by facilitating information flow; credible contract formation etc).

5.3.4 NGOs

Dennis and Peprah (1996) identify three main types of women's organisations in the Brong Ahafo Region in Ghana:

- *occupation and economic activity based organisations*, primarily concerned to regulate activity, reduce competition between members and to provide safety nets for members. They do not generally provide credit but membership often provides women with the necessary collateral to obtain credit from other sources;
- *religious organisations*, both Christian and Muslim, which are increasingly involved in small scale income generation and social development activities;
- *mutual aid/ credit societies*, usually set up by donor agencies

According to Dennis and Peprah, NGOs are not active in this region.

In his study of the potential and problems of NGOs in post-independence Zimbabwe, de Graat (1987) identifies different types of NGO:

- *development NGOs*, which have prospered or emerged since independence (eg Manicaland Development Association, the Organisation of Rural Associations for Progress, the Organisation of Collective Crops of Zimbabwe - OCZIM);
- *service, welfare or social NGOs*, which have mainly withered since independence;
- *international NGOs* (eg World Vision, which supports cooperatives; the Freidrich Ebert Stiftung, which offers training and support to marketing and supply cooperatives);
- *foreign agencies*, offering financial or technical assistance;
- *Church NGOs*, involved mainly in rural development, health and education.

There is a national body set up to facilitate NGO coordination and collaboration called VOICE. It is not very effective due to failure to engage effectively with GOZ (coordination and complementarity are poor), the private sector and banks.

NGOs in Zimbabwe are heavily reliant on external financial support. It is estimated that only 5% of funds are raised in-country. Of the external funding received, by far the largest part is from foreign governments.

The new Cooperative Act has assigned greater importance to the development of cooperatives via emphasis on private enterprise (GDI, 1998).

5.4 Entrepreneurship

5.4.1 Small business development

Small business development and the development of microenterprises have been a main theme of the Intermediate Technology group, and many of the publications listed below are related to this organisation. Some comments on some of them follow.

Murphy (1996) considering Zimbabwe, highlights the two markets for food products - a small high income group, and a low income consumer group with low purchasing power. She refers to lack of availability of vegetables as being a major constraint, and the low level of purchasing power is a constraint to marketing fruit in communal areas. Communal area producers of dried fruit and vegetables sell either directly to consumers at local or urban informal markets or via informal traders. Hygiene and quality are not guaranteed. She suggests that lack of purchasing power is the major issue in these systems, but that there are opportunities for small enterprise development in specific areas. She also suggests that there are areas of opportunity for supporting interventions, particularly: technical and business training; supplying market information; facilitating the development of business associations/marketing cooperatives and savings clubs; supporting the development of the packaging industry and promotional support measures, and developing food standards and licensing regulations. The full document contains considerable detail on these suggestions and is highly relevant to the current study.

Bruinsma (1996) works on a similar theme. In this case he suggests (for Africa in general) that there are three options for selling food crops: direct marketing of the harvested crop; temporary storage before selling the product, and processing the crop before selling it. Some conclusions of the studies he reports include the following with relevance to marketing improvements:

- production planning should be market oriented;
- roads and transport should be adequate;
- market places should be dedicated and maintained (using market fees);
- farmers may organise themselves into groups to go into trade;
- price information facilities are also very important.

Bruinsma also argues that governments should to give priority attention to daily or weekly collation and dissemination of food crop marketing information, especially price information. He makes reference to chain management, and although his discussion (p.11) becomes confusing, he does suggest that this might be an area for application in Africa.

Kabecha and Thomas (1995) refer to quality as a particular marketing issue worthy of development; although they are referring to metal and other industrial goods, their paper highlights several problems of marketing development, namely that the premia to be gained from high quality production may be relatively small in the domestic market, whereas cutting production costs and prices might be more advantageous in the short term.

Meissner (1986) assesses the problems of transferring marketing technology to the less developed countries, and counsels against wholesale transfer - '...in short, Western marketing technology is too big and too expensive for the less developed countries. It does not create the jobs needed to absorb the rapidly expanding labour force, and it is not appropriate for the very small farm and business enterprises that make up the bulk of economic activities in developing countries' (p. 302). He then goes on to refer to the need for appropriate technologies (and by extension marketing activities) suitable for marketing staples to the bulk of the world's population. In this way, the stress should be on improving traditional rural assembly centres, municipal retail markets, and strengthening the 'software infrastructure' such as establishment of grades and standards, mobilisation of working capital for traders, and market news services.

5.4.2 Marketing management for smallholder farmers

There is a small literature on marketing management in developing countries, and the preceding section has outlined a small number of key references. However, there seems to be a small but increasing literature (although it tends to difficult to access, being from seminars and private reports) on 'how to' manage and market products in developing countries.

The summary report of *'Farmer Strategies for Market Orientation in ACP Agriculture'*, which summarises a CTA/Teagasc/Department of Agriculture, Food and Forestry, Republic of Ireland seminar (CTA, 1995), is a case in point. This document states that market orientation is 'a way of doing things which reflects the extent to which production and marketing decisions are based on market information'. It also suggests that the degree of market orientation may be measured by the level of market knowledge and by the market skill and the commercial attitude of the decision maker in the business. This publication takes a very pragmatic view of market orientation, suggesting that it will differ significantly according to the situation under study and that there should be no prescriptive recipe for success. There was a clear message that farmers should be active marketers.

The working groups of this seminar then considered particular aspects, including market information. It was concluded there that alliances and effective partnerships in agricultural marketing assumes that there is effective communication along the chain, within as well as between levels, and the most important messages include accessibility and accuracy of market information. Market information in this context includes structural information about changes in the marketing chain, market forecasts; changes to product specifications and quality, and conjectural information about present and future prices, procurement intentions, etc. Evidence suggests that speedy and effective dissemination of information can improve farm gate prices and may be able to smooth out price fluctuations, leading in turn to more orderly marketing. Radio was highlighted as being the single most important medium for the provision of information.

The results of this seminar are some of the most important and relevant for the progress of the current project, and the conclusions (principles for improved market orientation) are particularly apt, some of which are summarised here:

- the goal of market orientation is to improve rural incomes;
- market orientation relates not only to farmers but to all elements of the food chain;
- individuals and businesses can only operate within the framework created by the state; this framework should put particular emphasis on the role of farmer groups;
- smaller farmers, as well as larger ones, need to make the best from the market;
- market orientation involves seeking added value;
- market orientation training is necessary;
- communication and information dissemination is vital, both between farmers and traders, and between researchers and other organisations involved.

Scott, Ferguson and Herrera (1992) discuss a wide range of aspects relating to product development for root and tuber crops, with a huge range of case-studies and commodity reports. There is little on marketing, however, although they do stress early in the volume (p. 26) that 'demand-driven technology' is important - and that post-harvest technology

development (the core of the volume) should always be based on effective demand for the product.

Harper is one of the key writers on private marketing initiatives in developing countries (1984). A summary of his writing follows, synthesised from a number of documents.

Harper (even writing in the early 80s) holds that the private sector will play an important role in agricultural marketing in most developing countries, but notes that incomplete information and unfavourable attitudes towards marketing has resulted in insufficient attention being paid to the ways in which small and medium enterprises can be used and assisted in performing effective roles in rural development.

5.4.3 Marketing for intermediaries

As will be seen from the following, much of the literature related to marketing and business development in developing countries relates to food processing, with very little being directly aimed at smallholders. The 'small business' and cooperative levels predominate, with publications from Intermediate Technology (*Small Business Development*, being especially prominent). The series of publications by Gemini (*Growth and Equity through Microenterprise Investments and Institutions)* also contain several relevant publications.

There have been some general attempts to discuss the marketing management issue in terms relevant to agricultural markets in developing countries. Notably, Abbott and Makeham (1990) discuss 'Managing a Marketing Business'. This discussion is of general principles (available in any introductory marketing text), some examples, and then some issues of particular relevance to developing countries. They highlight in particular the need for the technology used in marketing (packaging, transportation, storage) to be adapted to local conditions - especially local market expectations, and customary levels of refrigeration, packs etc.

Perhaps the main attempt to discuss business marketing issues in developing countries is represented by Kinsey (1988) who systematically discusses the various elements of a business marketing strategy that would apply to developing country contexts. This volume is classed as a text book, and is actually positioned to 'complement present textbooks which are based on a written for developed countries. The book covers three main perspectives: the state marketeer, the multinational marketeer and the private sector indigenous marketeer. It is the latter which is reviewed here.

Kinsey begins by pointing out that wherever there is exchange there is marketing, but that in developing countries indigenous marketers are often more concerned with issues of supply rather than the effective total use of the marketing mix. She claims that the marketing concept is not widely embraced. However, she argues strongly that 'better use of marketing would benefit the total economic system, and marketing training to broaden horizons and improve the consciousness of the utility of marketing is clearly required.' Finally she suggests that the small scale entrepreneur may have to adopt effective marketing for his long-term. Despite being written in 1988, this is of particular relevance currently, as systems are privatised.

After some introductory statements about the nature of developing country markets there is a discussion on the influence of culture on the marketing environment in developing countries. With respect to the organisation of marketing activity (and with direct relevance to the discussion of information systems and smallholder marketing), Kinsey notes a variety of factors that marketers need to take into account: gender roles in purchasing, responses to advertising (again, gender related); education levels; personnel - religious and other cultural issues. She points out that such differences may be relatively locally focused, and therefore marketing strategies may have to be locally tailored.

Kinsey suggests that marketing research is especially important, given the complex and versatile marketing environment. For indigenous marketers, Kinsey suggests that in a situation of excess demand and little competition, there may be little obvious incentive. However, lack of management training may be one cause of this lack of marketing research effort, but she also notes that managers of relatively large indigenous enterprises may also pay it relatively little attention; she identifies the cause of this as a priority to produce enough to meet demand. She finishes by saying that even where marketing research is carried out it there may be greater emphasis given to judgement and indirect informal feedback from consumers rather than formal market research.

In the area of pricing, she asserts that the indigenous marketer normally seeks short-term high profits. Using a cost-plus approach, the marketer tends to use a market skimming strategy and gives insufficient consideration to lower prices in order to promote higher volumes. Naturally, part of this is due to the fact that the indigenous marketer tends to lose control of prices early, since he or she is often dependent on large wholesalers who determine the margins for distribution.

Kinsey finishes with a chapter entitled 'Marketing by the Individual' (to contrast with the state and multinational chapters). She points out that the role of the individual marketer will increase, and although she is referring primarily to small businesses operating in industrial markets, she refers also to agriculture. She suggests the development of marketing expertise alone is not enough to create a favourable environment for market growth and success of private enterprise. It must be complemented by efficient production, finance and personnel functions, and most importantly by the right attitude from government.

With respect to the rural sector, Kinsey states that the farmer's incentive to use marketing has been practically eliminated by government interference and by his dependence on the state. Private sector traders are often a considerable and undervalued source of dynamic marketing entrepreneurship. She asserts that it is desirable that governments see the private sector in a more constructive light, and makes the interesting point that then governments can use traders as channels for extending information and technical services, collectors of information and joint planners, whilst the government should act in a more facilitating role, introducing measures, grading systems, information systems, and improving public marketing facilities.

The book falls short of the practical advice that might be necessary to train individual smallholders with little experience of marketing management methods. It is also interesting to note that the text carries no reference at all to 'market information'.

5.4.4 Supply chain management

'Supply chain management' is a term used to describe a relatively recent concept applied to the organisation of business relationships in a vertical marketing system. The themes of supply chain management relate to the coordination of business activity by different participants in the chain such that transaction costs are minimised. Supply chains effectively 'managed' in this way are characterised by large volumes of business being conducted with little recourse to formal written contracts (a source of transaction costs), and intense coordination (especially of logistics and timing) between the various actors, thus reducing both transaction and inventory costs.

The European and American literature on supply chain management has been comprehensively reviewed by Fearne (1997). Fearne's document reviews the basis of supply chain management applications, concluding that there are several important theoretical bases: economic theory is highlighted (especially information theory, contract theory, and transaction cost economics); organisational behaviour and strategic management theory is put forward as the second main them underlying SCM; and logistics and operations management as the third. Finally, Fearne discusses some analytical tools for assessing the performance of supply chains.

As far as applications to developing countries are concerned, there are few. Indeed, although the boundaries between the strategic discipline of supply chain management and the investigatory one of 'systems analysis' or 'analyse de filière' are considerably blurred, the former has been almost exclusively discussed in the context of Europe and the USA, whilst the investigatory methods have been applied more widely (including in developing countries), as discussed above.

6 Decentralisation

6.1 The current popularity of decentralisation[18]

Globally, decentralisation seems to have considerable momentum, perhaps as a response to counter-balance globalisation, and to local demands created by improved information flows. In some parts of the world (eg Europe) decentralisation may be a consequence of improved international security, which may cause central governments to feel less threatened by local demands for autonomy and create a moral climate in which resistance of autonomy is seen as oppressive. Sometimes decentralisation seen domestically as a solution to ethnic problems (eg, Uganda: creation of new states within Nigeria) as this may be a means to ensuring that each significant ethnic group gets some share of power.

In various developing countries decentralisation has been pushed by external advisers or donors. The World Bank's latest comment, *World Development Report 1999* is agnostic as to whether decentralisation should be a policy objective, suggesting that the process is endogenous, ie, often a political reality. Under such circumstances, the policy question is how to make it work.

6.2 Defining decentralisation

The World Bank uses the terms decentralisation and devolution synonymously (World Bank, 1999). However, it is necessary to define decentralisation carefully. As Bardhan (1996) points out, different people mean different things by decentralisation, and support it for different reasons. Neoclassical economists are attracted by the potential to escape from what they see as an over-extended and excessively regulatory state. In contrast, the intellectual and political tendency which Bardhan has dubbed 'anarcho-communitarians' like the emphasis on self-governing local communities and see very little role for central coordination.

Some senior bureaucrats in central government see decentralisation in terms of dispersion of responsibilities to regional branch offices. This is wrong, because to be meaningful it requires the transfer of decision making power by central authorities to smaller geographical units. There are three key dimensions to decentralisation:

- *political power*: to what bodies will representatives be elected, what law-making powers will these bodies have, will they appoint an executive, and what powers will the executive have?
- *administrative power*: for different functions (eg health, education, infrastructure, law and order) how will the administrative and service agencies of government be organised and controlled?
- *fiscal power*: what powers of taxation and expenditure will rest with sub-national authorities, and to what extent may they be structurally dependent on funds from the centre?

An effective process of decentralisation requires reforms in all three dimensions. For example, the impact of political decentralisation may be very limited where central

[18] This paper summarises and develops analysis in three key sources: Bardhan (1996); World Bank (1999), ch 5, Decentralization: Rethinking Government; and Stiglitz (1988), especially ch 26, Fiscal Federalism.

government continues to control the administrative machinery of government and the agencies providing public services. Impact may be similarly limited where local government is dependent on grants from the centre, to which conditions may be attached.

A key factor defining the nature of decentralisation is the process by which it comes about. There is likely to be a big difference between circumstances where decentralisation has been a deliberate policy versus cases where there has been an erosion of capacity of central state, which nevertheless resists decentralisation.

Finally, the size and population of a given country must be kept in mind in comparative discussion of decentralisation. For example, the separate states in India have populations equivalent to an average country.

6.3 *Economic arguments for decentralisation: a critical review*

6.3.1 Information

The essence of the 'information' argument for decentralisation is that in close interactive communities, decision making is in the hands of those who have information which outsiders lack. As Bardhan (1996) points out, this is an advantage qualitatively similar to the advantage of the market over the state. Local information can identify cheaper and more cost-effective ways of providing public services and ensure that there is a better fit to local preferences. Also, local information can provide warning of potential problems, eg crop failures or gluts, environmental pollution.

Another matter with an 'information' dimension, although also relevant to the Tiebout hypothesis of the optimal supply of public goods outlined below (Tiebout, 1956), is that decentralisation may permit an escape from uniformity constraints in service delivery often adopted by centralised providers.

Some critics of decentralisation argue that central government can procure these informational advantages by using local agents (eg district commissioners). However, this is unlikely to be very effective due to the weak local political accountability of central government employees. In democracies, local politicians have more incentive to use local information than national politicians, as the local politicians are wholly answerable to local electorates.

6.3.2 Coordination

Self-governing local communities can sometimes be superior to the market in coordination and enforcement. This is because markets can fail as a coordination mechanism when private information renders individual market contracts incomplete or unenforceable (eg through moral hazard or adverse selection in credit and insurance markets). In theory, local communities may be able to provide more efficient coordination mechanisms than the market if:

- membership is stable;
- there are well developed structures of transmission of private information and norms of behaviour;
- communities have the power of sanctions.

However, coordination arguments have also been deployed against decentralisation. It is argued that at local level inter-jurisdictional externalities are often encountered, ie, where the decisions of one local polity have major implications for others within the nation (eg transport infrastructure, use of water resources, pollution). In theory these could be resolved by horizontal negotiations between local governments but they may be unable to reach solutions which are efficient and equitable. Where this is the case, then supra-local authority can improve coordination by forcing solutions that might be more satisfactory than those arrived at by horizontal negotiation.

6.3.3 Decentralisation and the local commons.

In many parts of the world the local commons were well maintained under informal community arrangements. On balance, these have deteriorated sharply in recent decades due to both private commercialisation and also bureaucratic appropriation of traditional rights. Some observers hoped that decentralisation may succeed in regulating, conserving and maintaining these common resources in areas where centralised bureaucratic systems have failed. Bardhan (1996) comments that the consensus in the literature is that cooperation works well in small groups with similar needs, clear boundaries, shared norms and patterns of reciprocity. This is because in such communities monitoring and social sanctions are easier to implement through reputation mechanisms and face to face contacts, and strategic cooperation is more likely due to 'repeated games'.

6.3.4 Public economics theory

Tiebout (1956) argued that intergovernmental competition with mobile factors ensures efficient supply of public goods. Generally, the conditions of the Tiebout hypothesis are too stringent, especially in developing countries where the mobility of people is very limited such that they cannot in practice reveal their preferences for public goods by 'voting with their feet'. Nevertheless, inter-jurisdictional competition within the public sector may furnish two advantages:

- it may provide the basis for rivalry in public goods provision to attract and retain investors;
- it may generate yardsticks for performance comparisons that can be useful for performance monitoring, whether this is carried out by local or central government.

In summary, Tiebout's argument is that decentralisation allows experimentation with models for an enhanced policy framework and improved institutional design. In addition, the dynamic effects of competition between local polities may be very helpful.

Critics of the Tiebout theory worry that competition between jurisdictions can become a competition for 'bribery with theft', ie where both the briber and the 'bribee' benefit and therefore neither have an incentive to report. This is a particular problem in the case of 'merit goods' such as educational services. In these situations, where the briber and the 'bribee' can be persuaded to relax quality, consumers may not be able to perceive that standards have eroded, at least in the short term. Additionally, in other 'standards issues' (environmental protection, food safety and public health, law and order), there is the possibility of jurisdictions competing to lower standards.

Thus, a well informed and powerful local electorate is needed to counter standards erosion. However, the conditions for this may not exist, or, if they do, may not be sufficiently powerful. Central government monitoring of standards is likely to be an essential feature of policies to maintain and raise the performance of the local public sector.

6.3.5 Economies of scale and scope

Bardhan (1996) comments that economies of scale in the provision of public goods are not often studied, but may be large. The minimum efficient scale for certain specialised public service functions is likely to be larger than that of individual local authorities. In education, some centralisation in provision may be necessary to gain economies of scale in teacher training, textbook and curriculum development, examinations, defining and enforcing minimum standards. There are agglomeration economies in attracting high quality people to bureaucracies. In many technical spheres (agriculture, infrastructural engineering, health and environmental services) only large supra-local bodies will be able to manage technical cadres to acceptably high standards. Finally, there is a concern that local control over the civil service could lead to greater politicisation in staffing decisions, to the detriment of service quality.

6.3.6 Equity and funding

In most countries revenue collection is more centralised than expenditure assignment. The central state has usually tapped most of the attractive sources of revenue, leaving little available to local governments. Thus it is 'normal' for local government to have a fiscal imbalance and to be highly dependent on revenue from the centre, and this is especially true of the poorer areas. Stiglitz (1988) argues that two conclusions follows from this. First, local governments will have limited fiscal capacity to carry out redistribution within their boundaries; second, redistribution on a national scale, and within local authorities, will require transfers from central to local government.

Central government supports local authorities through conditional and unconditional transfers. The latter are often used to overcome jurisdictional overlaps, regional backwardness and straightforward 'vote buying'. Key dilemmas are the following:

- central government grants create huge information and incentive problems, as local governments have incentives to exaggerate their poverty, to have slack local revenue raising and excessive service costs (if met by central government);
- central governments understand these information and incentive issues, and tend to respond by trying to impose tighter monitoring and central direction, thereby undoing many of the potential benefits of decentralisation;
- 'matching grants' can be fiscally regressive if the poorer regions cannot raise their share.

An uncomfortable conclusion is that some increase in inter-regional inequality in the funding of services has to be tolerated as a price of genuine decentralisation. From this point of view, the lower level of public funding has to be balanced with the greater efficiency gains from local information, local accountability and freedom to experiment in service delivery and institutional innovation.

6.3.7 Decentralisation and resource mobilisation

The case of China

Reviewing literature on China, Bardhan (1996) notes that this prediction of increased inter-regional inequality in the funding of services certainly applies to China, where decentralisation has eroded the redistributive capacity of the fiscal system. However, the important finding is that in China decentralisation has unleashed rapid economic growth in ways that have important lessons for the economic theory of decentralisation.

In theory China's Township and Village Enterprises (constituting the fastest growing sector of the economy) have formal control rights vested in local government (and thus suffer some bureaucratic and political rent appropriation). But compared to usual state owned enterprises they face different incentives:

- there is vigorous competition because the local state cannot protect them from competitors;
- they face a hard budget constraint because they will not be bailed out by higher tier fiscal or credit authorities;
- there is residual claimancy (ie equity) status, under which the local government gets to keep the profits.

The result is what Qian and Weingast (1994) call: 'market-preserving federalism', 'unique among developing countries as an institutional mechanism of effective economic decentralisation'. The key aspect of Chinese institutional arrangements is that local government is compelled to be self reliant and fiscally prudent while also, following Deng's exhortation, 'getting rich gloriously'.

(In contrast, in India, the main achievement of the left-wing government of Bengal has been to organise poorer groups to get a higher share of wealth flowing from the centre. What the Bengal government has not succeeded in doing is in mobilising resources for self-reliant development).

Sah and Stiglitz (1986) argue that local government accept too many bad projects (type II errors) whereas central bureaucracies reject too many good projects (type I) errors. But in China the market process help discipline the type II errors. They argue that the most difficult part for a decentralised democracy is to adhere to a hard budget constraint; when a publicly sponsored local enterprise is in danger of folding with many livelihoods at stake, the pressure on politicians for a bail-out is likely to be irresistible.

6.3.8 Decentralisation and participation

In the few econometric studies which are convincing (most are not because they suffer from the simultaneity problem) there is evidence of a strong causal relationship between project participation and project performance. Nonetheless, Bardhan (1996) argues:

> 'In general one should resist the temptation to romanticise the value of decentralised participatory development, as is common among those I have described as 'anarcho-communitarians'... We have seen that such development, for all its undoubted advantages, cannot resolve some major equity and efficiency

problems. In particular, in situations of elite domination of local governance structures, the benefits of percolation to the weaker sections of the population will be slow and uncertain'.

6.4 *Political arguments for decentralisation: a critical review*

6.4.1 Conflict resolution

Devolution of power can provide a rule-based system for getting opposed groups to work together. It does this by effectively guaranteeing each major sectional interest some minimum share of power although the boundaries between these share will continue to be contested (eg Uganda, Ulster). In Uganda decentralisation is explicitly a mechanism for forging national unity after decades of civil warfare.

6.4.2 Political exclusion

However, decentralisation can lead to exclusion of less powerful groups (castes, ethnic minorities, occupational categories). These might be able to afford to lobby national government at a significant scale, but are too fragmented to be able to mount lobbying of local governments. So minorities which are geographically dispersed may benefit from the centralisation of power, so long as the system is democratic

6.4.3 Corruption

There is a tension between increased local accountability and the possibility of local level collusion in corruption. Essentially there is a tension between two different routes to dealing with local level corruption: first, increased upwards accountability, versus second: invigorating local democracy and making decision making as transparent as possible. (Ironically, in the first few years of increased openness in government, people can gain the incorrect impression that corruption has increased, because more of it is being exposed). Studies in India have suggested that a key condition for effective local democracy is not only regular elections but enhanced access to key decisions by public participation in public hearings on major items of public expenditure.

6.4.4 Unclear authority structures

A general difficulty is that decentralisation measures are resisted by central government politicians and bureaucrats, leading to dual authority structures and overlapping jurisdictions. Often the intentions of political decentralisation are stymied by the consequences of continued fiscal centralisation.

Sometimes interference from the centre is motivated by the best of intentions, ie, an unwillingness by central government to accept the increased inter-regional inequality which is a by-product of genuine decentralisation, or an attempt to maintain service standards through monitoring and penalties. The inference from this is that a particular decentralisation exercise needs to be informed by a fully developed economic and political model. The case for the allocation of particular categories of control rights has been argued with reference to the economic and political theory set out here, not simply on emotionally based arguments for autonomy or independence.

6.4.5 Democracy, accountability and service quality

It is possible for the institutions of local democracy and accountability to be weak, even in states which are democracies at the national level. An example is Drèze and Saran's (1993) studies of China's better performance than India's in local primary education. In India, institutions of local democracy do not give villagers the means to correct for failure in the performance of salaried teachers and health workers, whereas in China local Communist Party leaders have sometimes been quite sensitive to local needs and have exacted a better performance from teachers and doctors. But where in parts of India there have been reforms of political accountability at local level, the performance of local public service providers has improved.

6.5 *General conclusions about decentralisation*

The main dilemma arising from decentralisation has been summarised by Bird (1995) 'Central government may not know what to do. Local government may not know how to do it'. For Ghana, two recent articles have emphasised these constraints in practice. Firstly, according to Larbi (1998) the design of decentralising reforms need to be sensitive to the operational context and capacity of the institutional structures, and implementation needs to be planned and managed. In the case of health services in Ghana, the capacity of the administrative centre was considered to be too weak to perform its integrating, coordinating and monitoring role effectively.

Secondly, in coastal areas of Ghana, District Environmental Management Committees were found to be falling short of the role envisaged by government, having minimal real impact at village level (Porter and Young, 1998). The authors added that Ghana faces enormous difficulties in securing popular participation.

However, successes have been noted. The aide memoire to a DFID report (Abdulai, Atta-Agyepong, Boye-Doe, Scott and Seath, 1998) on a District-level initiative in Brong Ahafo Region recorded that :

> 'The project has played a significant role in Wenchi District in promoting institutional change in the context of decentralisation. The adoption of participatory approaches is an important aspect of this institutional change. There is clear evidence that agricultural information and training services in Wenchi District have become increasingly demand-led and better reflect the priorities of farmers' p. 2.

Among the recommendations of the report was that DFID should appraise with the Government of Ghana the scope for working with the local District Assembly (and three or more other district assemblies) further to develop sustainable systems for providing agricultural-related services to poor rural communities.

Conclusions about the potential for decentralisation can be drawn:

- control rights should be assigned to the people who have appropriate information and incentives, subject to economies of scale and scope;
- accountability should be designed to fit with control rights. Otherwise the perverse result may be observed that non-democratic states can produce better governance. This is because hierarchical coordination can sometimes produce better results than a

democracy in which accountability and control rights are not well matched;
- local democracy should not just be based on elections, but on processes of government which are as local as possible. In developing countries with low literacy levels and limited media, this must include strong emphasis on local public hearings about key issues;
- the general point about limitations of the state due to lack of access to information, weak accountability and predisposition to wasteful rent seeking is a powerful consideration in institutional design.

Even in a strongly decentralised state, a minimum programme for central government should include:

- provision of supra-local support;
- management of technical and professional services where the minimum efficient scale is above that achievable at local level;
- acting as watchdog for service quality, standards, evaluation and auditing;
- investing in larger infrastructure;
- coordinating where there are jurisdictional externalities.

It is important to face honestly the likelihood that some increased inter-regional inequality in the funding of services has to be tolerated as a price of genuine decentralisation. From this point of view the lower level of public funding has to be balanced with the greater efficiency gains from local information, local accountability and freedom to experiment in service delivery and institutional innovation. China's experience shows institutional arrangements can be devised under which decentralisation can massively improve local government's support of economic development and provision of local services.

Finally, it was concluded above that a particular decentralisation exercise needs to be informed by a fully developed economic and political model in which the case for the allocation of particular categories control rights has been argued through with reference to the economic and political theory set out.

6.6 *Implications for agricultural marketing*

A powerful general argument to be kept in mind is that markets can fail as a coordination mechanism when private information renders individual market contracts incomplete or unenforceable. So, in theory, local communities may be able to provide more efficient coordination mechanisms than the market. This provides justification for local government, at least, to think about playing a role in organising on a community basis:

- improving agricultural input access and finance;
- facilitating the provision of agricultural price and marketing information;
- provision of agricultural production and marketing insurance services.

These are subject always to taking full account of the limitations of the state due to lack of access to information, weak accountability and predisposition to rent seeking.

Decentralisation should assist institutional innovation to support the development of agricultural marketing:

- by giving greater local flexibility to search for and implement locally appropriate solutions to production and marketing constraints;
- providing a higher level of investment in public physical market facilities, if necessary;
- ensuring that local government has necessary legislative power over contracts.

However, recommendations must be considered alongside a dispassionate analysis of the capacity of local government:

- is there the necessary expertise to design and monitor institutional innovations in marketing?
- is there the likelihood of 'élite capture' of local government resources (ie is democracy sufficiently open to meet local needs)?

Feasibility of implementing local solutions will be constrained by resources:

- local government may suffer a decline in overall financial resources;
- local government may have very limited scope for local revenue raising, and therefore may be tempted to tax trade in ways which damage agricultural marketing;
- one local government may experience coordination problems with neighbouring local governments when there are externalities from local policy initiatives (eg avoidance of contract documentation by moving deals just across the jurisdictional border).

7 Special characteristics of horticultural produce

Food products differ from other goods in that they are bulky and of relatively low value. They are often subject to national policy and international trade effects. Most importantly, they are derived from biological processes that give rise to important characteristics. Jaffee (1995) has highlighted the significance of the intrinsic technical and economic properties of food products which tend to increase transaction costs and exacerbate marketing problems, particularly in developing countries.

7.1 Technical and economic characteristics of food products

Important characteristics of food products that apply particularly to the horticultural sector are:

- variability in supply/demand balance due to inter- and intraseasonality effects in supply (and maybe demand) due to natural (meteorological/climatalogical) causes; producers' supply response to prevailing and expected economic conditions; and annual/perennial and life cycle effects;
- some products have a particularly high dry season dependence on irrigation;
- geographical dispersion of supply from small scale production;
- relatively intensive production systems (inputs/outputs per hectare);
- relatively high female participation rate in production and marketing;
- high price fluctuation;
- heterogeneous quality (unstandardised shape, size, colour) due to growth processes, varietal effects and other natural causes;
- multiple quality attributes (physical size and appearance, flavour, smell, juiciness);
- different degrees of perishability - susceptibility to peri-harvest losses from physical (mishandling), physiological (ripening and maturation) and biological (pest and diseases) causes.

7.1.1 Fresh fruit and vegetables

Fruit and vegetables, like other fresh products, manifest these characteristics to a greater degree than other products such as staple cereals, and processed products such as bread and oils. Lack of storage facilities (such as refrigeration) and purchasing power means that they tend to be bought daily and in small quantities. They are generally purchased fresh by the final consumer, and are not easily subject to transparent grading and standardisation functions. While some products are eaten fresh, most vegetables are subject to some form of processing (eg cooking) before final consumption. In addition, some products are amenable to processing for preservation, including vegetables.

Risk of economic loss to market participants is high, as is the scale of loss, because horticultural products are relatively high value compared with other food products.

7.1.2 Alternative end-uses

Home consumption

For the producer of horticultural products there is limited end-use flexibility. Switching between home consumption and commercial production mid-season is problematic

because storage is infeasible. This increases the specificity of investment and the sunk element of the costs of vegetable production.

Export

Switching to export production is not theoretically infeasible, and research is being conducted into incorporating smallholders into developed economy supply chains. However, the technological and economic barriers are formidable and entry by smallholders into export markets is difficult in practice.

In Ghana the NGO Technoserve is aiming to increase the participation of smallholders in dynamic export sectors, including that for dried peppers, but as yet the genuine alternative market outlets are constrained.

Export markets are not considered directly within this project.

Processing

Processing agricultural products is a means to reduce bulk and perishability, add value and convenience, and create alternative end-uses. Jaffee and Morton state that 'food processing is the largest single component of the manufacturing sector of most African countries.' (Jaffee and Morton, 1995b: 111). They identify four categories of private sector post-production activities:

- simple trade, such as the purchase and sale of raw milk and fresh vegetables;
- intermediate activities, such as refrigerated transport and packaging of fruit;
- artisanal processing, such as cheese-making and sun-drying of horticultural products;
- industrial processing, such as canning and pasteurisation.

Although the information base for examining private sector involvement is very poor, the informal sector in SSA is vital in meeting the demand for processed and ready to eat foods, particularly in urban areas. Clark (1994) has documented the involvement of petty traders of processed foods in Kumasi market as a process whereby an important 'snacking' service is provided to market wholesalers, retailers and consumers.

The market potential in SSA in terms of size is considerable, and growing. Potential in terms of the demand for value-adding activities in fruit and vegetable marketing may be more restricted: purchasing power and preferences create demand for Jaffee and Morton's 'simple trade' and artisanal processing' rather than high-value industrial transformation. However, the segmentation of markets is likely to increase as incomes rise and consumer behaviour evolves, and as domestic entrepreneurship stimulates innovation in food delivery systems.

Research is being conducted into farm-level production of tomato paste by the University of Science and Technology, Kumasi, and the multinational Heinz is involved in trials of tomato varieties for industrial purposes in Wenchi, Brong Ahafo Region.

In Zimbabwe, smallholders are able to dry some crops as a means of improving their shelf life. Products that are sun-dried and sold by smallholders include cabbage, spinach, rape, pumpkin and cowpea leaves, choumoellier, okra, tomatoes, chillies, paprika and ginger.

Commercial opportunities for the drying of vegetable and fruit products have been thoroughly investigated by Murphy (1996). She identified a number of different markets for different dried vegetable and fruit products, including:

- rural informal markets, general stores and urban informal markets, used by a variety of low income consumer groups;
- urban supermarkets, used by residents of various income groups;
- food and craft boutiques and health food stores, catering for high income urban consumers;
- processors using certain dried vegetables in soups;
- institutions and mines, which are generally supplied by commercial farmers and wholesalers.

However, Murphy observes that market demand for dried products is universally slow. Except for a limited number of niche, luxury products which are not produced by smallholders, dried products tend to carry a 'poor man's stigma'.

Gordon (1997) noted that large-scale food processing in Zimbabwe is largely supplied by smallholders, but is also largely restricted to tomatoes and peas. In the case of tomatoes, canners require only plum tomatoes, which, whilst they are grown for sale in fresh produce markets, have less taste than other types, so fetch a lower price. Canners prefer to develop contractual arrangements with suppliers and are not able to absorb periodic gluts from fresh markets.

Thus, while the processing of agricultural products is the basis of the manufacturing sector in SSA, the processing of horticultural products is less important. The processing methods applied to fruit and vegetables are limited and low technology, such as the drying of tomatoes, peppers, green leaves; drying and pounding of starchy root crops such as cassava and yams; and pressing of edible oilseeds for cooking oil, and tomatoes for paste. Effective demand is for daily supplies of small quantities of fresh produce, and processed products are sometimes perceived as inferior (Gordon, 1997). Within these constraints, the development of new indigenous processing industries that aim to meet domestic demand is more likely than exploitation of export markets.

7.2 Information problems

The complexity of informational problems associated with fresh produce is multiplied compared with that of staple foods. The effects on production and marketing of the specific characteristics of fruit and vegetables include a high level of risk and uncertainty and an increase in the informational problems and transaction costs.

The highly variable inherent characteristics of horticultural produce require correspondingly high standards of storage, transport, processing and grading, and product information which must be accurate and timely, if not immediate, in order to minimise the exposure to physical and economic losses. In the horticultural sector, data collection and processing are made difficult by the lack of uniform weights, measures, and common grading and quality standards for fruit and vegetable products. In delivery, the information needs to be disaggregated to be meaningful in markets that are often segmented geographically.

While analysts and policy makers are most concerned with 'historical market' information, 'current market' (price) information is usually the focus of attention from traders and particularly producers (Shepherd, 1997b). There is the perception that more accurate data on current market prices confers greater bargaining power and prevents opportunism. The price volatility noted in all three countries, in which marketplace prices commonly fluctuate by the hour and by up to 100% within a day poses almost insurmountable problems, as noted in section 4.

Besides immediate information about product quantity and quality, producers and traders need to be aware of alternative market channels and outlets. Market systems for fruit and vegetables are often more complex than those for staple foods. Returns to producers and traders are affected by their knowledge of alternative supply channels and market outlets, and the ease of access to markets. Their choice among competing channels and markets conditions the profitability of trade, as do the organisational characteristics of market participants (for example, be they individual or associative), and by their level of business skills.

8 Country reviews

8.1 Ghana overview

After a post-independence period of relative prosperity during the 1960s, most economic indicators point to a progressive decline in Ghanaian living standards from 1976 to 1983. The macro Economic Recovery Programme (ERP) began in 1983 and a Structural Adjustment Programme including sectoral policies has been in place since 1986. As a result of the programme implemented in 1983, the economy grew at around 5% per annum from 1984-1992, but growth began to decline again in 1992. During this period, agricultural performance has varied, and the shift towards market management has continued.

The recent ESAF agreement with the IMF has provided a framework for good economic management and structural adjustment. Ghana still faces important development challenges: incomes and life expectancy are low, agriculture contributes 40% of GDP and 70% of employment, rural services and resources are poor, market access opportunities are inequitable, there is gender inequality, age-inequity, environmental degradation and pollution (Department for International Development, 1998b).

In the case of the RNR sector it is argued that 'There is a widely held view that the missing link in realising sustained growth is the weak integration of the production-marketing system' sector (Overseas Development Administration, 1995: 7). The constraints facing the public sector institutions are also a factor reducing their efficiency and effectiveness. Increasing reliance on the private sector, and decentralisation of public sector functions to District level are relevant parts of the response to the weaknesses of the state.

8.1.1 The agricultural sector in Ghana

Agriculture is mainly traditional, with the structure of production dominated by smallholders using low levels of technology. Women play a key role in agriculture and in the general economic life of the country. They constitute about 47% of the labour force and are reputed to account for about 70% of total food crop production. There are increasing indications of land scarcity, such as reduced fallows and rotations, a shift to low input crops, migration to high potential areas such as Brong Ahafo. Most agricultural products are sold not on a basis of agreed weights, volumes or grades. Among the disadvantages of the non-use of weights and grades are the increase in transaction costs, inability to enter international markets, elimination of low quality produce, and depression of market prices by inferior produce.

Among the national constraints to developing the rural sector, the rural transport system is considered to be grossly inadequate, inflicting high costs for transport, trading and processing. Regarding telecommunications infrastructure, lack of access to telephones raises costs for accessing market information and also for transport. The existing market information gathering and dissemination process of the PPMED of MOFA is weak and small in terms of coverage.

8.1.2 AGSSIP

'Ghana: Vision 2020' is a major policy document directed towards the transformation of Ghana to a medium income economy by the year 2020 (National Development Planning Committee, 1997). The basic themes include macroeconomic, sectoral and human development objectives. Major emphasis will be placed on agriculture, which accounts for more than 40% of GDP and more than 50% of employment. The UK Ghana Country Strategy Paper 1998-2001 supports this vision (Department for International Development, 1998b).

AGSSIP is the main instrument for implementing the Accelerated Agricultural Growth Strategy (AAGS). AAGS is designed to increase the sector's annual growth rate to the level of 5-6% which is necessary to achieve the goals of Vision 2020: the transformation of Ghana into a prosperous middle-income country by the year 2020. Further details are given in the Appendix to this section.

8.1.3 Horticultural marketing

Overview

Vegetable production is the latest in a series of commercial agricultural enterprises, following rubber, cocoa and maize, that have been practised in the Brong Ahafo Region. Brong Ahafo is now an important source of vegetables for urban centres and the Region has the potential to supply larger quantities of a greater range of vegetables to markets such as Accra. Approximately 60% of the local population is said to be engaged in vegetable production in one way or another. The participation rate of women is high both in production and trade.

In terms of production and consumption, the two most important vegetables are tomatoes and garden egg. Other important crops are pepper and okra. A major feature of horticultural marketing is seasonal gluts, wildly fluctuating prices and considerable physical losses. Vegetables should not be regarded as a homogeneous sector. Crops differ in production systems, perishability, marketing systems, and this has implications for the research design.

Latterly, horticultural marketing in central Ghana has been the subject of a number of studies connected with the Integrated Food Crop Systems Project in Sunyani, an adaptive research initiative begun in 1994, which identified vegetable production as an important and increasing part of Ghana's farming systems, providing both income and food security (Orchard and IFCSP Team, 1997). The crop post-harvest element includes analysis of the marketing system. There has been a strong focus on tomato, the major vegetable in terms of commercial production, with substantial work on garden egg, and less on okra and pepper. These four crops constitute the major traded vegetables produced in Brong Ahafo. There are considerable data resources already available within the reports of the IFCSP (Ashitey et al., 1994; Schippers, Suglo, Bruce and Kuffour, 1994; Sherington and Suglo, 1994; Warburton and Lyon, 1995; Floyd, Warburton and Gray, 1996; Lyon, 1997; Lyon and IFCSP Team, 1997; Lyon, 1998; Lyon, undated).

Farmer-trader relationships

Farmers do not generally 'market' their produce, but traders go to farmers, except rarely when a buyer does not turn up or they cannot agree a price. At times, and in some villages, producers are able to form bargaining associations that also have negotiating, monitoring and enforcement functions.

The role of traders in the system is of paramount significance. Traders' associations or commodity-specific groups are the major channels between producers and retailers and exert considerable control over the urban market place in each town or city. Clark (1994) spent some years conducting an economic anthropological study of the lives of traders in Kumasi Central Market. In Kumasi the locus of power lies with the large wholesalers from among whom is elected an *ohemma*, commonly translated as market queen or queen mother.

Apparently village markets are open to anyone. The structure of marketing drives the production characteristics, and imposes important rigidities on the vegetable sector. Such specialisation has at least short term economic advantages. However, it also encourages monocropping and agronomic practices that are likely to be unsustainable in the long term. Specialisation from traders also limits the economies of scope in marketing and increases the transaction costs (search, negotiation and enforcement) and transformation costs (particularly transport) of assembly and bulking from many dispersed small-scale producers. For farmers wishing to sell more than one vegetable crop, transaction costs are also increased.

There is evidence that trading relationships become 'clientised': wholesalers, retailers and even consumers tend to engage in repeat dealings; individual producers or villages also gain a reputation for producing large quantities of good quality of a specific vegetable. Lyon (1998) commented on the role of trust between buyers and sellers.

Clientisation serves as a market strategy to reduce the impact of informational imperfections. Clientisation will reduce uncertainty about buyer and seller market conduct (opportunism) and may reduce the risk of price uncertainty, thereby obviating the need for better short-term S&D information. Clientisation will also provide farmers with the long-term market information. Both effects result in reduced transaction costs and more efficient marketing. Clientisation may make trading more predictable, thereby reducing post-harvest losses and moderating market disequilibria.

Traders (and commission agents in the urban markets) do more than assemble and distribute physical produce. While the physical product flows in one direction, traders provide payment, credit, information, seeds, agrochemicals, extension, and packaging materials (boxes and sacks) to farmers.

Because traders travel more, they are better informed than farmers, and farmers' strategies to overcome the asymmetry include detailed bargaining to extract information. The withholding of price information is regarded by farmers as cheating. The most important source of information is neighbouring villages or key production locations within the producing area, to where farmers send for information. Kumasi serves as a major relay market, urban consumption centre and information centre for traders.

The tenor of the IFCSP reports is that there is the expected imbalance in power between producers and traders, due to their smaller economic scale, passive marketing strategy and on-farm sales, lower level of information, constrained access to transport, seasonality of production and dependence on credit. However, Clark (1994) is at pains to note that there is a dynamic interdependency between producers and traders and that these same factors operate to the advantage of producers at different times of the year. Traders need a supply of an assured quality and quantity of produce, a good reputation, and from time to time, credit. A commercial relationship with farmers of an exploitative nature would be only a short term strategy. It has been noted by both Lyon and Clark that price and margin fluctuations vary throughout the year and that at times, traders have negative margins, and can sustain losses.

Information and training

Carter has described an 'information famine' among smallholders in SSA. In DFID-funded research, she sought to examine the sources, types and impact of printed agricultural information available to smallholders and farmer groups in Ghana and Uganda (Carter, 1999). She highlighted the importance of informal channels of information flows among smallholders, and barriers to information arising from intracommunity social heterogeneity. She classified information sources among a sample of smallholders as follows:

Table 2 Types, sources and use of agricultural information by smallholders - Ghana

Type	Source	%
Endogenous	originating within the group	42
Indigenous (local)	originating within the local community (incl. experience and observation)	12
Exogenous	outside of the local community incl. public sector and NGOs, radio and travel)	46

Adapted from Carter (1999: 47).

Farmer groups were identified as an important potential pathway for dissemination of agricultural information in printed form. She proposed also exploiting newer information technology media such as the Internet and satellite telephones.

An output from the DFID-funded project R6730 is a training manual for participatory methods for agricultural research and training (Galpin, Dorward and Shepherd, 2000). Similar methodologies may be appropriate for training in post-harvest management. Given the 'information famine', the high level of activity of farmers' associations and other indigenous and international NGOs (eg Technoserve) throughout Ghana, and the expertise in local generation of materials Carter (1999: 47), traditional printed media have considerable potential for farmer training.

Prices

Marketing and price issues have been widely identified as important. This appears to be because of seasonal gluts in supply due to simultaneous production and ripening of produce rather than changes in demand. Another factor may be the impact of the weather on transport to market: off-road transport is curtailed by rain, and supplies will be reduced.

The value of price analysis in Ghanaian fresh produce markets must be seriously questioned. Prices fluctuate considerably even within a day, quality is not standardised, and quantities traded are affected by the practice of what Lyon calls the 'dash':

> 'Retail prices are usually fixed for the day for a given quantity but retailers try to attract customers by changing the quality of the produce, the size of the piles and gifts (dash) given after the sale has taken place..... The size and quality of the dash depends on the relationship between the retailers and the buyer and it is important in retaining the customer. It is often as much as 50% extra although it may be of lower quality ..... this creates serious problems for the collection of retail prices and any such data should be treated with caution' (Lyon and IFCSP Team, 1997: 53).

The implications about the reliability of price analysis are clear and are relevant not only to market analysis but also to the provision of information. Market price information based on such data is unlikely to meet producer requirements for relevance, reliability and impartiality, and timeliness. Moreover, the response by producers of perishable crops to even good quality price information is constrained. In the short term, supply is highly inelastic: they must harvest when produce is ripe and sell once the produce has been harvested. Any increase in bargaining power by means of access to knowledge of (current) market prices is attenuated by the need to sell.

Demand

Market destination has an influence on quality requirements and losses. Is it for salad or soup? Accra markets were more demanding with respect to quality, and greater losses were found. Ga people in Accra prefer the white garden egg which is diced. Akan-speaking peoples prefer the riper varieties, which they grind. In the local markets in Brong Ahafo and in Kumasi, even poorest quality produce is marketed. Quality grades vary with season and supply. If unsold, drying is an option, seed extraction, and home consumption.

Further research

Lyon (1997) is the major source, a résumé of most of the work to date on the structure and strategy of the marketing system. Various questions were raised for further analysis, particularly to do with the need to conduct further research on clientisation, or customer relationships:

- how have they developed?
- how can they be encouraged?
- what is the importance of interlocked transactions (inputs and credit)?
- what is the role of farmer and trader organisations, such as those in Awisa, Nchira, Offuman?

- A concern arising from the IFCSP workshop held in Sunyani in 1998 (10-11 September) concerned the role of farmers' associations and their potential to increase farmers' bargaining power. It is unlikely that bargaining power can be increased, but the important of clientisation may rest in assuring market access and outlets throughout the season.

8.1.4 Appendix: AGSSIP

The Agricultural Services Sector Investment Programme (AGSSIP) derives from the Sector Investment Approach to developing an integrated programme of government and donor expenditures, in this case for the agricultural sector in Ghana. The public sector will provide an enabling environment for the private sector to boost agricultural production, processing and exports.

Major elements

The major elements of the AGSSIP cover policy reforms, institutional reforms and investment programmes for:

- improving access to markets and promoting the production and export of selected commodities;
- facilitating access to agricultural technology;
- facilitating and increasing access to rural finance;
- providing rural infrastructure and utilities; and
- building institutional capacity.

Wide stakeholder participation has been undertaken prior to and during the preparation of the AGSSIP proposal. Final appraisal by donors was planned to be undertaken in October 1998, but adoption was delayed and the formal status of the proposal is unclear at the time of writing. Its significance is fundamental, nonetheless.

The focus of the strategy will be geared towards making agriculture attractive as a vocation and contributing substantially to food security and national income. The SIP approach is predicated on the full involvement and coordination of the activities of all sectoral stakeholders. MOFA is charged with the specific responsibility of increasing contact at all levels with private trader and producer associations for inputs and outputs to ensure that future policies and programmes are as effective as implementable in supporting private incentives and capabilities.' (p. 45).

Decentralisation and participation policy is the GOG strategy to ensure participatory development in the country. Decentralisation transfers hitherto diverse central government responsibilities to the District Assemblies within one administrative unit. The District Assembly is the planning authority, charged with the overall development of the district. MOFA's activities will also be decentralised. The Regional Agricultural Development Authority is headed by the Regional Director of Agriculture. The RADU's role is to supervise, coordinate, monitor and evaluate all agricultural development programmes in the region.

The District Director of Agriculture is the administrative head of the District Agricultural Development Unit, which will become a Department of Agriculture of the District Assembly. The District Agricultural Coordinating Committee (DACC) should be formed with a mandate to address all issues of the Accelerated Agricultural Development and Growth Strategy in a holistic approach. The District Agricultural Coordinating Committee model seems to have worked well in Wenchi: 'The DACC has proved itself to be an effective means of ensuring stakeholder involvement' (Department for International Development, 1998a). However, it has its limitations, including replicability. Overall

administrative capacity of MOFA is regarded as weak, and this, if true, would surely be a constraint to decentralisation.

The traditional trading system

It is acknowledged that the traditional trader is present in all the food lines as the main intermediary of the marketing chain. 'The system of operation of these traders in their respective food lines should be studied to enable interventions that would facilitate and make their activities more efficient. Consideration should also be given to possibilities of assisting them to increase their level of operation.' (p. 61-2). Strengthening of entrepreneurial skills is considered crucial in order to develop the necessary business skills, not only for traders but also for farmers. Physical market infrastructure needs to be managed and improved.

Creation and strengthening of existing (voluntary) traders associations needs emphasis, particularly in relation to their use as vehicles for marketing development and marketing extension work. The potential of such organisations should be tapped to maintain quality standards, manage physical infrastructure, keep market records, plan and develop appropriate projects, collect revenue, serve as a channel for education, communication and information purposes.

Nucleus outgrower scheme

The nucleus outgrower scheme as is being practised in the oil palm industry is to be introduced into non-traditional agricultural products (fruits, vegetables, cashew nuts and maize) to facilitate the Export Diversification Programme. 'The scheme proposes the identification and selection of satellite farms in strategic locations for the various crops. These should be assisted to build a strong farmer cooperative which would be further assisted to secure credit facilities and purchase inputs in bulk. The scheme would facilitate the dissemination of new technologies and marketing.' (p. 81-2). The scheme is envisaged also as the basis for the Programme for Sustainable Food Security and Employment.

In Carter's work, 'animators' were seen as key figures in initiating and enhancing group functions (Carter, 1999), a result consistent with the AGSSIP ideals.

Market information systems

Market information gathering, analysis and dissemination should be strengthened. Market information should be disseminated in the local markets through the use of billboards, public address systems, marketing associations, in addition to the present system of radio and newspaper advertisements.

The Ministry of Food and Agriculture (1997) is more explicit about improvements to agricultural marketing and information systems. In Section 3.4 Marketing and information (pp. 15-16) the recommendations included:

- to study current agricultural marketing practices and remove exploitative elements;
- extend the use of radio to broadcast information through public-private enterprise collaboration;
- provide production and market information to farmers' associations through fortnightly bulletins of MOFA or District Assemblies.

Vegetable crops

Vegetable crops constitute one of the seventeen prioritised commodity programmes of the 1996-1998 Medium Term Action Plan (MTAP) of the National Agricultural Research Strategic Plan (NARSP) of the National Agricultural Research Project (NARP), initiated in 1991. It has been suggested that the current NARP should be continued and the present MTAP should be extended to five years. Continuing activities will include research on non-traditional crops covering the production-consumption continuum, including international markets. 'Our strategy is to enhance export diversification and help alleviate the poverty of the populace, especially the rural population.' (p. 69).

8.2 Tanzania overview

Tanzania has consistently ranked among the world's poorest economies dropping from 14th lowest GNP per capita in 1982 to second lowest in 1990, with a rate recorded at US$110 (Messkoub, 1996). More recently the GNP per capita has increased to US$210 bringing the country to 127th place out of 133 (World Bank, 1998). Agriculture is the main economic sector, accounting for 17 per cent of the full-time employment, 45 per cent of GDP and 53 per cent of the value of exports (United Republic of Tanzania, 1994). However, the level of technology is relatively low, with low levels of use of both organic and inorganic fertilisers, credit and improved seeds. The agricultural systems however, are highly varied with highly capitalised production mixed with low technology, small scale production.

Bryceson (1993) noted the strategic importance of food marketing to the Tanzanian economy, while at the same time explaining that traders have been seen by Tanzanians as pariahs for decades. She suggested that this contradiction could explain partly why food production in the country has remained primarily a subsistence activity and why surplus production for sale has been difficult to encourage. Hyden (1980) suggested that the difficulties in encouraging smallholders to produce for markets have arisen from a fundamental mismatch between the motivation of the state and the markets on the one hand and the peasant farmers on the other. Much of the activity in relation to horticultural production and marketing is not necessarily motivated by a purely economic logic.

8.2.1 Horticulture in Tanzania

Horticultural crops are produced throughout Tanzania, mainly on a small scale, with vegetables accounting for an estimated 318,000 hectares in the 1988/89 growing season and fruit for 1,650,000 hectares. The main regions are the coastal belt, the central plateau, the Lake zone and the highlands. This is mainly due to the coincidence of favourable growing conditions, high population densities (providing a concentration of consumers) and relative proximity to large urban markets (FAO, 1994). One of the major problems for producers and traders alike is the seasonal peaks and troughs in the market (Lynch, 1992).

Recent surveys have identified considerable, and as yet relatively untapped, potential for horticultural export production, and there is a growing number of businesses exporting horticulture and processed horticultural products (Minster Agriculture Ltd., 1988; Amka Trust, 1997). The Tanzanian government are increasingly interested in the potential that these 'non-traditional export crops' may afford in extra foreign exchange earning capacity.

Much of the research that has been published on food production and marketing in Tanzania, and indeed throughout the world, focuses on staple foods because of their strategic importance in food security. Fruit and vegetables have been neglected although the sector accounts for half of non-staple food production in Tanzania. In some of the key production areas, such as parts of Morogoro and Tanga Regions fruit and vegetables can represent the dominant crops. This section brings together some of this research with a view to evaluating the post-harvest aspect of the fruit and vegetable supply chain and in particular the role of market information in the marketing of these commodities.

A result of a number of studies of a wide range of urban food markets in Tanzania is that, like Ghana, despite the apparent disorganisation and under-capitalisation of the private markets, they have proved capable of assuring supplies to large urban areas under adverse circumstances and have constantly enabled farmers to adapt to urban consumer demands.

8.2.2 Constraints

A recent industry review conducted by the MDB identified the main constraints of fruit and vegetable production as limited supply of good quality seeds, the high costs of agrochemicals, and poor marketing infrastructure and insufficient market information among traders and producers (Mbelwa, 1994: 8). The report goes on to recommend studies to ensure that a more comprehensive understanding is gained of the industry. However, a recent consultants' report on the industry, while presenting a comprehensive study on certain aspects of the industry, devoted only one short paragraph from a 90 page report to the issue of market information (Kiriwaggulu, Mbelwa and Mashamba, 1996).

Market information

Among a number of recent studies on urban and peri-urban agriculture and horticulture in Tanzania, some have considered the issue of marketing, but few have devoted time to the issue of market information. Mascarenhas (1984), in particular, argued that the horticultural sector in Tanzania and in other sub-Saharan African countries is of strategic significance to the nutritional status of the population. He argues that there is an urgent need to gain a better understanding of the production and marketing of horticultural crops. An aspect of the current deficiency to which he alludes, is the inadequate information available about the markets.

Research conducted at the end of the 1980s on fruit and vegetable supply to the Dar es Salaam market showed that most farmers found radio broadcasts of market information more or less useless as the price at the Dar es Salaam wholesale market did not necessarily relate to the prices farmers could negotiate with rural buyers (Lynch, 1992). A later study also found that most horticultural traders found such radio broadcasts inadequate to their needs (Marketing Development Bureau, 1993). What traders mainly wanted from market information was the potential of new market opportunities.

8.2.3 Research issues

The studies on agriculture in Tanzania raise a number of research issues. These include the role of women, access to and control over productive resources, and informational constraints.

Women's role in agricultural production

It is estimated that women constitute about 70-80% of the rural labour force in Tanzania. This figure is not far from the overall picture of women in agricultural production in Africa which stands at 70% (Boserup, 1970; Tadesse, 1984; Dixon-Mueller, 1985). According to available information, it is said that about 70 % of the hoeing is done by women; 60% of the crop harvesting; 80% of the porterage of the crops from the field to hoe or storage; 90% of the food processing; 60% of the marketing of the excess products and 50% of planting (Omari, 1989). Moreover, women's working day is reported to be much longer than men's due to their dual productive role and reproductive roles, both of which are integral to the economic status of the household.

Access to and control over productive resources

Although women may contribute more labour than men, they often do not have control over productive resources. The Ujamaa Village Act gave the *de facto* continuous land entitlement to the male head of household (Stoas Agriprojects Foundation, 1996), and subordinated women to their husbands. Women have also often lost customary access to land through privatisation programmes which have registered land under the name of the male household head (Platteau, 1996). In times of stress or increased opportunity, women's labour can be appropriated by men for male agricultural enterprises but the reverse is rarely possible. Opportunities for women to supplement their incomes from export and cash crops, and from non-agricultural sources and casual farm work are far less widely available to women than men, because of their household responsibilities. Women also lack access to cooperatives, and to credit and agricultural inputs. In short, women are significantly more vulnerable than men.

The study by Stoas Agriprojects Foundation (1996) in Kipera village, Morogoro, provides valuable insights as regards how great a problem marketing represents relative to supply; and gender-differentiated constraints in production and marketing. PRA techniques were used and constraints ranked.

For both men and women, the biggest was lack of access to credit which limited access to capital for buying inputs, hiring labour and hiring of tractors. Lack of agricultural implements which limited the cultivated farm size and increased the drudgery of cultivation was ranked the second main constraint by both men and women. Extension services were ranked equally as a constraint by both men and women. The little information that was given was usually to men because it was the men who attended village meetings where usually such agricultural information was given. Visits at household premises for the purposes of delivering information were very rare, and when made it was usually the male farmers who were the recipients.

Market access

Poor market was ranked below supply side problems. It was revealed that men did not see poor market as a severe problem because they almost always found a market for their products. Women mentioned poor market as a constraint because of their inability to sell the food surpluses themselves from the farm because most sales were off-farm. Instead men had to carry their food surpluses to markets away from the farms. This reduces women's supply response to food production: since they do not control the income from sales made by men, they do not benefit from surplus food production.

Accessing product markets was also reported to be a problem for women because they usually lacked information on markets due to social factors and time constraints.

8.3 *Zimbabwe overview*

Horticulture has been one of the main growth areas within Zimbabwean agriculture since Independence in 1980. Growth has occurred within both the large-scale commercial (LSC) farming sector and the smallholder sector, although the former is better documented (Jackson, Turner and Matanda, 1997). Factors encouraging increased horticultural production for the domestic market have included:

- positively, rising demand in urban markets as a result of growing populations, rising urban incomes and changes in consumer tastes;
- negatively, declining profitability of maize production as a result of rising input prices and government policies restraining the maize producer price. This has encouraged both LSC producers and some smallholders on irrigation schemes to diversify their production activities (Gordon, 1997).

The existence of 'push', as well as 'pull', factors is important. Increases in supply have at least kept pace with growing domestic demand. As a result, wholesale prices of horticultural produce in Harare are little higher now than in 1980 and the Harare market, in particular, is extremely competitive. Smallholder suppliers have to compete with large quantities of high quality produce from LSC farmers[19].

Meanwhile, production of flowers, various vegetables and citrus (largely oranges) for export markets has also grown dramatically. Export production is accounted for almost entirely by the LSC sector, although efforts are now being made to increase smallholder participation through various outgrower schemes. Experience to date has been mixed, with significant extension efforts required before smallholder growers can meet the exacting quality requirements of European markets (Gordon, 1997).

8.3.1 Smallholder Horticultural Production

Smallholder horticultural production can be categorised according to type of crop or place of consumption and sale. It is helpful to distinguish three main types of produce:

- traditional;
- exotic (also consumed by smallholders themselves);
- exotic (sent entirely to urban or export markets)[20]

and three places of consumption and sale:

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[19] One consequence of this highly competitive market place and the presence of well-capitalised, sophisticated players is that smallholders looking to sell horticultural produce to Harare markets need to have a much more acute understanding of 'marketing' than is normal for producers at their stage of economic development. This understanding of marketing should include: market demand and requirements, timing and quality issues, and their competitive strengths and weaknesses as compared with those of other players.

[20] In reality, the latter two categories are not discrete alternatives. However, the extent to which smallholders are able to consume produce themselves if no attractive market opportunities are available is an important consideration in their choice of which commodities to produce.

- home consumption;
- local sale;
- urban markets.

For many households in communal areas, traditional fruits and vegetables provide a source of cheap, essential nutrients and income, as well as a source of reserve food during periods of staple food scarcity. As well as being eaten fresh during the rainy season at the start of the year, such plants are dried by many households and stored for consumption during the final months of the year - the so-called 'relish gap'. Small quantities of these dried products are also sold in both local and urban markets.

Nearly all communal households have a dryland vegetable garden or *dambo* (Gordon, 1997) to supply part of their own consumption requirements. Crops grown for own consumption include: tomatoes, rape other leafy vegetables (e.g. tsunga, covo), cabbage, onions, carrots, sweet potatoes, various squashes and pumpkins. As these crops are generally grown during the dry season, water supply is often a major constraint. In most areas of rainfed agriculture it is only households with better-than-average access to water that are able to produce a surplus which might be sold to neighbours, at the roadside, at local markets or nearby urban markets

On some irrigation schemes and on rainfed lands in parts of Mashonaland East province, a significant proportion of households obtain a regular cash income from horticultural marketing. In these areas, some households grow horticultural crops that are intended (almost) entirely for market, e.g. green peppers, garlic, cucumbers, butternuts and paprika.

In general, smallholder horticultural production for market is concentrated in the agro-ecological Natural Regions II and III. Natural Region II is home to only around 15% of all smallholder households and occurs especially in Mashonaland East and Manicaland. Additional marketed surplus is clustered around Bulawayo, Gweru and Masvingo (Gordon, 1997).

A 1996 survey of smallholder horticultural producers in X districts of Mashonaland East (Wien et al., *forthcoming*) found that, in addition to water availability, major constraints facing smallholder producers included pest control, transportation and marketing.

8.3.2 Marketing of Horticultural Produce

Within Zimbabwe, the demand for horticulture is dominated by Harare. Van Santen (1996), Boyd et al. (1997) and Gordon (1997) all describe the various marketing channels operating within Harare. The central horticultural market is Mbare Musika, which is divided into a producers' and a wholesale market. Together these handle somewhere between 280,000 and 350,000 tons of produce per year from both LSC farmers and smallholders, with smallholders supplying perhaps 40% of this (Gordon, 1997).

Less has been written about provincial markets. Masanganise (1995) has written about horticultural production for the Gweru market. Boyd et al. (1997) describe the structure of Bulawayo and Masvingo markets. Summarising the situation in Harare, Bulawayo and Masvingo, Boyd et al. (1997) argue that the marketing system is in all cases quite competitive - at some levels of the chain (e.g. production and retail) very competitive. Even where there are only a few wholesalers in a market, market power can only be

exercised in only a limited way due to competition between wholesalers, retailers and (in Harare) the producers' market.

Assembly activity by middlemen is surprisingly uncommon. Boyd et al. (1997) attribute this to lack of reliable surpluses and lack of trust and confidence, both between producers and traders and amongst producers. As a result, most farmers selling to urban markets have to organise their own transport, whilst those middlemen who do operate in rural areas are felt by farmers to offer unjustifiably low prices (van Santen, 1996).

Despite their competitive nature, Boyd et al. (1997) note that there are significant problems with urban horticultural markets. The principal of these is the large degree of price volatility. Producer prices, in particular, can fluctuate wildly, not only intra-seasonally, but from day to day and even within a given day, not only according to changes in the balance of supply and demand, but also due to the perishable nature of many horticultural crops and to problems of market information.

Markets around the country are not well integrated with each other, despite evidence of spatial arbitrage. Average weekly prices assembled by Agritex show major differences in the price of given crops across markets. Low levels of market integration are also found by Guvheya (reported in CIIFAD Annual Report 1996/7). Wholesalers at Sakubva market in Mutare suggested that shortages of capital are as important a constraint to market integration as imperfect information.

A major problem reported in provincial markets is unpredictability of demand. As well as supplying the immediate urban populations, some of these markets also supply neighbouring countries. (For example, produce may be sent from Bulawayo to Botswana and from Mutare to Mozambique). Boyd et al. (1997) note that some producers are reluctant to send their produce to provincial markets for fear of not being able to sell it. They would rather incur additional transport costs to send their produce to Mbare Musika producers' market, where they can be sure to make a sale, even if they have to take "pot luck" with the price. At the same time, produce may be bought at Mbare for transportation back to provincial centres.

The problem of demand unpredictability in provincial markets may indicate problems with the market information available to producers. Whilst the volumes sold in small provincial markets may not be sufficient to absorb production by LSC farmers, they can almost certainly absorb the production of smallholders. Indeed, provincial markets may offer a more conducive environment to smallholder horticultural production and marketing than Harare, because the competition from LSC farmers is less intense. During a visit to Mutare, traders that there are predictable, seasonal patterns of glut and shortage for certain crops. They also explained that they wanted to identify reliable smallholder suppliers, and were willing to advise farmers on crops and varieties to grow, along with optimal timings to take advantage of these market opportunities.

As well as commenting on the relative lack of rural assembly activity, Boyd et al. (1997) comment on smallholders' preference for sending produce to target urban markets individually, rather than collectively. They note that there are hidden costs to collective marketing activity, including monitoring the actions of the representative chosen to take the produce to market, who may not report prices received correctly. At the same time,

there are benefits to an individual from going to the urban market, including being able to observe prices for a range of goods and gaining the opportunity to do other business, such as purchasing inputs or consumption goods.

8.3.3 Marketing Information

The previous section has identified a number of marketing problems suffered by smallholder horticultural producers that are related at least in part to inadequate marketing information. Two broad problems can be identified:

Smallholders lack information on the market prospects and the alternative marketing channels available for different horticultural crops, that would enable them to make informed planting decisions. Periodic gluts of some crops in markets supplied by smallholders, accompanied by shortages at other times or of other crops, are held to be one result of this.

Smallholders also lack adequate information on current market prices for crops that they want to sell. This, it is claimed, results in them settling for unremunerative prices from middlemen or sending crops to the wrong market at the wrong time.

Market studies

The case of paprika production in Zimbabwe provides an excellent example of the need for better information to inform smallholders' production decisions. The CIIFAD 1996/7 Annual Report highlighted the prospects for paprika production, noting a favourable world market situation, and quoted an article from the *Zimbabwe Herald* predicting that production would increase from 15,000 to 25,000 tons over the following five years. Indeed, in 1997/8 area planted to paprika did increase significantly, with some farmers partially shifting out of maize in anticipation of a drought. By early 1998, however, there was something of a glut on the domestic market. Buyers were able to impose tough conditions before they would purchase paprika, for example regarding minimum quantities in a given consignment and the necessity of using irrigation technology in production (Agritex, 1998). These conditions greatly disadvantaged smallholder producers, making it difficult for those who had grown paprika to sell it, yet Agritex continued to receive enquiries from producers interested in commencing production.

The Marketing section of Agritex, established as a section in its own right in April 1998, was created to incorporate marketing considerations more fully into the extension recommendations provided by the organisation. The preparation of market studies, such as the one on paprika, and the dissemination of summarised findings to smallholders through extension agents is a feasible goal. However, the paprika case also shows the importance of such summaries being updated regularly - preferably on an annual basis - whilst the Marketing section at Agritex headquarters (still in its infancy) has so far only produced a couple of such studies. Attention may also have to be given to the means of disseminating findings of market studies, either through Agritex front-line staff or through other mechanisms.

Information exchanges

Another way of communicating the desired information to smallholders is to arrange meetings between different stakeholders within horticultural marketing systems. Smallholder farmer representatives could thus hear first-hand from traders, in the presence

of independent witnesses, what crops faced particularly good, current market opportunities and what the particular quality and timing requirements for these crops were. Such stakeholder meetings have actually been suggested by farmers in certain irrigation schemes in discussion with Agritex staff . The challenge would be to obtain sufficient coverage of production areas and to ensure that the relevant information was then disseminated through these areas.

Price information

A major activity of the Marketing section of Agritex since its establishment has been the collection and dissemination of weekly producer price data for thirteen commodities in nine urban market centres. Experience to date shows both the advantages and limitations of such formal price information gathering and dissemination. The advantages include:

- the extent of inter-regional disparities in commodity prices is revealed. This, however, is likely to bring advantages principally to traders engaging in inter-regional arbitrage and to consumers, rather than smallholder producers;
- extension agents report that some producers feel empowered in their bargaining with traders when they know what the average price was in the relevant market the previous week.

The limitations relate to the timeliness of the information provided. However, even speedy dissemination to provincial and district level by e-mail, assuming that the information is then efficiently disseminated from there, does not remove the limitation that what is being disseminated is data on average weekly prices for the crops and markets concerned. Smallholders sending their crops to Mbare Musika producers' start their journey the day before they sell their produce - will thus still be exposed to the unpredictable price fluctuations.

Farmer-trader cooperation

One possible way of tackling the problem of marketing uncertainty is the development of ongoing relationships between particular traders and groups of smallholders. Were such relationships to exist, one aspect of the development of trust might be that traders shared information about prices in target markets more freely, whilst there might even be some sharing of price risk when prices in the target markets temporarily fell. However, the conditions under which such relationships are likely to develop are quite restrictive. These include: that traders face (periodic) scarcities of particular commodities, and that the smallholders concerned can fulfil a commitment to provide regular supplies of the demanded commodities to the required quality.

It would appear that the chances of developing ongoing relationships between farmers' groups and traders in Harare markets are low. Traders can access supplies from a range of sources, so have little incentive to invest in relationships with particular farmers' groups, unless these can reliably supply significant quantities of high quality produce at quite short notice. The prospects for trader-farmer relationships may be brighter in provincial markets, where smallholders face less competition from LSC farmers, than in Harare.

9 Fieldwork

Solutions to informational problems are likely to arise from the evolution of market institutions that enable farmers to overcome the problems of uncertainty. Commercial relationships based on voluntary, private trade are the most likely source of institutional innovation, notwithstanding a limited but important role for local government. Testing for this involves explicit recognition of the importance of relational exchange, over and above spot exchange, and exploring the possibilities for improved coordination, for example concerning market times and places.

9.1 Methodologies: Ghana and Tanzania

9.1.1 Research methods and data collection

The research methods were eclectic, employing qualitative methodologies in order to capture the complex and particular characteristics and incentive structures of relational contracting, and will include case studies and key informant interviews. These methods build on a variety of existing reports. Existing quantitative data, for example those within the IFCSP in Ghana, are weak in parts and have not addressed directly the characteristics of producer and trader behaviour.

9.1.2 Ghana and Tanzania

The fieldwork methodology in Ghana paralleled that in Tanzania where the respective states of the horticultural sectors are comparable. In Zimbabwe, a different methodology was used to test for the potential for formal provision of 'market' and 'marketing' information.

In Ghana and Tanzania, there were three principal investigative approaches:

- formal surveys conducted among producers to establish farmers' information sources and needs, and testing for market orientation and access
- case studies of successful producer organisations;
- traders were interviewed to identify the incentives for closer vertical coordination with producers.

Further details are given in the Country Reports.

9.1.3 Zimbabwe

The research approach in Zimbabwe adopted a four stage process of needs identification, market(ing) research, dissemination of information, and monitoring and evaluation of the exercise.

Further details are given in the Country Report.

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